



## Importance of Drug Utilization Review in Patient Care

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### ABSTRACT

Drug Utilization Review (DUR) is validated, arrange, existing assessment of advice, pass out and make use of medicines in patient care. It includes a complete analysis of patients' prescription and previous medication details, throughout and next dispensing to make sure appropriate use of medication in decision-making and positive patient outcomes. According to the determination of the study Drug Utilization Review (DUR) systems can work on single patient or the individual prescriber. Drug Utilization Review (DUR) is three types (Prospective, Concurrent and Retrospective). For the comparison of international and interregional research some drug utilization method is used, whereas for the evaluation of individual hospital, health centers other methods are used. This review article helps us to identify the face-to-face efficacy method improves the drug prescribing pattern by identifying physicians who were prescribing the drugs to the patients in health care system.

**Keywords:** Drug Utilization Review (DUR), Drug Utilization Study (DUS), Prescription pattern, Drug Utilization Evaluation (DUE) or medication Utilization Evaluation (MUE)

### INTRODUCTION

The establishment of drug utilization study started in early 1960s. In Moscow 1964, WHO organized the event on drug toxicology and serious concerns, was firstly practiced to public studies of drug utilization [1]. Thalidomide tragedy take a great turn in drug utilization study, when there is no access for the frequency and location of risk. In 1966 to 1967 period studies of drug consumption in six European countries are proceeding. It is a northern European project and that is spread all over the world. Initially inspired by economic concerns but with time involves efficient, effective and safe medicine use.

In hospital or in an ambulatory care setting drug utilization studies are processed at the individual patient level by North America. According to the determination of the study Drug Utilization Review (DUR) systems can work on single patient or the individual prescriber.

Europe and Scandinavia had started work on sales records' strategy [2]. In these studies, the data should be collected separately for the comparison in number of drugs used by nation, region, or any other terrestrial area. This increases the possible chances for the comparison on the trades of aspirin or any other drug product according to the different areas and trade by per-person. The Defined Daily Dose (DDD) system plays an important role for estimation of drug trades, and drug consumption or utilization.

#### Drug Utilization Types

Prospective- evaluation of drug therapy before dispensing

Concurrent- ongoing evaluation of drug therapy during time period of treatment

Retrospective- evaluation of drug therapy after taking medication

**Prospective study:** Prospective studies are more comprehensive than concurrent studies. The complete drug and medical history of patient is necessary and developed directly from patient or previous medical record which Physician required for evaluating the patient's

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previous therapy and terminate the certain drug that responsible for drug interaction in previous therapy and by protocols already developed. Retrospective studies and prospective studies in DUR are not mutually exclusive. Combinations of retrospective studies and prospective studies have great potential for the advancement of optimal prescribing pattern. Retrospective DUR studies can also help to detect new connections and difficulties related to medications and diseases. This information can take into concern with prospective DUR system for those patients who are on risk before dispensing of drugs.

**Concurrent studies:** Concurrent studies and dispensing process both directed simultaneously. On identification of problem, the dispensing process will stop till the next notice is received from authority to continue the revision or dosage correction. It helps to prevent therapeutic disasters. They are highly advantageous in the preventing problems but more expensive and time consuming as compare to retrospective studies. Concurrent studies require a computerized based system or manual drug profile system.

**Retrospective studies:** Retrospective studies include reviews, evaluates, and understands the medication data for specific health care condition [3]. Data are collected, analyze and evaluate after taking medication. The retrospective drug utilization relies on the quality and quantity of the data which is important in defining the scope, nature, and application of the review. Retrospective studies should focus on immediate patient care that leads to interventions meant for improving prescribing pattern. They have limited preventing potential for problems. Retrospective studies are rapid, inexpensive and have easy data accessibility.

#### LITERATURE REVIEW

It is necessary the purposes of drug utilization study should be explained in detail before the process gets started. It can be used to:

- Measure the effect of informative and regulatory activities and price strategy.
- Evaluate efficacy and safety of drug treatment on identification of problems.
- Determination of benefits, hazard and cost efficiency.
- Provide information about overdoing, under-dosing, or abuse of drug treatment.

**Purposes of DUR can be categorized into three parts:**

**Quality care enhancement:** For providing the best quality of medical care drug treatment is an important part, involving the thoughts of quality control and quality assurance. Quality control is based on process-oriented standards while Quality assurance measuring the outcomes of drug therapy. Quality control functions on the proper dose or duration of treatment. Quality assurance have primary goal is paramount in drug utilization research.

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**Medical care cost Suppression:** Drug utilization studies can determine costs by combination of the three aspects (patient, provider, individual drug). The main objective of all drug utilization studies is not only for the containment of medical care. Beneficial needs for the manufacturers (for maintain profit and research operations), consumers (for best health care), providers (limit cost without affecting their financial position). Cost is a necessary factor in making decision for diagnosis and therapeutic consideration.

**Identification and control of abuse:** Identification and control of abuse may effective while performing drug utilization studies.

#### DISCUSSION

##### Drug Utilization Studies

It is a descriptive epidemiological approach that explains the relation of drug utilization to the effects of drug use, effectiveness or adverse effect. To investigate the drug use at different levels of health care system for present and further evolving trends. At a population level on the basis of age, gender, community, disease and other features help to determine drug usage. Evaluate the amounts of defined adverse drug reactions, to observe the drugs utilization related to therapeutic groups and specific problems can be assessed (e.g., narcotics, benzodiazepines, sedative and hypnotics, and other antipsychotic drugs), Effects of informative and regulatory activities can be determined (e.g., signals for adverse event, observing safety limitations). Help to produce crude estimation of disease prevalence, drug import, manufacture, and circulation, and drug costs [4].

