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Original Research Article

A Study of Prescription Audit in the In-Patient Department of A Tertiary Care Teaching Hospital, Visakhapatnam

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Abstract

Aim and Objectives: (1) Evaluation of data, documents and resources to check performance of systems to meet specified standards. (2) Evaluating the effectiveness of drug therapy. (3) Preventing problems related to medication. (4) Controlling drug cost. (5) Identifications of areas of practice that require further education of practitioners.

Study design: The current investigation is a retrospective, observational study conducted at NRIIMS, Visakhapatnam, a tertiary care teaching hospital.

Study Sample Size: 245 prescriptions were reviewed. From May 2022 to October 2022, prescription data from in-patient departments of various specialties were analyzed. Calculations are made for descriptive numbers like frequency and percentage.

Results: A total of 245 prescriptions were assessed in this study over a six-month period. All prescriptions included the patient's name and gender, as well as the date the prescription was received. Some of the prescriptions did not include the patient's weight. Some of the prescriptions did not include generic names. Few prescriptions fail to use capital letters. Polypharmacy and irrational drug use were discovered in 1.2% of prescriptions.

Conclusions: There is an urgent need to reduce polypharmacy and raise awareness regarding antibiotic policy. Prescription auditing is a significant technique for enhancing patient care quality. A comprehensive action plan must be developed in order to improve patient care, and greater emphasis should be placed on pharmacological rationale. Various workshops and seminars must be held at the institution to teach 1. medical knowledge on drug rationality (particularly preoperatively and postoperatively), 2. polypharmacy 3. The significance of body weight in dosage calculation, 4. generic names, 5. use uppercase letters, 6. provide a detailed summary of your allergy history.

Keywords: Prescription audit, Legibility, polypharmacy, and Generic name.

Introduction

The prescription order is a vital link between the doctor and the patient, and the doctor's prescribing behavior is influenced by information from different sources such as patients, academic literature, professional colleagues, commercial publicity, and government regulations.

One of the most pressing problems encountered by public health providers and administrators in many countries is the rational use of drugs. Rational use of drugs is based on use of right drug, right dosage at right cost which is well reflected in the world health organization (WHO) definition:

"Rational use of drugs requires that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time, at the lowest cost to them and their community.

- The rationality of prescribing patterns is of utmost importance because bad prescribing habits including misuse, overuse and underuse of medicines can lead to unsafe treatment, exacerbation of the disease, health hazards, economic burden on the patients and wastage of resources.
- The quality of life can be improved by raising medical treatment standards at all levels of the healthcare delivery system. A medical audit ensures that these requirements are followed. [1].
- With a 25% incidence rate, irrational prescription can lead to drug-related problems (DRP), which include adverse drug reactions (ADR), unwanted therapy, polypharmacy, and financial concerns. [2] Such DRPs are common in hospitalized patients and can lead to death and morbidity. [3] A national list of essential medicines aids in overcoming DRP and increasing patient compliance. [4]
- Potential advantages of prescription auditing [5]:1. Recognize and promote best practices. 2. Improve professional practice and quality standards. 3. Encourages personnel and organizational learning and development 4. Recognize and eradicate poor or inadequate practice 5. Identify and eliminate waste 6. Encourage collaboration across interdisciplinary teams 7. Allocate resources (financial and human) to improve patient care. 8. Create chances for relevant academics to communicate findings and foster shared learning.
- According to WHO, 50% of treatment regimens are unsatisfactory in terms of patient instruction, labelling, or medication administration.[6]
- World Health Organization (WHO) core prescribing is one of the important indicators that healthcare providers can use to streamline prescription patterns, resulting in a better outcome for the healthcare system. [7]

Aim:

- Evaluation of data, documents and resources to check performance of systems to meet specified standards.

Objectives:

- Ensuring the drug therapy meets current standards of care.
- Evaluating the effectiveness of drug therapy.
- Preventing problems related to medication.
- Controlling drug cost.
- Identifications of areas of practice that require further education of practitioners.

