

Medication errors and patient safety health and social care essay



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Abstract

Background

Prescribing error is one of the commonest types of medication errors. It reduces patient morbidity and mortality and increases the NHS financial bill(1-3). Prescribing error is common in psychiatry; however our knowledge on it remains limited.

Aim

This project aims to examine the extent and nature of prescribing errors in a mental healthcare setting, and to identify targets for interventions to lower prescribing error rate.

Method

Data was collected on errors detected and recorded for newly written prescriptions by pharmacists on five data collection days from January to March 2013 on inpatient wards at a mental health trust. Data were categorised into British National Formulary drug classes, nature of errors, prescribers and stages of hospital stay the errors occurred and were entered into the database. Error information was then entered into an Excel database and descriptive statistics was used to analyse the data. Targets for interventions to improve patient safety in mental health setting were identified.

Results

This study has found a prescribing error rate of 9. 7% of newly prescribed items. 65. 6% of errors involved psychotropic drugs. Non consultant

prescribers(11. 0%) had a higher rate of error compared to consultant prescribers(6. 2%). During inpatient stay was the stage associated with the highest rate of error(12. 8%). Incorrect/ missing start date(14. 8% of total errors) and missing strength/ dose(14. 8% of total errors) were the two most common errors found.

Conclusion

The results of the report suggest the difference in the nature of prescribing error in psychiatry compared to general settings. The error rate of 9. 7% found in this study is important, preventing prescribing error should definitely be a priority in mental health. Future studies involving multi-centres are needed to determine the nature of the causes and severity of errors and to substantiate the findings of this study. Studies examining the rate of error with electronic prescribing are also recommended.

1. Background

1. 1 Patient Safety

Improving patient safety is one of the UK government's key strategies for the National Health Service(3). Not only that it is a priority in the UK but also around the globe(4). Why is improving patient safety so important? It is because it lowers the rate of adverse events and reduces patient morbidity and mortality (1, 2). It would be ideal if all adverse events can be prevented and that all medical interventions impose no risks on patients. However adverse events are not always preventable(5). An adverse drug reaction is one such example(5), patient can have ' an unintended, harmful reactions to a medicines at doses that are normally used for prophylaxis, diagnosis, or

therapy of disease or for the modification of physiological function'(6, 7). In contrast, medication errors that occur during the process of prescribing are preventable. Study has suggested that complications with medicines were the commonest type of adverse event, therefore preventing medication error is an important part of patient safety(8). Patient safety is about ' assessing how patients could be harmed, preventing or managing risks, reporting and analysing incidents, learning from such incidents and implementing solutions to minimise the likelihood of them reoccurring'(4).

1. 2 Medication Error

1. 2. 1 Medication Errors & Patient Safety

Medicines are one of the most common clinical interventions for patient(3). The extent of hospital prescriptions is estimated to be 200 million per year in the UK(3). A study has suggested that medication errors are estimated to harm approximately 5% of admitted patients in the UK(9). Medication error can ' takes place during the process of prescribing, dispensing, administering, monitoring or giving advices for medicines'(3). With an aging population in the UK (approximately 27% of the population in the European Union will be over 60 years of age by 2020), the risk of medication error also increases as people are more likely to suffer from more co-morbidities and be on multiple medications - polypharmacy(10).

1. 2. 2 Other Impacts of Medication Errors

Not only do medication errors harm patient safety, they also create a high financial burden for the National Health Service (NHS)(3). A study of two England's hospitals has found that 10 % of patients had an adverse event

and 50% of them were preventable(11). This has been estimated to cost the NHS £290, 000(11). From this study, the Department of Health has estimated an extra £2 billion in costs per year for additional hospital stays due to adverse events alone(11-13). Not only can avoiding adverse events improve patient safety, it can also help to reduce the NHS financial bill.

1. 3 Prescribing Errors

A report by the National Patient Safety Agency (NPSA) has suggested that over 80% of medication safety reports were in secondary care(14). Out of all the different types of medication errors, prescribing errors are one of the most common(3, 15). A recent systematic review suggested that prescribing errors alone harms approximately 50% of hospital admissions(16). In the UK, the NHS Commissioning Board Special Health Authority (replaced NPSA in 2012) holds responsibility for developing patient safety(17). The National Reporting and Learning Systems (NRLS) within Special Health Authority focuses on ' reporting and learning from incidents and to lower the rate of prescribing errors'(18, 19). However a study has shown that only 10-20% of the incidents were reported, the low reporting rate made recommending interventions to improve patient safety very difficult(20). A prescribing error has been defined as ' a clinically meaningful prescribing error occurs when as a result of a prescribing decision or prescription writing process, there is an unintentional significant reduction in the probability of treatment being timely and effective or an increase in the risk of harm when compared with generally accepted practice.'(21)There are many causes of prescribing errors and the causes are often complex(3, 22). Error usually involves not only the prescriber but also the team, task, workload, environment, organisation and

system(3, 22). Examples of common causes of errors are inadequate clinical knowledge, careless mistakes, poor medication histories and calculation errors(3, 16, 23).

