



## Review Article

# A Review on Importance of Drug Utilization Evaluation in Gynaecology Department

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Prescription is one of the most important transaction between the physician and patient. Drug utilisation studies are an important tool to estimate disease prevalence, appropriateness of prescriptions and adherence to evidence-based medicine. Drug utilisation studies. Rational use of drugs should follow the RIGHT and SANE principles. The main objective of the study is to understand the concept of Drug Utilization during pregnancy and to understand the process for implementing and performing DUE. Also, to examine patterns and factors associated with medications used in pregnancy. Drug utilisation plays a major role in implementing health care professional programs. And it can reduce the irrational prescribing patterns.

**Key words:** Pregnancy, Drug utilisation evaluation, prescription, SANE, Rational Use

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## 1. INTRODUCTION

The prescription is one of the most important therapeutic transaction between physician and patient. It is written order for the medication to be used for diagnosis, prevention and treatment of specific patient directed by physician. Drugs plays an important role in improving human health and promoting well-being. Therefore, judicious use of drugs adequate knowledge positive approach and awareness towards the drug use are mandatory prerequisite for good

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maternal and child health<sup>1</sup>. Presently drug utilization studies are in an evolving era, to estimate disease prevalence, drug expenditures, appropriateness of prescriptions and adherence to evidence based recommendations<sup>2</sup>. The principal aim of drug utilization research is to facilitate appropriate use of drugs in patient populations, minimize the adverse event and drug interactions leading to better patient outcome<sup>3</sup>. The World Health Organisation (WHO) defined rational use of drugs as patients receiving medications appropriate to their clinical needs in doses that meet their own individual requirements for an adequate period of time and at the lowest cost to them and their community<sup>4</sup>.

Rational use of drugs should follow rule of RIGHT (right drug, right patient, right dosage, right cost) and SANE criteria (safety, affordability, need, efficacy). Irrational prescribing is a global problem. Bad prescribing habits lead to ineffective or unsafe treatment, exacerbation or prolongation of illness, distress and harm to patients<sup>5</sup>. In developing countries like India, irrational use of drugs is wide comparing to developed countries like US, UK, Canada and other countries. WHO had given statistics about drug use pattern in developing countries, around 50% of all medicines are inappropriately prescribed, dispensed and sold<sup>6</sup>. The irrational use of drugs may lead to development of adverse drug reactions, inappropriate outcome, increased cost, morbidity and mortality and its consequences include the development of resistance to antibiotics, ineffective treatment, adverse effects and an economic burden on the patient and society. Irrational use of drugs is a major global problem especially it is more important in pregnancy<sup>7</sup>. Self-medication, medical advice from layperson or suggestions by pharmacists related to the treatment of various ailments is prevalent in developing countries. In pregnant woman, such an unsafe practice may lead to detrimental effects on the foetus<sup>8</sup>.

#### **RISK FACTORS:**

Risk factors for complications during pregnancy include

- Pre-existing maternal disorders.
  - Physical and social characteristics
  - Age
  - Problems in previous pregnancies (e.g., spontaneous abortions)
  - Problems that develop during pregnancy
  - Problems that develop during labor and delivery
  - Age of either patients
    - Adolescent parents
    - Older patients
  - Exposure to environmental toxins in pregnancy
  - Exposure to recreational drugs in pregnancy:
1. Ethanol during pregnancy can cause foetal alcohol syndrome and foetal alcohol spectrum disorder.
  2. Tobacco smoking and pregnancy when combined cause twice the risk of premature rupture of membranes,

placental abruption and placental previa<sup>9</sup>. Also, it causes 30% higher odds of the baby being born prematurely<sup>10</sup>.

3. Prenatal methamphetamine exposure can cause premature birth and congenital abnormalities<sup>11</sup>. Other investigations have revealed short term neonatal outcomes to include small deficits in infant neuro behavioural function and growth restriction when compared to control infants<sup>12</sup>. Also, prenatal methamphetamine use is believed to have long term effects in terms of brain development, which may last for many years<sup>11</sup>.
4. Multiple previous foetuses. Women who have had more than one foetus in a previous pregnancy phase increased risk of mis located placenta<sup>13</sup>.
5. Exposure to pharmaceutical drugs in pregnancy<sup>13</sup>. Antidepressants, for example may increase risks of such outcomes as preterm delivery<sup>14</sup>.
  - Social and socioeconomic factors. Generally speaking, unmarried women and those in lower socioeconomic groups experience an increased level of risk in pregnancy, due at least in part to lack of access to appropriate prenatal care<sup>13</sup>.
  - Height: Pregnancy in women those less than 1.5meters(5 feet) correlates with higher incidences of preterm birth and underweight babies.
  - Weight: women whose pre-pregnancy weight is less than 45.5kg (100 pounds) are more likely to have underweight babies

#### **2. EPIDEMIOLOGICAL STUDIES**

The use of prescribed on over the counter medications in pregnancy is on the rise. Pregnancy is associated with profound changes in the physiologic of virtually every organ in the body which affect medications, pharmacokinetics and pharmacodynamics.

