



## DEPARTMENT OF GLOBAL PUBLIC HEALTH

### **K9F5695, Basic Pharmacoepidemiology and Critical Review of Pharmacoepidemiological Scientific Literature In a Global Context, 3 credits (hec)**

Grundläggande farmakoepidemiologi och granskning av farmakoepidemiologisk vetenskaplig litteratur i globalt perspektiv, 3 högskolepoäng

*Third-cycle level / Forskarnivå*

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#### **Approval**

This syllabus was approved by the The Committee for Doctoral Education on 2024-01-03, and was last revised on 2025-01-27. The revised course syllabus is valid from spring semester 2025.

#### ***Responsible department***

Department of Global Public Health, Faculty of Medicine

#### **Prerequisite courses, or equivalent**

No prerequisite courses, or equivalent, demanded for this course.

#### **Purpose & Intended learning outcomes**

##### **Purpose**

The purpose of the course is that the participants should gain basic knowledge about different study designs used in pharmacoepidemiological studies. The participants should further gain basic knowledge about how to design, conduct, analyse, interpret and report pharmacoepidemiological studies as well as treatment effects and adverse reactions to pharmaceuticals. The participants should also gain knowledge about determinants of drug use in countries at various income levels. The course will qualify the participants to critically review and evaluate pharmacoepidemiological studies.

##### **Intended learning outcomes**

At the end of the course the student should be able to:

- Demonstrate knowledge of basic concepts in pharmacoepidemiology and its relevance for public health and for health policy making

- Discuss common study designs and methods used in pharmacoepidemiological studies, including clinical trials
- Explain the applications of these methods for studies of effects and adverse effects of drugs and economic consequences
- Describe different types of data sources on drug exposure and explain their strengths and weaknesses
- Describe systems for the reporting of adverse effects and explain their use for pharmacoepidemiological studies
- Explain design of and methods to evaluate interventions qualitatively and quantitatively
- Independently evaluate pharmacoepidemiological studies from scientific literature

## Course content

The course will provide an introduction to what pharmacoepidemiology is, how pharmacoepidemiological studies are conducted, how to interpret pharmacoepidemiological findings, and the relevance of pharmacoepidemiology for public health and for health policy making. The participants will be introduced to basic concepts in pharmacoepidemiology and drug statistics methodology (the ATC/DDD system). Choice of study design and common pitfalls in pharmacoepidemiological research will be discussed. Determinants of drug use such as health systems, policies, prescriber and patient factors in various contexts (low-, middle- and high-income countries) will be explored. Methods to improve use of drugs will be presented, including the role of guidelines and various kinds of information or educational interventions directed to health care professionals, patients or the public. Ways of evaluating such interventions will be presented and discussed. Clinical trial designs, including ways to design and report these, will be discussed. The role of pharmacoepidemiological studies in pharmacovigilance (drug safety) will also be discussed.

## Forms of teaching and learning

The course will use KI:s learning platform Canvas. Learning activities include lectures, seminars, individual work and group work.

### *Language of instruction*

The course is given in English

## Grading scale

Pass (G) /Fail (U)

## Compulsory components & forms of assessment

### Compulsory components

It is compulsory to attend seminars and to participate in individual work and group work. Absence will have to be compensated by extra individual assignments provided by the course organizers.

## Forms of assessment

Individual oral and written presentation of group work. Each student will be assessed individually.

## Course literature

Recommended reading:

1. Strom BL, Kimmel SE, Hennessy S. Pharmacoepidemiology. 5th edition, Wiley, 2012 (selected parts according to individual needs and as recommended during the course) (e-book available)
2. Elseviers M, Wettermark B, Almarsdottir AB et al. Drug Utilization Research: Methods and Applications. 1st edition , Wiley, 2016
3. World Health Organization. Introduction to Drug Utilization Research. 2003. Available from:  
<https://apps.who.int/iris/bitstream/handle/10665/42627/924156234X.pdf;jsessionid=94C5461F6BAE0904ACD443E0AE6163DA?sequence=1>

Current scientific articles will be recommended throughout the course.