

# Antibiotic prescription in Danish general practice: Determinants for variation in use of microbiological diagnostic methods and patterns of prescription

By: *Rikke Vognbjerg Sydenham, MD, PhD student*

*Primary Advisor: Line Bjørnskov Pedersen, associate professor, senior researcher, master of science and economics*

## Background

Antibiotics are essential when treating potentially lethal infections. The increasing emergence of resistant bacteria is considered one of the primary threats to public health. The usage of broad-spectrum antibiotics increases the level of resistant bacteria. The majority of antibiotics are prescribed from general practice. The prescription of broad-spectrum antibiotics and the level of resistant bacteria are both increasing in Denmark.

## Aim

The overall aim of the project is to extend our knowledge of antibiotic consumption in Danish general practice with emphasis on specific types of antibiotics. The project will shed light on the impact of microbiological diagnostic methods on the choice of antibiotic. The project will also explore the impact of selected factors on the process of treating infectious diseases and prescribing antibiotics.

The project contains the following partial studies:

1. To analyse the extent to which microbiological investigations are carried out before selected types of antibiotics are prescribed; To analyse possible associations with patient characteristics and comorbidity.
2. To analyse the variance in the use of microbiological diagnostics and antibiotic prescription among general practitioners and to examine whether selected GP characteristics are associated with such use.
3. An analysis of the influence of selected factors on antibiotic prescriptions by GPs in the case of respiratory tract infections.

## Method

Partial studies 1 and 2 will be performed in the course of a register-based study and will be based on data on patients who have redeemed a prescription for antibiotics within a period of 10 years. These data will be linked to information on microbiological investigations performed in general practice, demographic and socioeconomic information. The project will assess and quantify the usage of microbiological diagnostic methods prior to antibiotic prescription. We will also investigate the GP characteristics associated with the use of microbiological investigations and prescription behaviour.

The third part of the project will involve a Discrete Choice Experiment presenting the general practitioners with a series of theoretical scenarios. These scenarios will reflect clinical cases concerning the management of patients who have symptoms of infections. The general practitioner is asked to choose between a number

of options including the prescription of antibiotics. This partial study aims to determine the relative importance of selected factors in prescription behaviour among general practitioners.

### **Perspectives**

The project will contribute to existing knowledge with information on the factors contributing to antibiotic prescription in general practice, including the factors which influence the use of microbiological investigations. The results will create a base for targeted interventions aiming to optimize diagnostic approaches to infectious diseases. The aim is to provide benefits at the individual level and to society as a whole.

### **Supervisors**

Main supervisor Dorte Ejg Jarbøl, PhD, associate professor, senior researcher, MD Co-supervisor Line Bjørnskov Pedersen, postdoc, assistant professor, cand.oecon Co-supervisor Malene Plejdrup Hansen, postdoc, PhD, MD Co-supervisor René dePont Christensen, PhD, statistician

### **Project status**

The project will be carried out from April 2016 until April 2019.

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