1. 4 Review of Prescribing Errors

A systematic review that focused on the prevalence of prescribing errors in specialists and non-specialist hospitals has identified 22 UK studies (out of 65 studies worldwide)(16). Most of the UK studies were prospective processed based, these studies usually involved pharmacists detecting and documenting errors as part of their regular clinical practice (15, 16, 24). The findings of these studies on prescribing errors varied significantly(16). The reason may be because they have used different definitions of prescribing errors, error denominators, study designs or methods(15). The variability of the qualities of prescribing between these study sites may also have contributed(2). Different designs of studies give rise to different strengths and limitations and make comparing and drawing conclusion on prescribing errors challenging(15). A systematic study in general settings has found that prescribing error affected 7% of medication orders and 2% of bed days(16). It also suggested that antimicrobials drugs were most commonly associated with prescribing errors(32% of orders), followed by drugs affecting the cardiovascular system (17% of orders); and dosage errors were the commonest type of error made (18/33 studies)(16). The EQUIP study is a study that involved 19 NHS trusts in the North West region of England(25). It examined on the prevalence, causes and nature of prescribing errors. This study followed the EQUIP study's method of data collection(25). The EQUIP study has found that Foundation year two doctors had the highest error rate

(10. 3%) followed by Foundation year one doctors. It also collected data on the stages of hospital stay (' on admission', ' during stay', ' discharge' or ' re-writing the drug chart') errors most common occurred in; ' on admission' had the highest rate (13. 4%). Findings of previous studies are valuable as they aid the understanding of the prevalence, nature and causes of prescribing error (16, 25).

1. 5 Prescribing Errors in Psychiatry

1. 5. 1 Differences of Prescribing Errors between Psychiatry and General Settings

Studies in general hospitals have helped us get an insight into the nature of prescribing error, however the prevalence and nature of prescribing errors in general hospital setting may not represent the prevalence and nature in mental health settings. The nature of prescribing errors in the mental health setting can be quite different from general hospitals(2). The following factors contribute to the difference: Although the number of different types of drugs used in mental health is comparatively limited and some patients can be on the same drugs for a long period of time(2), drugs use in psychiatry often have complex regimens, monitoring requirements (Clozapine)(18) and formulations such as intramuscular depots formulations(2). Off label prescribing such as prescribing for an unlicensed indication, dose, and length of treatment are not uncommon in psychiatry. Prescribing may also require forcible administration and the needs to meet the requirement of the Mental Health Act Authorisation(26). Patients taking multiple medicines, other physical co-morbidities and several prescribers prescribing for one patient adds further complexity to prescribing in psychiatry (26). The vulnerability of

some patients in psychiatry, such as patients less articulate on informing health care professional about their previous medical histories may also give rise to the difference(27). Particular formulations of drugs may be more prone to error. Intravenous drug is one such example and they are more frequently prescribed in general hospital settings(2, 28). Errors associated with intravenous drugs often involve ' incorrect infusion rates' and ' omissions of stop date'(25). Calculation errors are also a common cause of prescribing error. The needs to perform complex calculations are relatively more common in paediatric hospitals and general hospitals than in psychiatry (2, 29). The above differences may therefore give rise to the differences in the nature and prevalence of prescribing error in psychiatry compared to other settings.

1. 5. 2 Review of previous studies on prescribing errors in mental health settings

There are quite a number of studies on prescribing errors, however only a few focus on mental health settings both internationally(30) and in the UK (2, 18, 31, 32). Table 1 summarises the UK studies done in the past 20 years on the prevalence and nature of prescribing error in psychiatry (16, 27). It is important to improve our knowledge on prescribing error in psychiatry as there are approximately 160, 000 mental illness related admission and over one million patients receive specialist mental health service in the NHS each year(33).

