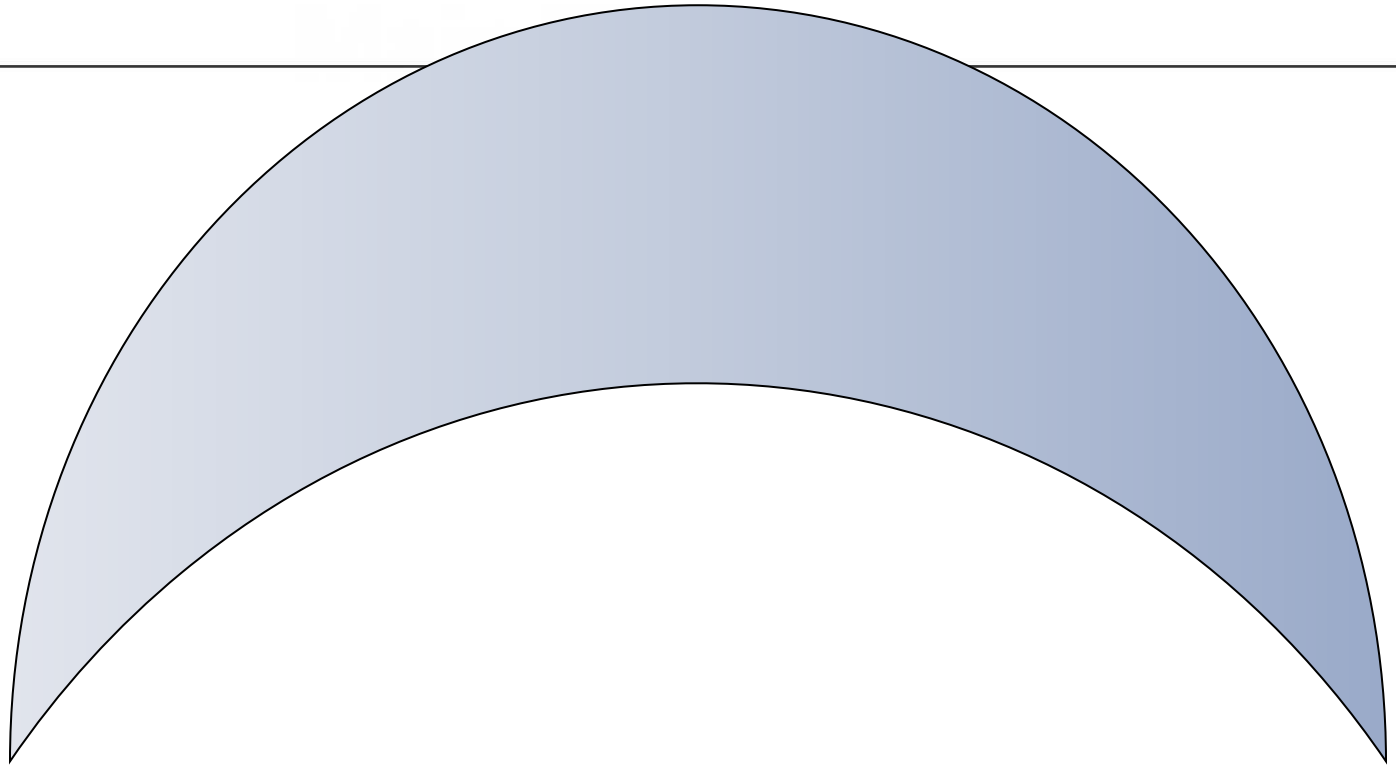
Introduction to Pharmacovigilance

Module 9 Topic 1

Medicine Safety

- To undergo treatment you have to be very healthy, because apart from your sickness you have to stand the medicine.