The use of medications in pregnancy has been progressively increasing over the past 3-4 decades. This is predominantly due to changing in the demographics of pregnant women, the prevalence of pre-existing medical comorbidities and development of obstetric conditions that requires pharmacotherapy during pregnancy.

The recent review from US, the average number of medications used by pregnant women increased by 68% from 2.6 in 1976-1978 to 4.2 in 2006-2008. Currently almost half of pregnant women use 4 or more drugs at same point during their pregnancy<sup>15</sup>. In addition to prescription medication, pregnant women are also self-medicating themselves with over the counter drugs and herbal products for which there are limited information in pregnancy<sup>16</sup>. In a review majority(78%) of pregnant women are exposed to either class B or C drugs, 1.1% and 3.4% are exposed to either a class X or D<sup>17-19</sup>. This increase in the use of medications is also predominant in the first trimester, where the average number of medications used increased by 62.5%,

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 from 1.6 in 1976-1978 to 2.6 in 2006-1008; and almost one third of pregnant women use at least 4 medication<sup>15</sup>.

### 3. DRUG UTILISATION AND EVALUATION

**Drug Use Evaluation (DUE)** is a system of ongoing, systematic, criteria-based evaluation of drug use that will help ensure that medicines are used appropriately (at the individual patient level).

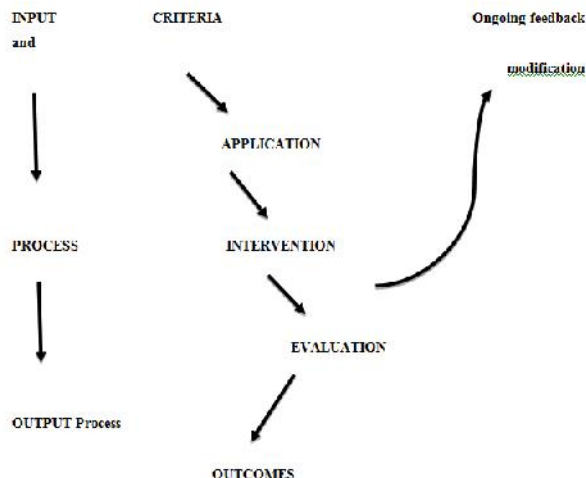


Fig 1: Systems view of drug utilization<sup>23</sup>

**Drug Utilisation Review (DUR)** is defined as an authorised, structured, ongoing review of prescribing, dispensing and use of medication.

DUE is a drug-or disease-specific and can be structured so that it will assess the actual process of prescribing, dispensing or administering a drug (indications, dose, drug interactions, etc.) DUE is the same as drug utilisation review (DUR) and the terms are used synonymously.

#### Objectives:

- Understand the concept of DUE
- Understand the process for implementing and performing a DUE.
- Discuss the use of a DUE for improving pharmaceutical therapy.
- Prepare criteria and thresholds for a DUE.

DUR is classified in three Categories:

- **Prospective-** Evaluating patients planned drug therapy before a medication described. This DUR helps the pharmacist to assess the prescription dosage, drug interactions and resolve drug related problems<sup>20, 21, 22</sup>.
- **Concurrent-** It is performed during the course of treatment and the ongoing monitoring of drug therapy for the positive patient outcome<sup>20,21</sup>.
- **Retrospective-** It is a review of drug therapy after the patient has received the medication. A retrospective review aims to detect the pattern in prescribing, dispensing or advertising the drugs and it help to prevent recurrence of inappropriate medication use<sup>20, 21</sup>.

#### Steps in drug utilisation evaluation:

The steps of DUE are as follows

##### Step-1: Planning

- Develop a DUR committee.
- Write policies and procedures
- Select specific drug for possible inclusion in the program
- Assess resource available for criteria development, data collection and evaluation.
- Select criteria and establish performance thresholds.
- Develop the methodology for data collection, evaluation and create a schedule.
- Educate a hospital staff about DUE study and current criteria.

##### Step-2: Data Collection And Evaluation

- Start the data collection in a proper way.
- Evaluate the collected data and determine if drug use problems exist.

##### Step-3: Intervention

- Send the result to hospital staff.
- If a drug use problem was found, design and implement interventions.
- Collect new data on problem drug to determine if drug use has improved as a result of the intervention.
- This disseminates result of re-evaluation.

##### Step-4: Program Evaluation

- Evaluate all DUR program activities at the end of the year and plan the new activities for the upcoming year.

### 4. CONCLUSION

Drug utilisation plays a major role on implementing health care professional education programs. It can reduce the irrational prescribing patterns and it shows effect on Socio-Economic status of the public.

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