Table 1. Previous UK Studies on Prescribing Errors in Psychiatry in the Past 20 Years (16, 27)**Study****Setting and country****Data collection process****Total number of errors detected****Rate of errors****Prevalence of the types of error****Prevalence of errors with psychotropic drugs and non-psychotropic drugs****Prevalence of error with the different grades of prescriber****Nirodi et al. 1991-1997 (34)****In-patient units for elderly people in two NHS Mental health hospitals****(England)****Examined drug charts for 112 elderly inpatients retrospectively****Errors were found in 92 drug charts****82% (per patient)****A significant higher number of errors affected dementia patients****Not available****Not available****Haw et. al. 2002 over one month (31)**

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Private Psychiatric hospital (England)

Errors detected by pharmacists as part of routine clinical practice

311

2. 2% (per number of prescribed item checked by pharmacist)

Not available

Not available

Not available

Paton et al. 2002 over one month

(18)

Twelve NHS Mental health trusts (England)

Errors detected by pharmacists as part of routine screening

557

No error denominator available

27% of errors were clerical,

58% were clinical

12% were others, 4% were excluded

65% of errors were psychotropic drugs, 35% were non psychotropic drugs

Not available

Study

Setting

Data collection process

Number of errors detected

Rate of errors

Prevalence of the types of error found

Prevalence of errors with psychotropic drugs and non-psychotropic drugs

Prevalence of error with the different grades of prescriber

Stubbs et al. 2003 over one month

(32)

Private psychiatry hospital (England)

Errors detected by pharmacists as part of routine screening

221

No error denominator available

76% of errors were prescription writing error, 24% were decision making error

Not available

Not available

Stubbs et al. 2004 over five days

(2)

Eight NHS Trusts and one private hospital (England and Wales)

Errors detected as part of routine screening by pharmacy staff (pharmacists and technicians)

523

2. 4% (per number of prescribed item checked by pharmacists)

77. 4% were prescription writing error, 22. 6% were decision making error

55. 3% of errors were psychotropic drugs

62. 9% of errors were made by non consultant prescribers, 21. 8% by consultant, 7. 3% by other prescribers and 8% unknown

*** all of the above studies are prospective process based apart from the study by Nirodi et al. which is a retrospective study.**

Like studies in general settings, past studies in psychiatry have used different study designs and methods to identify the nature and prevalence of prescribing errors (2, 18, 31, 32, 34). Table 1 shows past studies have collected data for five days, a month or several years. Some studies involved one study site and some involved multiple sites(27). Studies that had a longer period of data collection and studies that involved multiple sites would have collected more representative samples(27). Past studies involved both NHS mental health trusts and private mental health care providers(27). Data collections were mostly undertaken by pharmacists as they routinely checked prescription with few exceptions; only one study also involved pharmacy support staffs (2, 18, 31, 32, 34). The error rates of some studies were impossible to calculate as there were no suitable error denominators available (18, 32). For prospective studies where error rates were available, the error rates were similar. A study detected errors as part of usual

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screening by pharmacists in a single mental health trust found an error rate of 2.2%(31). A similar error rate (2.4%) was found in another study(2) that detected prescribing errors in nine mental health trusts over five days. A UK retrospective study has reported a high error rate of 82% per patient(34). A US retrospective study by Grasso et al. has reported an error rate of 16.5% per 100 patient days(30). Apart from the difference in the study designs, the use of different error denominators also made it difficult to compare these retrospective studies with other prospective studies(15, 26). Paton et al. has found clinical errors (58% of total errors) the most common type of prescribing error followed by clerical/unintentional errors(27%)(18). The most common clinical error made was ' drug regimen prescribed not effective for indication' (8.6% of total errors)(18). The most common clerical errors made were ' incorrect dose or frequency prescribed' which accounted for 8.1% of errors. The study also suggested that not having blood tests done for patients on clozapine was a common monitoring problem (4.9%) (18). In the two studies by Stubbs et al., errors were classified into prescription writing errors and decision making errors and the findings of the two were similar. In the 2004 study, the rate of prescription writing errors was found to be 76% and the rate decision making error was 24%. In the 2006 study, the rates of error were 77.4% and 22.6% respectively (2, 32). Examples of prescription writing errors included ' incomplete prescription (missing route, strength or dosage regimen)' and ' prescribing in the route not intended to'. Examples of decision making errors were ' incorrect duration prescribed', ' prescribing a drug contraindicated', ' overdosing' and ' under-dosing' (2, 26, 27). The most common type of error prescription writing error found in the 2006 study was ' incomplete prescription' and the most common type of decision making

