Problems of Irrational Drug Use
Problems of Irrational Drug Use: Objectives

- Identify magnitude and nature of inappropriate drug utilization
- Understand the adverse impacts of inappropriate use of drugs
- Describe factors which influence the decision-making process
- Identify factors which influence the behavior of prescribers and patients
- Discuss specific medication use problems
What is Rational Use of Drugs?

The rational use of drugs requires that patients receive medicines 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 the community.

(WHO 1988)

- Appropriate indication
- Appropriate drug
- Appropriate administration, dosage, and duration
- Appropriate patient
- Appropriate patient information
- Appropriate evaluation
Irrational Use of Drugs = Pathology of Prescribing

- The use of drugs when no drug therapy is indicated
- The use of wrong drugs for a specific condition requiring drug therapy
- The use of drugs with doubtful or unproven efficacy
- The use of drugs of uncertain safety status
- Failure to prescribe available, safe, & effective drugs
- Incorrect administration, dosages, or duration
Examples of Common Inappropriate Prescribing Practices

- The overuse of antibiotics and antidiarrheals for nonspecific childhood diarrhea
- Indiscriminate use of injections for malaria
- Multiple or over-prescription
- Use of antibiotics for mild, non-bacterial infection, e.g., URI
- Tonics and multivitamins for malnutrition
- Unnecessary use of expensive antihypertensives
Components of the Drug Use System

The Drug Supply Process

Drug Imports

Local Manufacture

Provider and Consumer Behavior

Hospital or Health Center

Private Physician or Other Practitioner

Pharmacist or Drug Trader

Illness Patterns

Public
Factors Underlying Irrational Use of Drugs

**Patients**
- Drug misinformation
- Misleading beliefs
- Inability to communicate problems

**Prescribers**
- Lack of education and training
- Lack of drug information
- Heavy patient load
- Pressure to prescribe
- Generalization of limited beliefs
- Misleading beliefs about efficacy

**Industry**
- Promotion
- Misleading claims

**Drug Regulation**
- Availability of unsafe drugs
- Informal prescribers
- Etc.

**Drug Supply**
- Inefficient management
- Non-availability of required drugs
Impact of Inappropriate Use of Drugs

- Reduced quality of therapy
  - morbidity
  - mortality

- Waste of resources
  - Reduced availability
  - Increased cost

- Risk of unwanted effects
  - Adverse reactions
  - Bacterial resistance

- Psycho-social impacts
  - Patients rely on unnecessary drugs

Reduced availability
Increased cost
Adverse reactions
Bacterial resistance
Patients rely on unnecessary drugs
Activity 1

Meaning of Appropriate Use
Drugs per Case by Age Group:
E. Java & W. Kalimantan, Indonesia, 1987

Under 5
- Three: 27%
- Two: 14%
- One: 3%
- Four: 25%
- Five: 17%
- Six+: 13%

Five & Over
- Three: 29%
- Two: 9%
- One: 1%
- Six+: 6%
- Five: 19%
Drugs Per Case By Diagnosis
E. Java & W. Kalimantan, Indonesia, 1987

# Drugs per Case

- All Cases
- Diarrhea
- Resp. Dis.
- Skin
- G.I.
- Musculoskel.

- Under Five
- Five & Over
% Of Patients Receiving Antibiotics
E. Java & W. Kalimantan, Indonesia, 1987

None: 35%
One: 36%
Two: 27%
Three/More: 2%

Under 5:
One: 56%
None: 12%
Two: 29%
Three/More: 3%

5 & Over:
None: 35%
One: 36%
Two: 27%
Three/More: 2%
% Of Patients Receiving Injections
E. Java & W. Kalimantan, Indonesia, 1987

Under 5
- None: 56%
- One: 34%
- Two or More: 10%

5 & Over
- None: 26%
- One: 54%
- Two or More: 20%
ARI Treatment Pattern
E. Java & W. Kalimantan, Indonesia, 1987

Average # of Drugs Per Case

- Antibiotics
- Analgesic
- Cough/Cold
- Antihist.
- Others

Under Five
Five & Over
Other Drug Use Problems

- Incorrect treatment of malaria
  - incorrect use of chloroquin injection
- Poor compliance with TB therapy
  - causes treatment failure and resistant organisms
- Underuse of effective drugs
  - hypertension
  - depression
- Hospital drug use problems
  - antibiotic misuse for surgical prophylaxis
Average Number of Drugs per Patient
Public Sector Drug Use Indicator Studies 1990-1993

- Yemen
- Uganda
- Sudan
- Malawi
- Indonesia
- Bangladesh
- Zimbabwe
- Tanzania
- Nigeria
- Nepal
- Ecuador
- Guatemala
- Eastern Caribbean
- Jamaica
- Ghana
- Cameroon
- El Salvador

Yemen: 0-1
Uganda: 0-1
Sudan: 0-1
Malawi: 0-1
Indonesia: 3
Bangladesh: 0-1
Zimbabwe: 0-1
Tanzania: 0-1
Nigeria: 4
Nepal: 0-1
Ecuador: 0-1
Guatemala: 0-1
Eastern Caribbean: 1-2
Jamaica: 2
Ghana: 3
Cameroon: 2
El Salvador: 0-1

Average Number of Drugs per Patient

Average Number of Drugs: 0-5
% Prescribed as Generics
Public Sector Drug Use Indicator Studies 1990-1993

- Sudan
- Indonesia
- Zimbabwe
- Tanzania
- Nigeria
- Nepal
- Ecuador
- Guatemala
- Eastern Caribbean
- Ghana
- Cameroon
- El Salvador
- Jamaica

% Generic
% Receiving Antibiotics
Public Sector Drug Use Indicator Studies 1990-1993
Average Consultation Time
Public Sector Drug Use Indicator Studies 1990-1993

Average Consultation Time (mins)
Average Dispensing Time
Public Sector Drug Use Indicator Studies 1990-1993

Average Dispensing Time (seconds)

- Tanzania
- Nigeria
- Nepal
- Eastern Caribbean
- Ghana

Problems of Irrational Drug Use
% Patients Knowing Drug Dosing
Public Sector Drug Use Indicator Studies 1990-1993

- Malawi
- Indonesia
- Bangladesh
- Tanzania
- Nigeria
- Nepal
- Eastern Caribbean
- Ghana

% patients w/ dosing knowledge

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### % of Key Drugs in Stock
**Public Sector Drug Use Indicator Studies 1990-1993**

<table>
<thead>
<tr>
<th>Country</th>
<th>% of Key Drugs in Stock</th>
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<tbody>
<tr>
<td>Malawi</td>
<td>65</td>
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<td>Jamaica</td>
<td>100</td>
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</tbody>
</table>

- **% of Key Drugs in Stock**
- **Public Sector Drug Use Indicator Studies 1990-1993**
Activity 2

Identifying a Priority Problem
Conclusion

- Drug use is the end of the therapeutic consultation
- Health professionals have a responsibility to ensure that the right drug is prescribed, dispensed and taken.
- Methods exist to measure drug use and to change practices.
- Improving drug use improves the quality of care and frequently lowers cost.