NOZGEKA SHORT COURSES PILOTED IN APRIL 2024

CLINICAL BASICS OF INFECTIOUS DISEASES AND MATHEMATICAL MODELLING

8TH – 19TH APRIL 2024

INTRODUCTIONS

NOZGEKA is an initiative funded by the German Academic Exchange Service (DAAD). The project aims at establishing a Master of Science in Public Health Program with a focus on infectious disease epidemiology. We will implement the program at the University of Livingstonia and Mzuzu University in collaboration with the University Medical Centre Freiburg, the University of Münster and the Helmholtz Centre for Infection Research in Germany.

The short courses presented here will be adapted towards core modules in this Master of Science starting in 2025.44 health professionals from various organisations and government departments, universities and ministry of health within Malawi

WHERE DID THE COURSES TAKE PLACE?

The courses were conducted at Kaning'ina campus, University of Livingstonia, practical sessions on Clinical Basics were conducted at Mzuzu Central Hospital, while the closing ceremony was conducted at Mzuzu University.

NOZGEKA Stakeholders Meeting and Trainings closing Ceremony at Mzuzu University_2024. @NOZGEKA 2024. Rights Reserved.

HOW MUCH DID THE COURSES COST?

Tuition fees, lunch and coffee breaks were covered by the course. Costs not covered include; transport to and from Mzuzu, commuting during the training period, dinner and accommodations.

1. CLINICAL BASICS OF INFECTIOUS DISEASES

COURSE SCOPE

Infectious diseases remain a leading cause of morbidity and mortality worldwide. Public health and healthcare professionals are often confronted with questions and decisions that require knowledge of prevention and clinical management of infectious diseases. With this course, we would like to provide these professionals with an adequate basis on pathogenesis, main clinical features, diagnostics and main treatment and prevention strategies for infectious diseases. This two-week course was intended to introduce students and public health professionals from non-clinical fields to clinical basics of infectious diseases. The course was based on lectures, seminars and practical sessions.

COURSE OBJECTIVE

To equip course participants with basic knowledge on pathogenesis, epidemiology, clinical features, and basic principles of management of relevant infectious diseases.

MAIN TOPICS COVERED WERE

- Terminologies and general principles in clinical medicine
- Respiratory infections, e.g. COVID-19 and tuberculosis
- Vector-borne diseases, e.g. malaria and dengue
- Food and water-borne diseases, e.g. hepatitis A and cholera
- Sexually transmitted infections (STIs), e.g. HIV and syphilis
- Antimicrobial resistance and infections/colonisation with multi-resistant bacteria
- Anti-infective treatment strategies
- Parasitic infections, e.g. schistosomiasis

- Infections of the skin, e.g. leprosy, yaws, Mpox
- Nosocomial and wound infections
- Vaccine-preventable diseases
- Emerging Infections

WHO PARTICIPATED?

The clinical basics course was designed for public health professionals and students from non-clinical backgrounds who have an interest in infectious diseases control.

Males	**10**
Females	12
Totals	22

The course was attended by health professionals from various organisations and government departments, universities and ministry of health within Malawi.

Practical Session during Clinical Basics Trainings at Mzuzu Central Hospital in Malawi_2024. @NOZGEKA 2024. Rights Reserved.

2. MODELLING OF INFECTIOUS DISEASE DYNAMICS

COURSE SCOPE

New pathogens continue to emerge, causing unforeseen outbreaks leading to events like the influenza pandemic in 2009, the Zika epidemic in 2016, and the SARS-CoV-2 pandemic. Mathematical models are being increasingly used to understand the transmission of infections and to evaluate the potential impact of control programmes in reducing morbidity and mortality.

This two-week course was intended to introduce students and professionals working on infectious diseases or with an interest in them to the exciting and expanding area of mathematical modelling of infectious diseases. The course emphasised on developing a conceptual understanding of the basic methods and practical applications of mathematical modelling of infectious disease dynamics.

The course was based on lectures and "hands-on" practical sessions included setting up models in specialist modelling software, small group work, and seminars.

COURSE OBJECTIVES WERE:

- To teach participants the rationale for and applications of mathematical models for infectious disease dynamics
- To teach participants the skills to construct, parametrise, and program models according to the infectious agent of interest and the underlying research questions
- To impart participants with competencies to critically appraise published modelling studies with respect to their applicability, quality, and risks of bias

WHO PARTICIPATED?

The course is designed for health professionals / students or professionals / students with a quantitative background who have an interest in infectious disease modelling.

Males	**17**
Females	5
Totals	22

The course was attended by health professionals from various organisations and government departments, universities and ministry of health within Malawi.

Participants successfully completed modelling of infectious disease training at University of Livingstonia_2024. @NOZGEKA 2024. Rights Reserved

SOFTWARE USED

We used Berkeley Madonna and NetLogo. No prior knowledge was needed. Participants were asked to bring their laptops.

COURSE IS FUNDED BY

DAAD Deutscher Akademischer Austauschdienst
German Academic Exchange Service