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error was 'prescribing a dose regimen not recommended for the drug or formulation'(2). Past studies also suggested that prescribing errors were more often associated with psychotropic drugs than non-psychotropic drugs. Paton et al. has found that 65% of total errors involved psychotropic drugs and the remainder involved non psychotropic drugs(18). Another study by Stubbs et al. has similar findings with 55.3% of total errors were psychotropic medicines(2). Although the rate of error with psychotropic drugs was higher, the percentage did not differ significantly. A possible explanation is when psychiatrist prescribers prescribed medicines for physical illnesses, they are prescribing in an area they are less familiar with and less knowledgeable in (18).

1. 5. 3 Reasons for Inconsistency between Studies on Prescribing Errors

The design of a study can affect the types of errors being detected and the error rates(15, 26). In general, the error rates of retrospective studies are the highest, follow by prospective studies where pharmacists detect errors. The lowest rates are found in studies that depended on self-reporting systems(26, 27). Each design has its own strengths and limitations depending on where the focus of the study is(15). Variability in the designs makes it very difficult compare one study to another(15). The length of data collection period and the number of data collection sites involved could also have contributed to the inconsistencies found between studies(27). Studies that had longer periods of data collection or involved multi-centres could potentially have gathered more representative samples because they took into consideration of junior doctor rotations and/ or the variability of the

qualities of prescribing of individuals study sites(2). Definitions of prescribing errors also differ between studies. Some studies have developed their own definition. Betz et al. included 'prescribing a medication without sufficient errors if this reflected accepted practice of the patient on its proper uses and effects' as prescribing errors (15, 35). Some studies have used definition by Dean et al. or other studies (15, 21). For prescribing errors in psychiatry, the definition of prescribing error may need additional inclusion and exclusion criteria due to the nature of psychotropic prescribing (2, 31). Studies have also used different error denominators such as the number of prescription items, prescriptions, patients or days of patient stay as denominators (2, 16, 30, 34). Error rates with different denominators give us different information, for example the days of patient stay can suggest the risk prescribing errors imposes on individual patient(15, 36). In some other cases, the denominators are not discrete units but are time intervals such as the number of errors made in seven days(26).

1. 5. 4 Impact of Prescribing Errors in Psychiatry

The review by Maidment et al. suggested that most errors were detected and amended before patients received the medication (27) but the study by Stubbs et al. (2) did not agree. In contrast, it suggested that 53. 5% of drugs were administered before the errors were detected. The reason for the inconsistency may be due to that Maidment et al. focused on other medication errors as well as prescribing errors. On the other hand, Stubbs et al. focused on prescribing errors alone (2, 27). Limited studies in the past have looked into this matter; therefore it is difficult to draw a conclusion(2, 27). The rate of errors that is likely to lead to serious outcomes also differs

between studies (4. 3% in the study by Stubbs et al., 2006 and 11% in the study by Paton et al., 2003), the reason could be due to the difference in the methods used to assess the severity of errors and nature of drugs (2, 18) or the difference in the qualities of health care (2).

1. 6 Limitations of Past Studies

There are limited studies on prescribing errors in mental health setting.

Whether the settings of mental health trusts affect the nature of prescribing errors remains uncertain. In most studies that examined prescribing error in psychiatry, they were prospective process based studies, only a few were retrospective such the studies by Grasso et al. and Nirodi et al. (16, 27, 34).

Process based studies are usually more robust, however it was suggested that they concentrate on many minor errors that are of minor importance(15). Limited outcome based studies has made it difficult to estimate the actual harm prescribing errors had on patients (15). Outcome based study allows the identification of targets for reducing prescribing errors that minimise the greatest harm (15). Using an outcome based and process based approach may allow comprehensive data to be collected(15).

Some past studies have used prescription items as error denominator(18). Prescription items could potentially be counted more than once and as a result affected the error rate. Mark checked prescription(2) or use newly prescribed items as the denominator(25) are possible solutions to prevent double counting (2, 18). Having prescription items as the denominator also made it difficult to estimate the number of patients affected by prescribing error(36). An inconsistency in the definitions of prescribing errors has also made it difficult to conclude on the prevalence of prescribing errors in

