

TFK programme, funded projects 2025

Project title: Mathematical and statistical modelling of communicable and noncommunicable diseases - from academic research to practice	
Coordinator University of Helsinki Sangita Kulathinal, sangita.kulathinal@helsinki.fi	The COVID-19 pandemic that took the world by surprise has brought the need to be prepared for future pandemics. The preparation includes expertise in mathematical and statistical modelling of infectious diseases to enable quick decision making based on the modelling and timely dissemination of information. Mathematical modelling entails simulation of various scenarios even in the absence of any real data while statistical modelling facilitates use of existing information in drawing inferences. For the future pandemic, a combination of the two modelling approaches is paramount. Apart from emerging infections, many endemic diseases remain public health concerns. Although the challenges of Finland and India with regard to infectious diseases may appear quite different on the surface, there are synergies. For example, the sexually transmitted human papillomavirus (HPV), causing cervical cancer, and other cancers, is a timely topic in both Finland and India. HPV vaccination programs have been recently launched or about to start. Due to globalisation, diseases spread from one geographical region to another. Many non-communicable and chronic diseases are also on the rise and treatments of these diseases require substantial budget resources. Understanding the disease burden and establishing evidence-based treatment protocols are important from the individual as well as from the population viewpoints. Finland has a rich source of nationwide population and health registers, while India relies, to some extent, on local registers. Both countries have excellent mathematical and statistical expertise. In addition, Finland has long-term experience in working with real-world data and synthesising evidence based on them. Main aims are: train researchers from both countries in mathematical and statistical modelling of communicable and non-communicable diseases and related statistical methods, to enable taking the findings from the modelling to practice to support public-health decision making; provide necessary exposure to researchers in real-world data structures, analysis challenges and evidence synthesis; and develop a joint curriculum to continue the training in disease modelling as well as in related statistical methods in the partner universities. The activities involve are: explore the possibilities of sharing the existing regular courses offered by the partner universities; plan and implement new hybrid intensive courses offered jointly by the faculty of the Finnish and Indian partners; students/staff mobility; plan long-term curriculum cooperation. The project will bring experts from UH, UTU, IITB, and MAHE, India, together for capacity building in the field of disease modelling. This will help to make informed decisions at various levels. The project is expected to
Partners Indian Institute of Technology Bombay (IITB), Manipal Academy of Higher Education (MAHE), University of Turku	

	train students for capacity building in disease modelling, which will enable the use of state-of-the-art disease models and analysis methods to tackle public health challenges.
--	--



OPETUSHALLITUS
UTBILDNINGSSTYRELSEN

Finnish National Agency for Education EDUFI
Hakaniemenranta 6, P.B. 380, FI-00531 Helsinki
Puh. /Tel. +358 (0) 29 533 1000, Faksi /Fax +358 (0) 29 533 1035
www.oph.fi