# Day 1 - Monday 7 May 2018

## OPENING REMARKS AND COURSE INTRODUCTION

08.30 - 09.00
**Hassan Zaraket** (Faculty of Medicine, American University of Beirut, Lebanon) & **John Wood** (National Institute for Biological Standards and Control, Hertfordshire, UK - retired)

Welcome and Introduction to the School and **isiv**

**Mohammad Sayegh** (Dean, Faculty of Medicine, American University of Beirut, Lebanon)

Welcome to the American University of Beirut

**Ghazi Zaatari** (Chairman, Department of Experimental Pathology, Immunology, and Microbiology, Faculty of Medicine, American University of Beirut, Lebanon)

Introduction of Department of Experimental Pathology, Immunology, and Microbiology

## EPIDEMIOLOGY AND ECOLOGY

09.00 - 09.40 **Hassan Zaraket** (American University of Beirut, Lebanon)

*Human influenza, burden of disease*

09.40 - 10.10 **Mamunur Rahman Malik** (Eastern Mediterranean Regional Office, WHO, Egypt)

*Influenza in the Eastern Mediterranean region*

10.10 - 10.40 **Nada Ghosn** (Ministry of Public Health, Lebanon)

*SARI surveillance Lebanon*

10.40 - 11.00 **Ghassan Dbaibo** (American University of Beirut, Lebanon)

*Outpatient influenza surveillance in Lebanon*

11.00 - 11.30 **Coffee & Networking**

11.30 - 12.00 **Isabella Monne** (OIE reference laboratory / FAO reference centre for avian influenza and Newcastle disease, Italy)

*Animal influenza*

12.00 - 13.00 **Richard Webby** (WHO Collaborating Center for Studies on the Ecology of Influenza in Animals and Birds, Center of Excellence for Influenza Research and Surveillance, St Jude Children’s Research Hospital, USA)

*Influenza at the human animal interface*

13.00 - 14.00 **Lunch**

14.00 - 14.45 **Ziad Memish** (Alfaisal University, Ministry of Health, KSA; Emory University, USA)

*MERS-CoV, influenza and Hajj: burden and challenges*

14.45 - 15.30 **Ziad Memish** (Alfaisal University, Ministry of Health, KSA; Emory University, USA)

*MERS-CoV surveillance and ecology*

## VIROLOGY

15.30 - 16.30 **Maria Zambon** (Public Health England, UK) —via video

*Influenza virus structure, replication, and pathogenesis*

16.30 - 17.00 **Coffee & Networking**

17.00 - 18.00 **Stanley Perlman** (University of Iowa, USA)

*MERS-CoV structure, replication, and pathogenesis*
Day 2 - Tuesday 8 May 2018

DIAGNOSIS AND ANALYSIS TOOLS

09.00 - 10.00 Isabella Monne (OIE reference laboratory / FAO reference centre for avian influenza and Newcastle disease, Italy)
Genetic databases and analysis tools (NCBI and GISAID)

10.00 - 11.00 Maria Zambon (Public Health England, UK) —via video including live Q&A
Influenza and MERS-CoV Diagnostic tools: current and future perspectives

11.00 - 11.30 Coffee & Networking

PREVENTION AND CONTROL: VACCINES I

11.30 - 12.30 John Wood (Formerly NIBSC, UK)
Influenza vaccines

12.00 - 13.00 Ali Ellebedy (Washington University, USA)
The immune response to influenza infections and immune correlates of protection

13.00 - 14.00 Lunch

14.00 - 15.00 John Wood (Formerly NIBSC, UK)
Influenza vaccine virus selection process

15.00 - 16.00 Stanley Perlman (University of Iowa, USA)
Role of host immune responses in protection, in immunopathological disease and in diagnosis in patients and experimentally infected animals with MERS-CoV

16.00 - 16.30 Coffee & Networking

16.30 - 17.00 Joshy Jacob (Emory University, USA)
Original antigenic sin and antibody responses to drifted influenza viruses

Students’ Presentations

17.00 - 17.15 Rukshan Rafeek (University of Peradeniya - Sri Lanka)
Epidemiology of influenza and parainfluenza viruses in children with acute respiratory tract infections

17.15 - 17.30 Nadia Soudani (American University of Beirut, Lebanon)
Respiratory virus infections among pediatric cancer patients in Lebanon

17.30 - 17.45 Sweety Upadhaya (Department of Health Service, Nepal)
Sporadic outbreak of pandemic influenza A/H1N1 and laboratory response in Nepal in 2017

17.45 - 18.00 Edgar Mojica (National Autonomous University of Mexico, Mexico)
Use of space-time cubes to detect influenza patterns in Mexico
Day 3- Wednesday 9 May 2018

PREVENTION AND CONTROL: VACCINES II

09.00 - 9.30 Ghassan Dbaibo (American University of Beirut, Lebanon)
Effectiveness of inactivated influenza vaccines