psychiatry. In one of the past psychiatric studies, pharmacists' interventions on prescription items were documented and was considered as prescribing errors(18). In other studies, the definition of prescribing errors by Dean et al. (21) with additional inclusion criteria relevant to the nature of prescribing in psychiatry were used (2, 31, 32). Limited data are available on the effect of electronic prescribing on prescribing errors in psychiatry. A study in general setting in the past has suggested that it could potentially reduce 25% of total errors(36). Apart from electronic prescribing, very few studies have looked at whether prescribing errors more commonly affected elderly patients or not(34). Prescribing for elderly patients can be challenging as they are more likely to suffer from other co-morbidities and take multiple medicines(34). Stubbs et al. have identified that consultant psychiatrists (21. 8%) and other prescribers (7. 3%) had a lower rate of prescribing error than non-consultants psychiatrists (62. 9%)(2). However limited psychiatric studies in the past have identified the most common type of error made by each grade of prescriber. Studies in the past also did not examine on the stages of the patient stay or the days of the week prescribing errors were made. Identifying the stages and days of the week with the highest error rates are important as they allow the identification of environmental and organisational factors that give rise to prescribing errors(25). The number of prescriptions and the number of drugs used in psychiatry is rising. (18, 37). With the limited knowledge on prescribing error in psychiatry, it is difficult to identify targets to reduce prescribing errors. New studies are needed to examine on the nature and prevalence of prescribing error in psychiatry to improve patient safety.

1. 7 Aims

The study aims to investigate the nature and extent of prescribing errors in a mental health trust in the North West region of England. The results of the project will identify specific targets for interventions to reduce the rate of prescribing errors in psychiatry.

1. 8 Objectives

Data of prescribing errors will be collected in a mental health trust in the North West region of England. The study will use the definition of prescribing error from a previous study together with appropriate additional criteria to consider prescribing errors in mental health. Data will be collected by pharmacists in the trust. Pharmacists will record errors they detect on data collection forms provided to them as they routinely screen prescriptions. Data will be then be entered into an Excel database and descriptive statistics will be used to analyse the data. Results will be compared to previous studies of prescribing errors in mental health. The similarities and contrasts will be used to identify targets for interventions to improve patient safety in mental health setting.

2 Method

2. 1 Data Collection Sites

The study was undertaken at one of the mental health trust located in the North West region of England. The region was specifically chosen as there are limited published studies of prescribing errors in psychiatry in the region. To gather a more representative sample, the study was also simultaneously

carried out in 2 other trusts in the same region, although the focus of this project report relates solely to one trust.

2. 2 Site Specific Study Co-ordinators

Each site had at least one study coordinator who facilitated and coordinated data collection.

2. 3 Data Collection Process

The method of data collection of a previous study on the prevalence and nature of prescribing error in general settings was followed(25), the data collection process was also described in detailed in the research protocol by the study investigators(38). Errors were detected on inpatient wards and documented on data collection forms by pharmacists prospectively. The study involved 5 days data collection on inpatient wards. The study was designed to collect data on each day of the week to get a more representative sample and to take variability between the different days of the week into account. Data collection period was over January, February and March 2013. This period took into consideration the rotation of junior doctors. It also hoped to minimise disruption of pharmacists from carrying out their routine roles while collecting data.

2. 4 Definition of prescribing errors in this study

The study adopted the definition of a prescribing error by Dean et al. ' A clinically meaningful prescribing error occurs when, as a result of a prescribing decision or prescription-writing process, there is an unintentional significant reduction in the probability of treatment being timely and effective, or an increase in the risk of harm when compared with generally

accepted practice.’(21) Taking into account the setting of this study, the following criteria was added to the definition above: (2, 31)’ Prescribing a drug without first registering a patient with the appropriate company (e. g. clozapine and ZTAS/CPMS)’ (2, 31)’ Prescribing a drug for mental health for a detained patient without the necessary authorisation from a Mental Health Act form (e. g. form T2 or T3, Advance Decision)’ (2, 31)

2. 5 Data Collector Training

Pharmacists involved in data collection were given a presentation and an information booklet providing information(39) on the data collection process and stating the definition of prescribing error. After the presentation, ‘ a question and answer session’ followed with the local study co-ordinator(39). Data was collected and documented by pharmacists. Pharmacists are professionally trained to clinically check prescriptions.

