The Anatomical Therapeutic Chemical Classification and the Defined Daily Dose: Classifying and Quantifying Drug Use

Hanne Strøm
WHO Collaborating Centre for Drug Statistics Methodology
Department of Pharmacoepidemiology
Norwegian Institute of Public Health

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Outline

• The ATC/DDD methodology
  - definitions, purpose and structure
• The activities of the WHO Centre
• Practical use in drug utilization
  - indicator and version control

Definitions

• ATC
  Anatomical Therapeutic Chemical classification

• DDD (Defined Daily Dose)
  The assumed average maintenance dose per day for a drug used for its main indication in adults
Main purpose

“International language for drug utilization research”

- to serve as a tool for presenting drug utilization research in order to improve quality of drug use
- to group drugs to facilitate retrieval

Recommended by the WHO Headquarters as the international standard for drug utilization studies

Structure of the ATC code

A ALIMENTARY TRACT AND METABOLISM (1st level, anatomical main group)
A10 DRUGS USED IN DIABETES (2nd level, therapeutic subgroup)
A10B BLOOD GLUCOSE LOWERING DRUGS, EXCL. INSULINS (3rd level, pharmacological subgroup)
A10BA BIGUANIDES (4th level, chemical subgroup)
A10BA02 METFORMIN (5th level, chemical substance)

p.33:
“….. Each classification system will have its advantages and limitations and its usefulness will depend on the purpose, the setting used and the user’s knowledge of the methodology …..”

Also available from the WHO website:
http://www.who.int/medicines/areas/quality_safety/safety_efficacy/utilization/en
The concept of the DDD

- A technical unit of measurement, represents an "average" daily dose for the main indication
- Useful for measuring and comparing volumes of drug use
- Should not be considered as the "correct" dose but as an international compromise based on review of available documentation

The WHO Collaborating Centre for Drug Statistics Methodology

- Established in 1982 as a European WHO Centre
- Since 1996 a global WHO Centre
- Located in the Department of Pharmacoepidemiology at the Norwegian Institute of Public Health
- The staff of the Centre is responsible for drug consumption statistics in Norway

The WHO Centre

Terms of reference:
- To classify drugs according to the ATC system and assign defined daily doses (DDDs)
- To review and revise as necessary the ATC classification system and DDDs
- To stimulate and influence the practical use of the ATC system
- To organize training courses in the ATC/DDD methodology
The WHO Centre

Collaborates with a global expert group in assigning ATC codes, DDDs and alterations:

• 12 members from: Australia, Denmark, Ecuador, Ghana, India, Japan, Morocco, Pakistan, Sri Lanka, The Netherlands, USA and Zimbabwe

• Two meetings annually

Drug exposure - expressed in DDDs

The most common indicator:

• DDDs/1000 inhabitants/day

Example: 10 DDDs/1000 inhabitants/day

Indicates that 1% of the population can receive a certain treatment continuously (i.e. daily)

Note: Only true if the DDD is equal to the actual dose used

Used as surrogate for point prevalence (therapeutic intensity)

Sales of contraceptives in Norway (ATC gr.G03A)1967-2010
(excl IUDs, vaginal rings, implants and inj.)

NorPD 2009: 286 000 women
Sales of agents used in e.g. hypertension in the Nordic countries in 2008

Source: Medicine consumption in the Nordic countries 2004–2008, Norwece

**Practical use in drug utilization...**

**Challenge:**

- We provide a tool where ATC and DDD are established for generic substances. The users have to make the correct link between the ATC/DDD value and the medicinal product

**National drug register - link to ATC/DDD**

- ATC codes should be linked correctly to the product on the package level
- Number of DDDs per package should be calculated
- Procedures for updating the medicinal product register according to the latest ATC/DDD version should be introduced

It is recommended that this task is allocated to a national centre in each country and done by competent persons with proper knowledge of the methodology
ATC/DDD alterations

Alterations of ATC codes and DDDs are sometimes necessary in order to keep the system reasonably updated according to the changes in drug therapy.

Since alterations do occur, it is important to be aware of the version of the ATC/DDD system that is used in drug consumption studies especially when comparing data over time and when making international comparisons.

Are published data comparable?

ESSENTIAL INFORMATION:

Which ATC codes and DDDs are used

Be aware of DDD alterations!

Since 2000 alterations are made in e.g. the following groups:

- Heparin group - B01AB
- Antibacterials - J01
- Antivirals - J05
- Proton pump inhibitors - A02BC
- Coxibs - M01AH
- Anti-dementia drugs - N06DA
- Statins - C10AA
Sales of statins (C10AA) in Norway 2000 - 2008

Request new ATC codes, DDDs and alterations

- New ATC codes and DDDs are assigned on request (DDDs routinely assigned for approved NCEs)
- ATC/DDD alterations can also be requested by the users
- Health authorities, pharmaceutical manufacturers, other users of the ATC classification system can apply
- All requests should be addressed to the WHO Centre in Oslo

Messages to bring home:

- Correct link of ATC code and DDD value (i.e. number of DDDs/package) at the medicinal product package level
- Request new ATC codes and DDDs if they are not available
- Be aware of the ATC/DDD version used and give proper references in all publications and statistics
CONCLUSION

- ATC/DDD system is “the gold standard” for international drug utilization research
- ATC/DDD is a tool for exchanging and comparing data on drug use at international, national or local levels

More information

www.whocc.no

...or annual ATC/DDD courses in Oslo, Norway