  Molière (Jean-Baptiste Poquelin 1622-1673)



Toxic

Safe

Pharmacovigilance

- The science and activities relating to the detection, evaluation, understanding and prevention of adverse drug reactions or any other drug-related problems

Pharmacovigilance comprises

- Collecting and managing data on the safety of medicines
- Looking at the data to detect 'signals' (any new or changing safety issue)
- Evaluating the data and making decisions with regard to safety issues
- Acting to protect public health (including regulatory action)
- Communicating with stakeholders
- Audit, both of the outcomes of action taken and of the key processes involved.

http://ec.europa.eu/health/human-use/pharmacovigilance/index_en.htm

Why pharmacovigilance?

- The information collected during the pre-marketing phase of a medical drug is inevitably incomplete with regard to possible adverse reactions
- Tests in animals are insufficiently predictive of human safety .
- In clinical trials patients are selected and limited in number, the conditions of use differ from those in clinical practice and the duration of trials is limited.
- Information about rare but serious adverse reactions, chronic toxicity, use in special groups (such as children, the elderly or pregnant women) or drug interactions is often incomplete or not available.

WHO Guidelines for setting up a PV center 2000

Why Pharmacovigilance?

- Adverse Drug Reactions are the 4th to 6th largest cause of mortality in the USA

  (Lazarou J. et al., 1998)
- The percentage of hospital admissions due to drug related events in some countries is about or more than 10%.

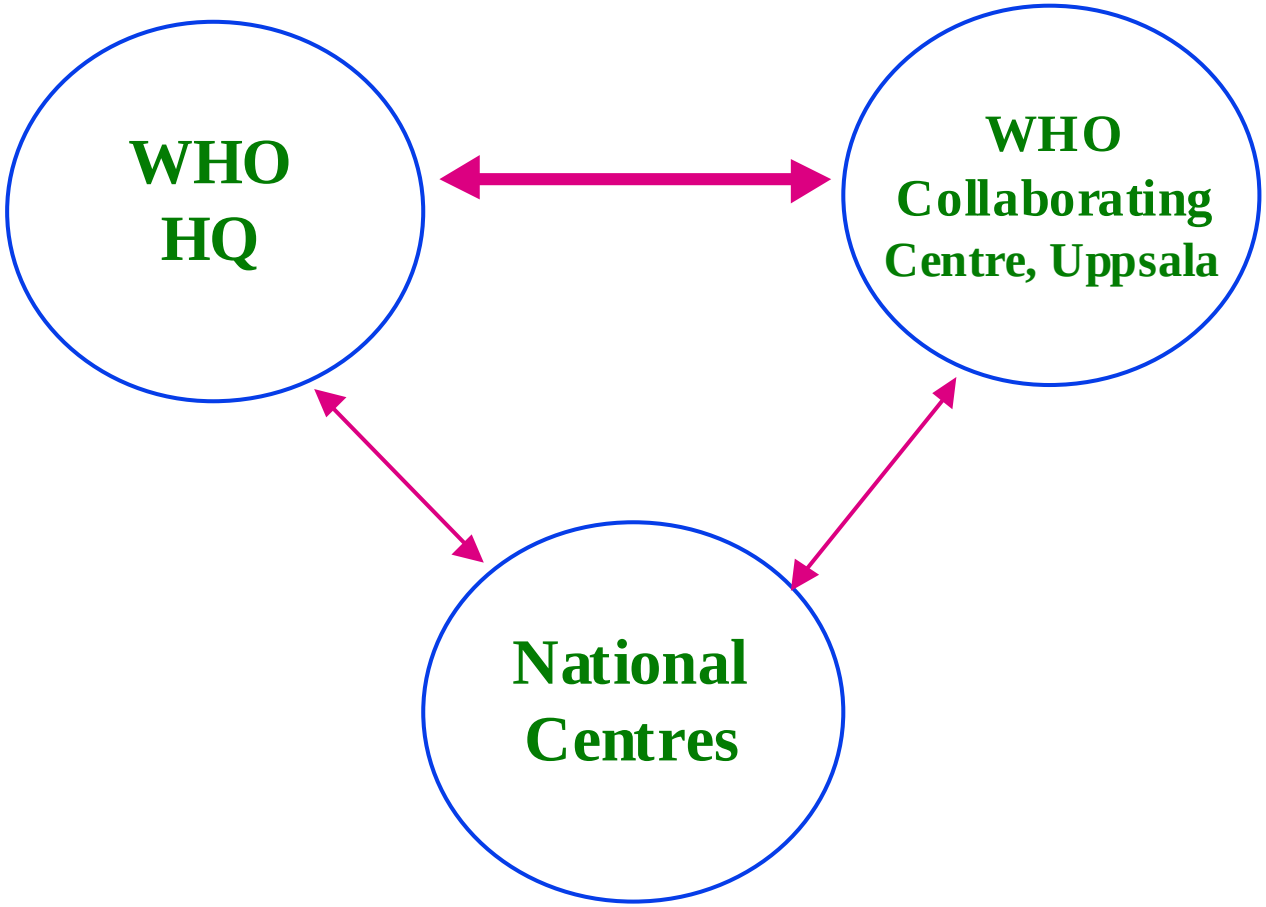
- UK Study : 10.1 % (Bhalla et al, 2003)
- Some examples of drug withdrawals due to ADRs follow