2. 6 Data Collection Form

Data collection forms were designed in a previous study (25)and piloted at the three study sites in December 2013. There are two data collection forms and they are given in the appendix. The first from is the ‘ denominator table’ and the second is the ‘ error information form’. All newly prescribed and omitted drugs screened by pharmacists were documented on the ‘ denominator table’ in appendix 1. The grade of prescribers (i. e. foundation year one doctor, foundation year two doctor, specialist psychiatry trainees, staff grade psychiatrist etc.) were also documented for each prescribed or omitted item. The stage of the patient stay the items was prescribed such as ‘ on admission’, ‘ during stay’, ‘ rewriting drug chart’, ‘ leave prescription’, ‘

TTA/ discharge prescription/ TTO’ and ‘ not known’ was also documented.
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Further information on filling in the stages of prescribing was available in the booklet provided to data collectors. Pharmacists were also asked to document whether each item was prescribed electronically or not. In this study, discharge items, items on leave prescription and transcribed items were all considered as newly prescribed items, however outpatients and day-patients' prescriptions were excluded. When a prescribing error was found, the second form in appendix 2 was filled in. Information documented on the second form included the patient's details (ie. initial, age, sex etc), date collection date, name of the pharmacist, ward, details of the drug involved in the error and a brief description of the error. The reference number of the prescribing error from the denominator table was also required to allow cross referencing. For items with more than one prescribing error, the error information form was filled in for each error found.

2. 7 Data Analysis

This report focused on data collected from a mental health trust in the North West region of England. Coded data (ie. 1 represented yes and 0 represented no and 0 represented male and 1 represented female etc.) were entered into excel under the guidance of the study investigators. Unfilled information was left blank. The data entered were then checked by a fellow student. Graphs, charts and spreadsheets were generated using Excel to observe the extent of the error at different stages of hospital stay, in BNF categories, on different days of the week and by grades of prescribers etc. The various error rates was calculated using newly prescribed items as the error denominator. Total number of errors was also used to determine the

prevalence of each type of errors. The result was compared to previous studies on prescribing error.

2. 8 Ethical Issues

Ethical approval was obtained in January 2013 from the University of Manchester. Research and development approval was also gained from the mental health trust involved in the study. All data reported will be anonymous in this report and in any other reports or publication. Careful consideration is considered for the storing the data securely. The recording forms will be kept in a secure and locked cabinet. The cabinet restricts access apart from those directly involved with this study. After publication of the findings of this study, the data and recording forms will be securely stored for 10 years.

3. Results

3. 1 Number of Prescribing Errors Detected

Data was collected on inpatient wards in a mental health trust. The trust had nine adult inpatient wards. Inpatient consisted of those who have been detained under the Mental Health Act and other voluntary patients.

Prescribers in the trust used hand written prescriptions on paper drug charts. From the five data collection days, data collectors checked a total number of 629 newly prescribed items. 65 potential prescribing errors were documented of which 61 errors (93. 8%) met the definition of prescribing error of this study, providing an overall prescribing error rate of 9. 7%. On day one, 204 newly prescribed items were checked by pharmacists and 24 errors (11. 8%) were detected. 131 items were checked on day two and 7

errors (5. 3%) were detected. Out of the 147 items checked on day three, 24 errors were detected (16. 3%). A significant lower number of newly prescribed were checked (41) on day 4, and no error was detected (0%). On the last day of data collection, 6 errors (5. 7%) were found in 106 items checked. In this study, no data was available on electronic prescribing as the trust relied on paper drug charts.

3. 2 Details of Omission

The remaining 4 excluded errors did not meet the study's definition of prescribing error. Two of the four items were prescribed with the strengths missing, but both of the items were only available in one strength. The other two excluded errors were prescribed by brand name instead of generic. All of the above excluded errors were unlikely to result in ' the reduction in the probability of treatment being timely and effective, or an increase in the risk of harm when compared with generally accepted practice' and therefore were excluded as prescribing errors (21).

3. 3 Errors Meeting the Definition of the Study

A total of 59 items out of 629 (9. 4%) checked were found to contain at least one or more prescribing error. 83. 6% (51/ 61 errors) of total prescribing errors were prescribed via the oral route. 6. 6% (4/ 61 errors) were prescribed intramuscularly and topically. Inhalation was the least common route associated with error. It had an error rate of 3. 3% (2/ 61 errors). Table 2 shows the error with psychotropic drugs made up 65. 6% of total errors (40/ 61 errors). Antipsychotic (excluding depots) and hypnotic and anxiolytic drugs both accounted for 14. 8 % of errors and were associated with the highest number of errors among other psychotropic drugs. The error rate <https://assignbuster.com/medication-errors-and-patient-safety-health-and-social-care-essay/>

with the different categories of non-psychotropic drugs had a more even spread. In this study, drugs affecting the cardiovascular system accounted for the highest number of errors among non-psychotropic drugs (6.6% of total errors) as shown in table 2. In this study, hyoscine and lorazepam were associated with the highest number of errors among all the prescribed drugs documented. Four prescribing errors were documented with each. Lithium and olanzapine were second with three prescribing errors associated with each. The two items with more than one error were lorazepam and levofloxacin. Both of them were associated with missing start dates. The second error associated with Lorazepam was missing signature and the second errors associated with levofloxacin was unspecified formulation. Both of the items were prescribed by specialist psychiatrist trainees. The two errors with lorazepam were made during discharge. The stage levofloxacin was prescribed was unknown.

