

PhD position at the University Medical Centre Utrecht, The Netherlands

Project: Modelling of the transmission and prevention of blood borne infectious diseases in injecting drug users

Department

The Julius Center for Health Sciences and Primary Care is part of the University Medical Center Utrecht. It carries out scientific research, provides education, and offers expertise and facilities in the area of clinical health sciences. Within the Julius Center the division of infectious diseases is a growing research group with a strong focus on the application of mathematical modelling as a research tool for epidemiology and public health.

Research project

Injecting drug users (IDU) are at a very high risk to contract blood borne infections (BBI) through the sharing of injection equipment. The core of harm reduction programs is providing methadone (for heroin users) with socio-medical care combined with needle/syringe exchange. Although there is evidence that harm reduction can be effective and lower the incidence of BBI, in particular of HIV (which is less easily transmitted through blood-blood contact than hepatitis B (HBV) and hepatitis C virus (HCV)), there is still ongoing discussion as to whether the evidence is conclusive or not. This research project aims to investigate the factors that have led to the decreasing incidence and prevalence of three BBI (HIV, HCV and HBV) using an analytic approach. Based on data from an ongoing long-term cohort study among drug users, we will use mathematical modelling to disentangle the contributions of harm reduction and intrinsic infection dynamics. The project will be conducted in close collaboration with the Amsterdam Cohort Studies among (injecting) drug users. The proposed analysis will help to rationalize the international debate on the value of harm reduction as a public health measure. Furthermore, they will provide guidance for designing interventions for ongoing and future outbreaks of BBI among IDU.

Research environment

The PhD candidate will work as part of a multidisciplinary team that has long-standing experience in collaboration on the interface between mathematical modeling and statistics, epidemiology and public health. The project will be conducted within the Utrecht Centre for Infection Dynamics, which is a newly founded centre of collaboration between the University Medical Centre Utrecht, Utrecht University and the RIVM with an active involvement of the research team of the Public Health Service Amsterdam (GGD Amsterdam). The UCID seeks to bring together expertise in epidemiology, microbiology, immunology, mathematics, biostatistics, and public health. The project will be conducted in close collaboration with researchers at the GGD Amsterdam, who are leading the Amsterdam Cohort Studies. At the GGD Amsterdam an epidemiologist will work on this project to extract and interpret the epidemiological data needed for statistical and mathematical analysis. In a wider context, the project will be embedded in ongoing collaboration with the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA).

Conditions

The project is funded by the Netherlands Organisation for Health Research and Development (ZonMw) within the programme infectious disease control. The duration of this project is four years. An academic promotion is the aim of the project. Part-time employment is optional.

Applicant

The PhD candidate should have successfully completed a masters degree in theoretical biology, mathematics, biostatistics or a similar discipline. Experience with mathematical modelling and advanced statistical techniques is an advantage. The candidate should have a broad interest in the application of mathematical methods to epidemiological and public health questions. He/she should be able to communicate well with researchers from other disciplines and should be eager to learn to solve problems on the interface of theoretical epidemiology and public health. With support of the research team, the applicant is expected to write scientific papers on the results of the project and give presentations at national and international meetings.

Contact

For further information please contact Dr. Mirjam Kretzschmar at m.e.e.kretzschmar@umcutrecht.nl
Letters of application can be sent to the same address. Deadline for application is June 30, 2009.