



Infectious diseases continue to threaten humanity. The emergence of novel human pathogens and old pathogens in new environments has tested the bounds of existing infectious diseases intelligence generation and response capacity. Recent experiences with infectious diseases management has seen new and expanded roles for military, health agencies, international organisations, NGOs and other stakeholders, all of whom should have an in-depth grounding in infectious diseases intelligence. This course is for professionals wanting to gain an in-depth understanding of the public health intelligence of infectious diseases, who wish to extend themselves with diverse real-life scenarios to gain new skills which can be applied in their professional practice.

You do not have a background in health?

We cater for all needs and include a pre-course module which will provide you the required background in infectious diseases, public health and epidemiology .

Overview

Infectious diseases intelligence refers to the understanding of the complex epidemic patterns of infectious diseases and the application of this knowledge to effective disease control, mitigation and prevention. Infectious diseases contribute significantly to the global burden of diseases and remain leading causes of death across the world.

Emerging and re-emerging infections such as pandemic influenza, Ebola, dengue, chikungunya and MERS Corona Virus (CoV) pose an additional public health challenge and require coordinated and systematic disease control responses.

A multi-disciplinary, public health approach is needed to understand the requirements for infectious diseases control at a population level.

This course uses case studies to teach epidemiologic disease pattern recognition, identification of aberrant patterns, and interpretation of epidemic and surveillance data to inform disease control. An overview of field epidemiology methods and mathematical modeling of infectious diseases will also be provided. Case studies will include H7N9, MERS coronavirus and a salmonella outbreak.

Course description

- The course will provide a grounding in epidemiological pattern recognition (epidemic, endemic, sporadic) in infectious diseases for first-outbreak responders, surveillance officers, or policy makers from medicine, allied health, public health, emergency management, law enforcement, military or others from relevant backgrounds.
- Case studies in risk assessment, risk mitigation, response and prevention will be studied. These will cover Ebola virus disease, MERS-CoV, avian influenza and salmonellosis; distinguishing natural from unnatural epidemics, surveillance tools, rapid intelligence and analysis methods.
- Data quality in resource limited settings and implications for risk assessment will be examined.
- Understanding of modelling and forecasting of infectious diseases based on known transmission dynamics and patterns will also be explored.
- Preparation of first line responders to optimise usage of infectious diseases intelligence techniques will be covered, including prioritisation of data sourcing/mining, strengthening, mapping disease transmission patterns to modes of transmission, and ultimately epidemic control measures.

Who should do this course?

This course is designed for relevant stakeholders from any sector, who wish to gain a better understanding of infectious diseases intelligence in the era of new and emerging disease threats, and management approaches for the identification, assessment, prevention and control of infectious diseases. Students will have an intensive, interactive experience, which will include exposure to the perspectives of different stakeholder sectors in infectious diseases.

Flexible delivery

For busy professionals with diverse needs, we provide you the flexibility to do this intensive course in Sydney in face-to-face workshop mode or as a fully online intensive. We ensure an equivalent interactive and intensive experience regardless of which mode of delivery you choose. Our experienced tutors will also be available to discuss problems online as well as face-to-face in the classroom.

You can take this course as an enrolled student for credit, or as a stand-alone course for professional development. We are happy to discuss flexible provision of the course to organisations.

Location

School of Public Health and Community Medicine, UNSW, Sydney Australia.

Enquires

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Images courtesy of: MERS Coronavirus particles: Flickr: H7N9: China Press; Pandemic Influenza graph: WHO; Bird flu outbreak: IB Times; Doctors testing swine flu, airport: Flickr.

UNSW Faculty



Prof Raina MacIntyre

is Head of the School of Public Health and Community Medicine at UNSW and Professor of Infectious Disease Epidemiology. She is an international leader in emerging infections

and runs a highly strategic research program spanning epidemiology, vaccinology, mathematical modelling, public health and clinical trials in infectious diseases. She is best known for research in the transmission dynamics and prevention of infectious diseases, particularly respiratory pathogens such as influenza. She has led the largest body of research internationally on face masks and respirators in health care workers. She has done research on using risk-analysis methods for bioterrorism, and for analysing emerging infectious diseases outbreaks such as MERS-CoV. She is a leader in adult vaccination with a focus on the elderly. She also has an interest in the ethics of medicine, and specifically in dual-use research of concern. She leads a NHMRC Centre for Research Excellence immunisation for high risk populations and won the 2014 PHAA National Immunisation Award. Prof MacIntyre has over 230 publications in peer-reviewed journals. Her research is underpinned by extensive field outbreak investigation experience. Her in-depth understanding of the science of outbreak investigation draws from this experience combined with her academic training through a Masters and PhD in Epidemiology. Her passion for field epidemiology led her to co-found the ARM network for Australian outbreak response.



Dr Alex Rosewell

is a graduate of the Australian Field Epidemiology Training program, the MAE at ANU, and completed his PhD on "Strengthening Disease Surveillance in Papua New Guinea" at UNSW, while working in the Emerging Diseases Surveillance and Response Team in WHO. He has extensive experience in infectious diseases outbreak control including cholera, Ebola, shigellosis, measles, influenza, meningococcal disease, hepatitis E, pertussis and turtle meat poisoning. He has substantial field experience with WHO/PAHO in Papua New Guinea, Haiti, Nicaragua, India, Sierra Leone, Jordan, Philippines etc. He is administrator of the ARM network for Australian outbreak response.



Dr Mohamud Sheikh

is a Senior Lecturer in International Health and Infectious Diseases and Co-Director Infectious Diseases Intelligence Programs.

In his nearly 24 years of experience in tropical and infectious diseases control, he has conducted various public health works internationally in developing and developed countries such as Kenya, Uganda, Ethiopia, Somalia, Middle East and Australia respectively. He has been teaching Master of International Health courses for nearly 13 years thus drawing a wealth of knowledge in the field of global health. During his



overseas work, Mohamud has been involved in the epidemiology and control of tropical diseases particularly infectious, vector-borne and other communicable diseases with a focus on aspects of field public health anthropology, medical entomology, laboratory surveillance and outbreaks investigations of infectious diseases. Dr Sheikh has also had numerous contributions to resource poor communities around the world through his charity and volunteer work, especially in Africa, Middle East, Pakistan, Bangladesh and Australia. He has contributed to the field of humanitarian and philanthropic work since the age of eight and has recently launched his lifetime dream project – "Eradication of Preventable Blindness in Africa" – a remarkable humanitarian mission. He also heads two not-for-profit charitable organisations based in Australia and the Horn of Africa region.



Dr Chau Bui

is a veterinarian, (Bachelor of Veterinary Science from the University of Sydney), with a Masters of International Public Health from the University of New South Wales. She is working on a

PhD project which examines the epidemiology of avian influenza viruses in birds and humans using spatial modelling methods. Her research interests include zoonotic emerging infectious diseases, spatial epidemiology and Geographic Information Systems (GIS).



Dr David Muscatello

is a Senior Lecturer at the School. He has a PhD in the epidemiology of influenza.

He also has many years experience in government as an epidemiologist specialising in acute disease surveillance

using administrative databases, public health intelligence and biostatistics including time series analysis. He played a major surveillance role in the New South Wales government response to pandemic influenza in 2009 and has served on the Australian National Influenza Surveillance Committee. David is also a graduate of the New South Wales Public Health Officer Training Program and has supervised and trained numerous Public Health Officer and Biostatistical trainees.

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