3.4 Patients Affected by the Errors

68.9% (42/61 errors) of errors affected patients under 60 years of age. 18% (11/61 errors) of errors affected patients 60 years of age and over. 13.1% (8/61 errors) of errors were associated with patients of unknown age group. A higher number of errors affected male patients, 62.2% of total errors. 32.8% of errors affected female patients and the remaining 3 errors (4.9%) were unknown.

3.5 Details of Prescriber

Table 3 shows the error rate of all prescribers (ranged from 0% to 18.2%).

Non consultant prescribers had an error rate of 11.0% (48/437 errors), this is higher compared to the error rate of 6.2% (11/177 errors) by consultant
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prescribers. Staff grade psychiatrists were associated with the highest rate of error (18. 2%). Foundation year two doctors (14. 0%) had a higher rate of prescribing error compared to foundation year one doctors (7. 8%). The two errors made by unknown prescriber were documented by the data collector to have been made by locums. A very low number of items were prescribed by pharmacist prescribers (3 items) and no error was detected. No newly prescribed item prescribed by nurse prescribers was documented in this study.

3. 6 Stage of Hospital Stay

Table 3 shows that new items prescribed at the time of hospital stay were associated with the highest rate of prescribing error (12. 8%) followed by discharge (12. 2%) and admission (11. 8%). A lower error rate is found at the stage of writing leave prescriptions and re-writing the drug charts. They had an error rate of 8. 3% and 5. 1% respectively. Foundation year one and year two doctors had the highest rate of error on admission (20% and 25% respectively). Table 3 shows that specialist psychiatrist trainees, staff grade psychiatrists and consultant psychiatrists all made the highest numbers of error during stay.

3. 7 Nature of Errors

‘ Incorrect/ missing start date’ and ‘ missing strength/ dose’ were the two most common natures of errors as shown in graph 1. They each accounted for 10/61 errors (16. 4% of total errors). ‘ Administration time/ frequency incorrect or missing’ came second. It accounted for 9/61 errors (14. 8% of total errors). Table 4 shows that 70% of items prescribed with start date missing were associated with specialist psychiatry trainees. 50% of strength/

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dose missing errors were made by staff grade psychiatrists. Both Graph 1 and table 4 only included the types of errors found in this study. Natures associated with no errors were excluded in the graph and table.

Table 2 – Frequency and nature of prescribing errors by British National Formulary Categories**Psychotropic drugs****Foundation year one doctor****Foundation year two doctor****Specialist psychiatry trainees****Staff grade psychiatrist****Consultant psychiatrist/ professor****Pharmacist prescribers****Nurse prescribers****Not known****Total number of errors****Rate of error****Hypnotic and Anxiolytics****BNF category 4. 1****Number of errors****0****1****4****1****3****0**