Drug	Launch	Withdrawal	Reason
Phenylbutazone	1940s	1970s	bone marrow suppression
Thalidomide	1956	1962	Phocomelia
Terodiline HCl	1965	1991	Torsade de pointes
Practolol	1970	1975	Blindness, occulomucocutaneous syndrome
Nomifensine	1976	1986	Haemolytic anaemia
Benoxaprofen	1982	1982	renal & liver failure, Bone marrow depression
Terfenadine	1985	1997	Torsade de pointes
Temafloxacin	1992	1992	Haemolytic anaemia
Cisapride	1993	2000	Torsade de pointes
Cerivastatin	1997	2001	rhabdomyolysis, death
Bromfenac	1997	1998	Hepatotoxicity

International actions towards PV

- Since 1978, WHO international drug monitoring programme at Uppsala. It also maintains WHOART dictionary (MedDRA more accepted)
- CIOMS – Council for International Organizations of Medical Sciences is an international, nongovernmental, not-for-profit organization established jointly by WHO and UNESCO in 1949
- ICH – International Conference on Harmonization also provides guidelines on ADR reporting in E2D.
- FDA, EU, DCG(I), other country bodies collaborate

WHO Programme for International Drug Monitoring



WHO -primary aims Pharmacovigilance

- to improve patient care and safety in relation to the use of drugs, and all medical and paramedical interventions;
- to improve public health and safety in relation to the use of drugs;
- to contribute to the assessment of benefit, harm, effectiveness and risk of drugs, encouraging their safe, rational and more effective (including cost-effective) use;
- to promote understanding, education and clinical training in pharmacovigilance and its effective communication to health professionals and the public.

WHO Programme for International Drug Monitoring (HQ)

- Policy
- Exchange of Information
- Technical support to countries
- Advisory Committee on Safety of Medicinal Products

Exchange of Information

- WHO Pharmaceuticals Newsletter
- WHO Drug Alerts
- WHO Drug Information
- WHO Restricted Pharmaceuticals List
- (Vigimed - electronic exchange)
- (Uppsala Reports)
- (Signal)

Technical support to countries

- Technical guidelines on all aspects of pharmacovigilance

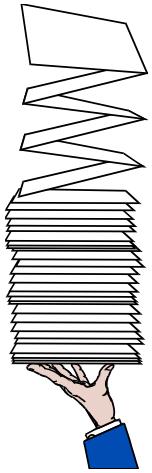
  (Several publications and documents)
- Training courses on pharmacovigilance

  (Regional Training Courses, biennial course by UMC and HQ)

WHO Collaborating Centre (Uppsala Monitoring Centre)

ADR database

- No of reports: more than 3 million
- Each year increase ~250,000 / year
- Top 5 reporting countries
  - USA
  - United Kingdom
  - Germany
  - Australia
  - Canada



WHO Collaborating Centre (Uppsala Monitoring Centre)

ADR Reports

- Analysis
- Data mining (BCPNN)
- Output
  - Feedback to National Centres
  - Signal documents
  - Ad hoc research results