##### Drug Utilization Process

Drug utilization is a process by which the quality of drug is measured on the bases of determined criteria or standards. It promotes rational prescribing and minimizes the expenditures. Drug utilization is a cyclic and dynamic process, and divided into ten steps [5] (Figure 1).

1. Basic structure
2. Approval
3. Indicators and Criteria
4. Database
5. Assess and Survey
6. Prescribing patterns
7. Intervention strategies
8. Outcomes Measure
9. Apply criteria to database
10. Alter indicators and criteria as per need

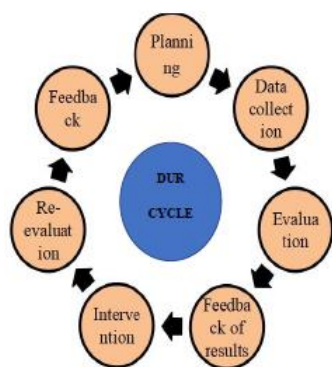


Figure 1: DUR Cycle.

### Drug Utilization Methods

In 1970s various methodological tools are used for drug utilization studies [6]. For the comparison of international and interregional research some drug utilization method is used, whereas for the evaluation of individual hospital, health centers other methods are used. Classification system and a unit of measurement are important for measuring drug use.

Method of Drug utilization:

1. Qualitative studies
2. Prescription pattern
3. Patient compliance
4. Effects of drug
5. Patients' knowledge on drugs
6. Ad hoc studies
7. Drug utilization impact, determinant and descriptive studies
8. Consumption studies

**Qualitative studies:** In qualitative studies there are four major parameters.

- Therapeutic value potential
- Level of use
- Products number with one active ingredient
- Availability of drugs

**Prescription pattern:** This method determines the prescription habits of medical practitioners, type of drugs prescribed, dosing schedule, accuracy prescription. Prescription patterns help in other aspects for example;

- Patient age, sex or diagnosis.
- Relationship between medicine and their indication.
- Treated illnesses identification.
- Three types of prescription pattern

- i. Prevalence of prescription
- ii. Therapeutic profiles
- iii. Medical record

**Patient compliance:** Patient compliance determines whether the patient administered the prescribed drug in optimal amount and

follows the correct medical advice.

Two techniques are used to collect information for the measurement of drug compliance.

- Direct technique determines the drug level.
- Secondary techniques determine the returned drug type, nursing compliance, and voluntary incidence.

**Drug effects:** These studies mainly focused on the effects of drugs in patients including adverse drug reactions and adverse drug event. Adverse drug reactions are unwanted or noxious effect of drug that occurs at specific therapeutic dose for the prevention and treatment [7].

**Patients' knowledge on drugs:** Surveys are the important tool for measuring patients' knowledge about drugs includes drug administered, their dosing schedule and indications. Indirect methods are also used to measure patients' knowledge by patients' compliance.

**Ad hoc studies:** Ad hoc studies mainly focused on the pattern of drug treatment especially in specific population group according to age groups, pregnancy or lactating women [8].

**Drug utilization impact, determinant and descriptive studies:** Drug utilization descriptive studies focused on different aspects of high risk in the population, specific drug group, drug expenditure and in small patient groups. With the help of knowledge and attitudes of health care professionals as well as the general public drug utilization is determined [9].

**Consumption studies:** In drug utilization studies there are various consumption parameters, which are used to express the drug consumption as cost of drug and number of prescriptions, which is expressed as consumption international unit of measurement.

Consumption parameters are,

- Cost
- Numbers of units sold
- Studies on prescription volume
- Defined Daily Dose (DDD)
- Prescribed Daily Dose (PDD)

### Future Perspectives of DUR

It is an evolving field.

In pharmacoepidemiology the importance of drug utilization is increased by closely bring together other areas to each other's.

#### a) Public health

- Further studies are required in national and international drug utilization pattern from public health perspective [10].
- Face-to-face efficacy method improves the drug prescribing pattern by identifying physicians who were prescribing the drugs [11].

#### b) Pharmacovigilance

- Pharmacovigilance requires safety and knowledge in drug-drug

Ad hoc studies mainly focused on the pattern of drug treatment especially in specific population group according to age groups, pregnancy or lactating women.

### CONCLUSION

In developing countries there is an inappropriate and ineffective use of drug which is commonly seen in healthcare system throughout the world. Therefore, inappropriate prescription increases the economic burden to the patient and it leads to adverse drug reactions and resistance of drug. Prescription pattern is also known as drug utilization studies. Prescription pattern provide best channel for assessing prescribing, dispensing and distribution of medicine and help us to understand the proper use of drug, drug quality and patient compliance with treatment guidelines. Drug Utilization Review (DUR) or Drug Utilization Evaluation (DUE) or medication Utilization

Evaluation (MUE) is an approved, organized and continuing procedure for prescribing, dispensing and rational use of drug. World Health Organization (WHO) is an organization that encourages drug utilization as a part of marketing, distribution, prescription and usage of drugs in a society (medical/social/economic) and its significances. The purpose of drug utilization is to mainly focus on the prescribing, dispensing, administering, and intake of medication, and its related outcomes. This article helps us to identify the face-to-face efficacy method improves the drug prescribing pattern by identifying physicians who were prescribing the drugs to the patients in health care system.

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