0

0

9

14.8%

Nature of errors

-

F

D, 2K, N

J

G, 2K

-

-

-

-

-

Antipsychotics (excluding depots) BNF category 4. 2. 1

Number of errors

1

1

3

2

2

0

0

0

9

14.8%

Nature of errors

I

M

I, J, K

F, I

C, K

-

-

-

-

-

Antidepressants

BNF category 4.3

Number of errors

1

1

3

0

0

0

0

0

5

8.2%

Nature of errors

E

M

I, M, N

-

-

-

-

-

-

-

Psychotropic drugs

Foundation year one doctor

Foundation year two doctor

Specialist psychiatry trainees

Staff grade psychiatrist

Consultant psychiatrist/ professor

Pharmacist prescribers

Nurse prescribers

Not known

Total number of errors

Rate of error

Antiepileptcs

BNF category 4. 8

Number of errors

0

0

0

0

0

0

0

1

1

1. 6%

Nature of errors

-

-
-
-
-
-
-
-
J

-
-

Depot antipsychotics

BNF category 4. 2. 2

Number of errors

0

0

3

0

1

0

0

0

4

6. 6%

Nature of errors

-

-

3J

-

J

-

-

-

-

-

Drugs for dementia

BNF category 4. 11

Number of errors

0

0

0

0

1

0

0

1

2

3. 3%

Nature of errors

-

-

-

-

G

-

-

J

-

-

Hyoscine for hypersalvation

BNF category 4. 6

Number of errors

0

1

2

0

1

0

0

0

4

6.6%

Nature of errors

-

M

2M

-

M

-

-

-

-

-

Psychotropic drugs

Foundation year one doctor

Foundation year two doctor

Specialist psychiatry trainees

Staff grade psychiatrist

Consultant psychiatrist/ professor

Pharmacist prescribers

Nurse prescribers

Not known

Total number of errors

Rate of error

Drugs used in substance dependence

BNF category 4. 10. 3

Number of errors

0

0

1

0

0

0

0

0

1

1. 6%

Nature of errors

-

-

M

-

-
-
-
-
-
-

Antimanic Durgs

BNF category 4. 2. 3

Number of errors

1

0

2

0

2

0

0

0

5

8. 2%

Nature of errors

L

-

K, L

-

2L

-

-

-

-

-

Total number of errors associated with psychotropic drugs

-

3

4

18

3

10

-

-

2

40

65.6%

Non-Psychotropic Drugs

Foundation year one doctor

Foundation year two doctor

Specialist psychiatry trainees

Staff grade psychiatrist

Consultant psychiatrist/ professor

Pharmacist prescribers

Pharmacist prescribers

Not known

Total number of errors

Rate of error

Gastro-intestinal system

BNF category 1

Number of errors

-

1

1

-

1

-

-

-

3

4.9%

Nature of errors

-

H

L

-

J

-

-

-

-

-

Cardiovascular system

BNF category 2

Number of errors

1

-

2

1

-

-

-

-

4

6. 6%

Nature of errors

I

-

I, K

G

-

-

-

-

-

-

Respiratory system

BNF category 3. 1. 1

Number of errors

1

-

1

-

-

-

-

-

2

3.3%

Nature of errors

J

-

G

-

-

-

-

-

-

-

Non-Psychotropic Drugs

Foundation year one doctor

Foundation year two doctor

Specialist psychiatry trainees

Staff grade psychiatrist

Consultant psychiatrist/ professor

Pharmacist prescribers

Pharmacist prescribers

Not known

Total number of errors

Rate of error

Infections

BNF category 5. 1

Number of errors

-

-

3

-

-

-

-

-

3

4. 9%

Nature of errors

-

-

C, K, L

-

-
-
-
-
-
-

Analgesic

BNF category 4. 7

Number of errors

1

-

2

-
-
-
-
-
-

3

4. 9%

Nature of errors

G

-

B, G

-
-
-
-
-
-
-
-

NSAIDs

BNF category 10. 1. 1

Number of errors

1

-
-
-
-
-
-
-
-

1

1. 6%

Nature of errors

I

-

-

-

-

-

-

-

-

-

Non-Psychotropic Drugs

Foundation year one doctor

Foundation year two doctor

Specialist psychiatry trainees

Staff grade psychiatrist

Consultant psychiatrist/ professor

Pharmacist prescribers

Pharmacist prescribers

Not known

Total number of errors

Rate of error

Eye

BNF category 11. 4. 1

Number of errors

-

-

2

-

-

-

-

-

2

3. 3%

Nature of errors

-

-

A, M

-

-

-

-

-

-

-

Ear, nose and oropharynx

BNF category 12. 3. 2

Number of errors

-

-

1

-

-

-

-

-

1

1. 6%

Nature of errors

-

-

H

-

-

-

-

-

-

-

Skin

BNF category 13

Number of errors

-

1

1

-

-

-

-

-

2

3.3%

Nature of errors

-

G

L

-

-

-
-
-
-
-

Total number of errors associated with non-psychotropic drugs

4

2

13

1

1

0

0

0

21

34.4%

Key

A: Continuation for longer than needed

B: No indication

C: Clinical contra-indication / caution and continuation after ADR

D: No maximum dose

E: Drug interaction not taken into account

F: Dose/rate mismatch

G: Overdose

H: Underdose

I: Incorrect formulation

J: Administration times / frequencies incorrect/missing

K: Start date incorrect/missing

L: Product/formulation not specified

M: Strength/dose missing

N: No signature