

The Review on the Drug Utilization.

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Submitted: 08-09-2023

Accepted: 18-09-2023

ABSTRACT

Drug utilization evaluation (DUE) is defined by the World Health Organization (WHO) and focuses on the medical, social, and economic consequences of pharmaceutical marketing, distribution, prescribing, and usage in society. The WHO recommends a physician to every 1 000 people. According to the recent data from the Health Ministry in 2019, in which 1.16 million doctors are of active population with just 80%, or 0.9 million, practicing. As a result, a ratio of 0.68 doctors for every 1 000 people, which is much below as per the WHO reports. This article describes history, types, WHO guidelines, need and purpose of DUE.

I. INTRODUCTION

Drug utilization evaluation (DUE) study was developed in the middle of the 1960s in Northern Europe and the United Kingdom. Arthur Engel in Sweden and Peter Siderius in Holland were the first who conducted initial drug utilization study.¹ This study focused on the marketing, distribution, prescription, and use of pharmaceuticals in society, with the ensuring medical, social, and economic repercussions are referred to in drug use evaluation by the World Health Organization (WHO).² To justify and lower

the cost of medical treatment by evaluating prescription patterns which include monitoring of prescriber's approach to drug prescription. DUE studies are therefore one of the possible tools for evaluating the healthcare system. The main objective of DUE is to promote rational drug use, which involves administering drugs that have already undergone extensive study at the right dose for the right indication with accurate information, and at a reasonable price and it also provides data on the efficiency of drug use.³ Medication-utilization evaluation provides insights into prescribing trends and it is an essential step toward rational drug usage and evidence-based pharmacotherapy.⁴ A DUE is often used to detect possible problems with drug use and to enhance it. DUEs have often focused on drugs that cause a lot of side effects, are costly, or need complicated dosing regimens. DUE has been recommended as a method for detecting inappropriate or unnecessary drug use that monitor, evaluates, and promotes rational drug therapy. Various factors, like irrational drug use, polypharmacy, incorrect drug choice, incorrect dose, and drug interaction have increased morbidity, mortality, and healthcare costs, as well as led to the use of drugs without the need for a record of proven efficacy.



Figure 4: DUE Cycle

A drug utilization study does this by three different ways

1. Description of drug use patterns
2. Early signals of irrational drug use
3. Interventions to improve drug use.

Drug use information

Different types of drug use information are required depending on the problem being examined. These include information about the overall use of drugs, drug groups, individual generic compounds or specific products. Often, information about the condition being treated, the patient demographic factors and the prescriber is also required. In addition, data on drug costs will be important in ensuring that drugs are used efficiently and economically. These types of drug information can be used to promote the rational use of drugs.

Types of drug utilization studies

Cross-sectional studies

Cross-sectional data provide a snapshot of drug use at a particular time (e.g. over a year, a month or a day). Such studies might be used for making comparisons with similar data collected over the same period in a different country, health facility or ward, and could be drug-, problem-, indication, prescriber- or patient-based. Alternatively, a cross-sectional study can be carried out before and after an educational or other intervention. Studies can simply measure drug use, or can be criterion-based to assess drug use in relation to guidelines or restrictions.[15-17]

Longitudinal studies

Public health authorities are often interested in trends in drug use, and longitudinal data are required for this purpose. Drug-based longitudinal data can be on total drug use as obtained through a claims database, or the data may be based on a statistically valid sample of pharmacies or medical practices. Longitudinal data are often obtained from repeated cross-sectional surveys (e.g. IMS (Intercontinental Medical Statistics) practice-based data are of this type). Data collection is continuous, but the practitioners surveyed, and therefore the patients, are continually changing. Such data give information about overall trends, but not about prescribing trends for individual practitioners or practices.[15,18,19]

Continuous longitudinal studies

In some cases continuous longitudinal data at the individual practitioner and patient level can be obtained. Claims databases are often able to follow individual patients using a unique (but anonymous) identifier. These data can provide information about concordance with treatment based on the period between prescriptions, co-prescribing, duration of treatment, PDDs and so on. As electronic prescribing becomes more common, databases are being developed to provide continuous longitudinal data comprising full medical and prescribing information at the individual patient level. Such databases are very powerful, and can address a range of issues including reasons for changes in therapy, adverse effects and health outcomes.

