

## **Selected Topics in Infectious Diseases and Vaccines**

July 10-14, 2016 | Course No. 0158.1202

Room TBA, Sackler Faculty of Medicine, Tel Aviv University

**Course Instructors:** [Daniel Cohen \(TAU\)](#), [Jonathan Zenilman \(JHU\)](#), [Anne Rompalo \(JHU\)](#), [Myron M. Levine \(UMB\)](#), [Elizabeth Miller \(TAU, LSHTM\)](#), Tamy Shohat (TAU, MOH), and Khitam Muhsen (TAU)

**Date & Time:** July 10-14, 2016 | S, M, Th: 14:00-18:30 & T, W: 14:00-19:00

**Final Exam:** July 15, 2016 | 9:00-11:00

**Credits:** 2

TAU: Tel Aviv University | JHU: Johns Hopkins University | UMB: University of Maryland | LSHTM: London School of Hygiene & Tropical Medicine | MOH: Ministry of Health, Israel

### **Course Description**

The first part of the course will review the current burden of infectious diseases in developing and developed countries, including recent emerging infectious diseases such as Ebola, MERS-CoV, and Zika virus. Risk factors and modes of prevention and control will be examined, as well as current surveillance systems and the integration of advanced epidemiologic tools and modern laboratory capabilities in the detection and characterization of endemic and epidemic agents. Steps in quantifying the burden of infectious diseases will be explained and practiced using selected infectious diseases as examples. The course will also address the global impact of hospital/nosocomial infections, as well as how understanding the role of the microbiome is changing the approach to infectious diseases.

The second part of the course will review current immunization programs and characteristics of the licensed vaccines and present the stages of the clinical development of new vaccines including post-licensure evaluation of effectiveness and signal detection of adverse events. Special attention will be given to methodological and ethical challenges during the accelerated development of vaccines against emerging diseases and the epidemiology-based decisions to prioritize development of specific vaccines. The course will also offer the opportunity to learn about the recent experience with novel strategies of immunization against vaccine-preventable diseases such as immunization of pregnant women to prevent pertussis in infants and about new vaccines and strategies of immunization against influenza. The course will conclude with an assessment on the vaccines and immunizations programs of the future (by 2040) in terms of target diseases, type of vaccines, delivery routes, etc.

### **Requirements**

To receive academic credit for the course, participants must pass the final exam with a grade of at least 60 (D). Non-credit participants will receive a certification of participation and are not required to take the final exam.

### Course Schedule

<b>Sunday, July 10 (Day 1)</b>	
14:00-15:30	Introduction: Global burden of infectious diseases (ID); review of basics in ID epidemiology; recent emerging ID and their risk factors <b>Lecturers: Dani Cohen and Jonathan Zenilman</b>
15:30-16:00	Break
16:00-16:45	Surveillance (passive, sentinel, syndromic, active, sero-surveillance) <b>Lecturer: Dani Cohen</b>
16:45-17:00	Break
17:00-17:45	MERS-CoV in the Middle East <b>Lecturer: Tamy Shohat</b>
17:45-18:30	Zika and flavivirus infections in the Americas <b>Lecturer: Jonathan Zenilman</b>
<b>Monday, July 11 (Day 2)</b>	
14:00-15:30	Microbial resistance to antibiotics and antiviral drugs - emergence, risk factors, prevention and control <b>Lecturer: Jonathan Zenilman</b>
15:30-16:00	Break
16:00-17:30	Hospital/nosocomial infections and the worldwide impact <b>Lecturers: Jonathan Zenilman and Anne Rompalo</b>
17:30-17:45	Break
17:45-18:30	How understanding the microbiome is changing our approach to infectious diseases <b>Lecturers: Jonathan Zenilman and Anne Rompalo</b>
<b>Tuesday, July 12 (Day 3)</b>	
14:00-15:30	Sexually Transmitted Diseases (STD): Introduction and global burden; Behavioral and biomedical approaches to prevention and control; HIV and opportunistic infections - the impact of Tuberculosis <b>Lecturers: Jonathan Zenilman and Anne Rompalo</b>
15:30-16:00	Break
16:00-17:30	How do we quantify the burden of infectious diseases? (Lecture and exercise) <b>Lecturer: Khitam Muhsen</b>
17:30-17:45	Break
17:45-19:00	Immunization programs in developed and developing countries and characteristics of the current licensed vaccines <b>Lecturer: Dani Cohen</b>

<b>Wednesday, July 13 (Day 4)</b>	
14:00-15:30	Clinical development of vaccines (phase 1, 2 and 3 studies); Safety, immunogenicity and protective efficacy evaluation; Correlates of protection <b>Lecturer: Dani Cohen</b>
15:30-16:00	Break
16:00-17:30	Post-licensure evaluation of vaccines: effectiveness, impact, signal detection of adverse events <b>Lecturer: Elizabeth Miller</b>
17:30-17:45	Break
17:45-19:00	Novel strategies of immunization against vaccine-preventable diseases: Immunization of pregnant women and impact on homologous morbidity in children; New vaccines and strategies of immunization against influenza <b>Lecturer: Elizabeth Miller</b>
<b>Thursday, July 14 (Day 5)</b>	
14:00-15:30	From diseases burden to vaccine development: Enteric vaccines development priorities in view of the Global Enterics Multi-Center Study (GEMS) findings <b>Lecturer: Myron M. Levine</b>
15:30-16:00	Break
16:00-17:30	Accelerated development of vaccines against emerging diseases: Methodological and ethical challenges in the clinical development of Ebola vaccines during the recent epidemic in Western Africa <b>Lecturer: Myron M. Levine</b>
17:30-17:45	Break
17:45-18:30	Vaccines and vaccination of the future (by 2040): Diseases, target populations, type of vaccines, delivery routes, etc. Conclusion of course <b>Lecturers: All instructors (Roundtable)</b>
<b>Friday, July 15 (Final Exam): 9:00-11:00, Sackler Faculty of Medicine, Room TBA</b>	