

## ADVERSE DRUG REACTIONS

All drugs can produce unwanted effects. WHO has defined an adverse drug reaction as “any response to a drug that is noxious and unintended and that occurs at doses used in man for prophylaxis, diagnosis or therapy.”

All drugs can cause adverse effects. Some patients are more likely to exhibit adverse effects to drugs. *Pharmacovigilance* deals with the epidemiologic study of adverse drug effects.

### 1. *Side Effects*

Side effects are unwanted effects of a drug that are extension of pharmacological effects and are seen with the therapeutic dose of the drug. They are predictable, common and can occur in all people, e.g. hypoglycaemia due to insulin; hypokalaemia following frusemide.

### 2. *Toxic Effects*

Toxic effects are seen with higher doses of the drug and can be serious, e.g. morphine causes respiratory depression in overdose

**Predictable (Type A or Augmented) reactions** (mechanism based adverse reactions) These are based on the pharmacological properties of the drug, which means that they are augmented, but qualitatively normal response to

the drug; include side effects, toxic effects and consequences of drug withdrawal. They are more common, dose related and mostly preventable and reversible.

**Unpredictable (Type B or Bizarre) reactions** These are based on peculiarities of the patient and not on drug's known actions; include allergy and idiosyncrasy. They are less common, often non-dose related, generally more serious and require withdrawal of the drug. Some of these reactions can be predicted and prevented if their genetic basis is known