Steps in the DUR Process

- 1) Identification of Optimal Use: The established criteria define the optimal use of drugs, which focus on relevant patient health outcomes and are in scope for DUR. Medicine use is monitored for optimal use in advance.
- 2) Measurement of Actual Use: The precise use of medications can be acquired from medical, prescription, or electronic health records.[8]
- 3) Assessment: This step involves using a computerized algorithm, identifying members who meet the DUR criteria, and comparing optimal and actual use. It helps identify and evaluate discrepancies and, if appropriate, intervene.
- 4) Intervention: This corrective action is implemented if any targeted areas of concern are identified in the previous steps, i.e., economic considerations, prescribing patterns, and adverse drug reactions.[9]
- 5) Evaluate the DUR Program: Evaluation of the effectiveness of the DUR program is performed to evaluate the outcomes and document reasons. Appropriate alteration to the DUR program and persistent surveillance should be conducted.
- 6) Report the DUR Findings: This is the final step; reporting the results to the pharmacy and therapeutics committee and clinician when appropriate.

Types of Drug utilization Prospective

Prospective drug utilization review refers to assessing appropriate drug and decision making therapeutically before patients' medication are dispensed.[10] This prospective review is based on the history recording of the drug and medication.

Then, practitioners could assess therapy for patients on the basis history recording.[11]

There are some issues addressed by this review: drug abuse clinically, alteration of drug dosage, drug–drug interaction, and drug-disease interaction.[1]

Measure and record the blood pressure for next therapy.

This review seems the best review over all three reviews because it is the closest option of the ideal.[11]

Concurrent

Concurrent drug utilization review refers to conducting the review concurrently with the process of dispensing medication for patients.[11] It means that the dispensing process will stop if a potential problem occurs and it is found by the review.[11]

There are some issues addressed by this review: alteration of drug dosage, drug–drug interaction, drug-disease interaction, patient prevention with the drug, and over-utilization and under utilization.[1]

However, there are still some problems in concurrent drug utilization review. The pharmacy of hospital and practitioners may not totally know the exact medications that patients normally use at home. Also, hospital and practitioners are not certain the document provided by patients is complete, and then this leads to some repeating test and medication. Thus, this review seems expensive and time-consuming.[11]

Retrospective

Retrospective drug utilization review refers to drug therapy review that after patients have got the medication.[10] The retrospective drug utilization review has a typical process.[12] This is a computer based review. Computer will show data which are in violation of the standard. The standard are the rules or expectations for the outcome comparing with.[12]

There are some issues addressed by this review: alteration of drug dosage, drug–drug interaction, drug-disease interaction, patient prevention with drug, over-utilization and under-utilization, drug abuse clinically, proper generic use, and false in drug dosage.[1]

Clinical Significance

DUR programs play an important role in serving healthcare systems to understand the

prescribing, administration, and drug utilization process. Employers and health care plans have found DUR programs valuable and used the results to foster efficient use of health care resources.

Pharmacists performing DUR play an important role in this process, as their main expertise is medication therapy management. The pharmacist uses the DUR to evaluate prescribing trends of clinicians within a specific patient population by medicine-specific criteria or disease state (i.e., hypertension, asthma, diabetes, depression).[11][12] In collaboration with prescribers, pharmacists can initiate actions to optimize drug therapy for patients.

II. CONCLUSION

For the benefit of patients, it is necessary to design and implement therapeutic management recommendations. These guidelines assist medical professionals in prescribing pharmaceuticals based on evidence, so enhancing the quality of drug use as a whole. Continually excluding irrational prescribing of medications is aided by drug use research. This effectiveness of DUE can only be gained by doing study in all domains, and extrapolating the expert's knowledge from these researches can aid in determining the optimal treatment plan and continuously monitoring the quality of Pharmaceutical services a patient review.

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