09.30 - 10.30 George Kassianos (Royal College of General Practitioners, UK)
Vaccines and strategy implementation

Students’ Presentations

10.30 - 10.45 Amani Audi (American University of Beirut, Lebanon)
Depletion of sphingomyelin at the plasma membrane suppresses the replication of influenza A virus

10.45 - 11.00 Wafaa Al Soussi (American University of Beirut, Lebanon)
A novel role for neutral sphingomyelinase during influenza A virus replication

11.00 - 11.30 Coffee & Networking

PREVENTION AND CONTROL: VACCINES II

11.30 - 12.00 Hadi Yassine (Qatar University, Qatar)
Universal influenza vaccines

12.00 - 12.30 Nada Melhem (American University of Beirut, Lebanon)
Influenza vaccine policies and implementation in the EMR

12.30 - 13.00 Kayvon Modjarrad (Walter Reed Army Institute of Research, USA)
Advances in Countermeasures for MERS-CoV

13.00 - 14.00 Lunch

14.00 - 15.00 Ralf Wagner (Paul Ehrlich Institute, Germany)
Regulatory challenges for influenza vaccines

THERAPEUTIC STRATEGIES I

15.00 - 16.00 Hassan Zaraket (American University of Beirut, Lebanon)
Mechanisms of action and resistance of antivirals

16.00 - 16.30 Coffee & Networking

16.30 - 17.30 Alicia Fry (Centers for Diseases Control and Prevention, USA) —via Skype
Effectiveness of licensed antivirals

17.30 - 18.00 Alicia Fry (Centers for Diseases Control and Prevention, USA) —via Skype
Effectiveness of live-attenuated influenza vaccines

19:00 - 21:00
Social event- Beit Ward Restaurant, Rawche
Day 4- Thursday 10 May 2018

THERAPEUTIC STRATEGIES II

09.00 - 10:00 Joshy Jacob (Emory University, USA)
Harnessing ancient innate immune mediators to combat modern day pathogens

Students’ Presentations

10.00 - 10.15 Abira Paramsothy (University of Bergen, Norway)
Antibody responses in hospitalized influenza patients and correlation to clinical illness

10.15 - 10.30 Jessica Shartouny (Emory University, USA)
Harnessing an innate frog defense peptide as an anti-influenza agent

10.30 - 10.45 Myriam Harrabi (Institut Pasteur De Tunis, Tunisia)
Influenza viruses: molecular detection and biosensor diagnostic based on neuraminidase activity

10.45 - 11.00 TBD

11.00 - 11.30 Coffee & Networking

THERAPEUTIC STRATEGIES II

11.30 - 13.00 Jonathan Van Tam (Deputy Chief Medical Officer, England)
Treating influenza with neuraminidase inhibitors

13.00 - 14.00 Lunch

14.00 - 14.30 Ghazi Kayali (Human Link, Lebanon)
Update on avian influenza viruses in human and birds in Egypt

PANDEMIC PREPAREDNESS/ LAB PRACTICE

14.30 - 15.30 Chloe Sellwood (National Health Service, London, UK)
Pandemic preparedness

15.30 - 16.00 Coffee & Networking

Trainees divide into two groups

16.00 - 17.00
Group I: Pandemic preparedness group exercise- Chloe Sellwood (National Health Service, London, UK) & Jonathan Van Tam (Deputy Chief Medical Officer, England)

Group II: Lab practice: Virus isolation in eggs and cells; titration; detection- CIDR lab

17.00 - 18.00
Group I: Lab practice: Virus isolation in eggs and cells; titration; detection- CIDR lab

Group II: Pandemic preparedness group exercise- Chloe Sellwood (National Health Service, London, UK) & Jonathan Van Tam (Deputy Chief Medical Officer, England)
Day 5 - Friday 11 May 2018

GUEST LECTURES: Research workshop

08.30 - 09.00 Miguela Caniza (St Jude Children’s Research Hospital)
Prevention and Care of Respiratory Virus Infections in Immunocompromised Children

09.00 - 09.30 Hadi Yassine (Qatar University, Qatar)
Immunogenicity testing using viral pseudo-types

09.30 - 10.00 Ali Ellebedy (Washington University, USA)
Broadening vaccine efficacy: harnessing the HA stalk immune response

10:00 - 10.30 Hassan Zaraket (American University of Beirut, Lebanon)
New avenues for antiviral discovery

10.30 - 11.00 Coffee & Networking

KEYNOTE SPEAKER

11.00 - 12.00 Ab Osterhaus (Research Center for Emerging Infections and Zoonosis, Germany and Erasmus University, Netherlands)
How to prevent a major disease outbreak - from SARS to MERS

12.00 - 13.00 Ab Osterhaus (Research Center for Emerging Infections and Zoonosis, Germany and Erasmus University, Netherlands)
Influenza in the past, present and future

13.00 - 13.30
CLOSING REMARKS

14.00 - 15.00 Lunch