Materials and Methods

Study setting and study population:

The current study is a retrospective, observational hospital-based study that was conducted at NRIIMS hospital in Visakhapatnam, India, from May 2022 to October 2022. During the study period, 245 prescriptions from patients of both genders and any age group were randomly selected from IPD departments. The study excluded prescriptions that did not contain any medications and OPD prescriptions. The protocol for the study was approved by the NRIIMS institutional ethics committee. Patients' confidentiality was preserved throughout the research procedure, and informed written consent was obtained at the start.

Data collection: Patients who received drugs throughout their hospitalization stay were noted, and 245 prescriptions were chosen at random, regardless of patient characteristics, diagnosis, or clinical department.

Source of data: Prescription copies were obtained from various departments, and data were saved, documented, and data scrutiny procedures were implemented, as well as reported to the quality department for additional analysis, with prior authorization from the hospital authorities. The prescriptions that arrived at the quality department were examined for patient information (patient initials, gender, and age), general information (patient IP number), and prescribed drug information (drug allergy, route of administration, drug strength, frequency of dose, indication/diagnosis, date, clinician signature, therapeutic duplication/alternate drug, drug written in capital letters, drugs prescribed by generic or brand names, and legibility of prescriptions.

The legibility of the prescription was assessed using a subjective grading scale developed by two independent investigators as follows: Grade 1 (poor): Illegible • Grade 2 (average): Most words are illegible • Grade 3 (good): Some words are illegible, but a physician can understand them • Grade 4 (outstanding): Legible.

Data was entered into Microsoft Excel and analyzed with the Statistical Package for the Social Sciences (SPSS Statistics for Windows, version 25.0). The data was presented using descriptive statistical techniques such as frequencies and percentages.

Results

Over a six-month period, 245 prescriptions were reviewed in this study. All prescriptions contained the patient's name and gender, as well as the date the prescription was received. Following an analysis of the prescription data from the first three months of 128 prescriptions, it was discovered that a few prescriptions were missing indicating the weight (2.3%), dose and dosage form (4.6%), generic name (100%), usage of capital letters (100%), and known allergy history (2.3%). 1.5% of prescriptions had polypharmacy, and 1.5% had irrational medication use. There were no generic names or capital letters specified in any of the prescriptions. A total of 5.4% of prescriptions were illegible.

We have witnessed an improvement in the weight, dose, and dosage forms mentioned in all prescriptions since raising awareness about prescription writing by holding a lecture in the institution. Errors in writing generic medicine names and using capital letters have decreased from 100% to 30% and 100% to 17.9%, respectively. Polypharmacy and irrational drug use were reduced from 1.5% to 0.8% and 1.5% to 0.8%, respectively. legibility is maintained in 99% of prescriptions. The summary of first 3 months (May 2022 to July 2022) data of check list is presented in Table 1.

Table 1: Total number of prescriptions in 3 months (May 2022 to July 2022) (n = 128).

Parameters of Prescription audit	YES (mentioned)	NO (NOT MENTIONED)	Percentage of errors (%)
Patient name	128	0	0
Patient gender	128	0	0
Patient weight	128	3	2.3%
Clinical diagnosis	128	0	0
Drug dose, dosage form	122	6	4.6%
polypharmacy	126	2	1.5%
Drug generic name	0	128	100%
Irrational drug use	126	2	1.5%
Frequency of administration	128	0	0
Use of Capital letters	0	128	100%
Legible	121	7	5.4
Known allergies	125	3	2.3

The summary of last 3 months (August 2022 to October 2022) data of checklist is presented in Table 2.

Table 2: Total number of prescriptions in 3 months (august 2022 to October 2022) (n = 117).

