







Overview of presentation

- Introduction: DU Research
- Definition of drug utilisation
- DUR process
- Purposes of DUR
- Types of DUR studies
- Study methodologies
- Data sources
- Classification systems
- Practical examples

















Drug Utilisation Review (DUR) process

- Apply indicators and criteria to database
- · Evaluate and analyse yield
- Establish intervention strategies
- Revise indicators and criteria as needed

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Methods used in drug utilisation studies

- · Studies on prescription habits
- · Studies on patient compliance
- · Studies on drug effects
- Studies on patients' knowledge about drugs
- Ad hoc studies
- · Methods used in qualitative studies
- Descriptive studies, determinants of drug utilisation and impact of drug use
- Consumption studies
- Cost studies
 Studies based on numbers of units sold
- Studies based on numbers of units sol
 Studies on prescription volume
- Defined Daily Dose (DDD) and the Prescribed Daily Dose (PDD)

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Descriptive and analytical methods

- Classification systems (drug and disease)
- Measurement units (DDDs, expenditure, prescriptions ...)
- Analyse individual usage patterns (persistence, switching ...)
- Biostatistical methods (descriptive statistics, sampling, significance, correlation, regression analyses ...)
- Epidemiological study designs (ecological studies, cohort studies, case-control studies, case-crossover studies...)
- Epidemiological terminology (prevalence, incidence, exposure, outcomes, relative risk, odds ratio, bias, confounding ...)



Descriptive and analytical methods (cont)

- Qualitative methods (in-depth interviews, focus group discussions, observations ...)
- Purposive sampling and triangulation
- Approaches to the generation and analysis of qualitative data (phenomenology, grounded theory, qualitative content analysis and narrative analysis ..)
- Consensus methods (Delphi and nominal group techniques, consensus development conferences)
- Implementation research (design and carrying out of interventions)
- Quasi experimental study designs (CBA, time series analyses)
- Cluster randomised trials
- Quality indicators

compliance?

Quantitative vs Qualitative DUR

Quantitative DUR

- Quantification of data (measurements, counts, summaries ...)
- Hypotheses testing
- Causal relationship between measurable variables
- Results with some degree of confidence

Qualitative DUR

- Looking for the quality of events
- Exploration of social phenomena
- Gaining insight into the context
- Giving emphasis to the meanings, experiences
- and views of participants

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Example: Patient compliance										
Quantitative DUR	Qualitative DUR									
Quantification, relations,	Exploration, meaning,									
significance	understanding									
What is the frequency of	 Why are younger 									
non-compliance?	patients not complaint?									
 Relationship between 	What are the thoughts									
age and non-	among pharmacists									
compliance?	about non-compliance in									
 Relationship between 	patients on anti-									
gender and non-	hypertensives?									

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DATA ANALYSIS – Computerised Rx records																										
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To standardise studies, need ... A drug classification system ATC MIMS BNF Others A disease classification system ICD-10 Others













ATC System main groups											
CATEGORY	MAIN GROUP										
A	Alimentary tract and metabolism										
B	Blood and blood forming organs										
C	Cardiovascular system										
D	Dermatologicals										
G	Genitourinary system and sex hormones										
Н	Systemic hormonal preparations, excluding sex										
	hormones										
J	General antiinfectives for systemic use										
L	Antineoplastic and immunomodulating agents										
M	Musculoskeletal system										
N	Central nervous system <										
P	Antiparasitic products										
R	Respiratory system										
S	Sensory organs										
V	Various										
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N: Central Nervous System

- N01: Anaesthetics (including muscle relaxants used in anaesthesia)
- N02: Analgesics
- N03: Antiepileptics
- N04: Antiparkinsonian agents
- N05: Psycholeptics (antipsychotics, anxiolytics and sedatives)
- N06: Psychoanaleptics (antidepressants and psychostimulants)

N07: Other nervous system drugs









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PHARMACOEPIDEMIOLOGY

"Pharmaco" + "epidemiology"

- = study of the use of and the effects of drugs in large numbers of people
- = interactions between drugs and populations
- Borrows its *focus* of inquiry from clinical pharmacology
- Borrows its *methods* of inquiry from epidemiology ↓

Applies methods of epidemiology to content area of clinical pharmacology

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PHARMACOECONOMICS

- Evaluation of the medico-economic consequences attributable to the use of a drug
- Study designs:
- Cost-effectiveness
- Cost-benefit analysis
- Cost-minimsation
- Cost utility
- Economic modelling

PHARMACOVIGILANCE

- Detection, evaluation, understanding and prevention of Adverse Drug Reactions (ADRs) (previously: post-marketing surveillance)
- Aim: To optimise the risk-benefit ratio of marketed drugs at the individual or population level



Side effect = unintended effect of a drug

ADR = unintended and noxious effect





CONCLUSION AND RECOMMENDATIONS

- Many opportunities for research and collaboration
- Cross-national comparisons (CNCs)
- Further research:
 - Consumer studies, impact on quality-of-life of patients
 - · Diagnoses and sequential care
 - Dosages
 - Concurrent medication, including alternative therapies
 - Ethics: Pharmacotherapy as a "human right" (?), economic determinants, misuse, abuse, dependence and addiction