Parameters of Prescription audit	YES (mentioned)	NO (NOT MENTIONED)	Percentage of errors (%)
Patient name	117	0	0
Patient gender	117	0	0
Patient weight	117	0	0
Clinical diagnosis	117	0	0
Drug dose, dosage form	117	0	0
polypharmacy	116	1	0.85%
Drug generic name	81	36	30%
Irrational drug use	116	1	0.8%
Frequency of administration	117	0	0
Use of Capital letters	91	21	17.9%
Legible	116	1	0.8%
Known allergies	116	1	0.8%

Criteria(s) for Prescription Order (IP Patient):

Legibility:

Legibility	May'22	June'22	July'22	August'22	September'22	October'22
Yes	42	38	40	39	37	40
No	3	2	3	0	1	0
Total	45	40	43	39	38	40
Percentage of error	6.6%	5%	6.9%	0%	2.6%	0%

Polypharmacy:

Polypharmacy	May'22	June'22	July'22	August'22	September'22	October'22
Yes	45	38	43	38	38	40
No	0	2	0	1	0	0
Total	45	40	43	39	38	40
Percentage of error	0%	5%	0%	2.5%	0%	0%

Capital Letters:

Capital Letters	May'22	June'22	July'22	August'22	September'22	October'22
Yes	0	0	0	30	30	31
No	45	40	43	9	8	9
Total	45	40	43	39	38	40
Percentage of error	100%	100%	100%	23%	21%	29%

Irrational Drug Use:

Irrational Drug Use	May'22	June'22	July'22	August'22	September'22	October'22
Yes	1	1	0	1	0	0
No	44	39	43	38	38	40
Total	45	40	43	39	38	40
Percentage of error	2.2%	2.5%	0%	2.5%	0%	0%

Generic Names:

Generic Names	May'22	June'22	July'22	August'22	September'22	October'22
Yes	0	0	0	30	23	28
No	45	40	43	9	15	12
Total	45	40	43	39	38	40
Percentage of error	100%1	100%	100%	23%	39%	30%

Signature & Stamp:

Signature & Stamp	May'22	June'22	July'22	August'22	September'22	October'22
Yes	43	33	43	39	37	40
No	2	7	0	0	1	0
Total	45	40	43	39	38	40
Percentage of error	4.4%	17.5%	0%	0%	2.6%	0%

Discussion

Prescription is an important intervention by the physician, and it is the ethical and legal duty of the practitioner to write complete and legible prescriptions. In our study, we found that the date of prescription and patient's details (name, age, sex, and address) were complete in all the prescriptions. This was because these details were printed at the time of registration itself. Studies auditing handwritten prescriptions have found that patient details were incomplete in few of the prescriptions.[8]

On analyzing the prescriptions, it was found that the few prescriptions were incomplete with regard to allergic history, drug dose, dosage formulation. The reasons could be heavy IPD load, nonspecific complaints, or verbal communication by doctors, rather than writing in detail.

Most drugs are available in variable strengths and dosage forms and thus it poses problems for dispensing. It can also lead to issues such as treatment failure, antibiotic resistance, and adverse drug reaction which are associated with underdosing or overdosing. Wrong dose, dose omission, and wrong duration were the most common types of prescribing errors found in many studies worldwide. [9-11]

First 3 months collected data is submitted to department and quality department in NRIIMS hospital, data analyzed discussed in pharmacotherapeutic committee regarding proper action plan, and seminars.

conducted in the institution to provide knowledge regarding prescribing writing. Then we have seen improvement in prescription writing regarding legibility, polypharmacy, irrational use, generic name, signature and stamp.

Conclusion

There is a great need for decreasing polypharmacy and giving awareness about antibiotic policy.

Prescription audit is an important tool in improving the quality of patient care. A proper action plan must be created in order to improve the patient care, and more focus should be done on rationality of drugs.

Various workshops and seminars must be conducted in the institution to provide 1. Medical knowledge about rationality of drugs (especially preoperatively and postoperatively), 2. polypharmacy, 3. Importance of body weight in dosage Calculation, 4. Generic names, 5. capital letters, 6. clear description of allergic history.

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