



ECVPH – Resident Workshop: 24-26 June 2020, Basel, Switzerland

Advanced “One Health” Short-course

Lecturers: Jakob Zinsstag, Nakul Chitnis, Jan Hattendorf

Aim: The seminar provides theoretical and practical insight to “One health” for ECVPH Residents. At the end of the short-course, the residents are able to conceptualize their own animal-human transmission models and “One health” studies.

Content:

This short-course provides insight and practical work on “One Health” methods. It is presented by a veterinary epidemiologist, a statistician and a mathematician. The audience are residents (in good standing) of the European College for Veterinary Public Health (ECVPH). The Seminar is composed of lectures, self-study, discussions and practical seminar work on:

- Theoretical foundations of “One health”
- One health study design
- Ecology of the animal-human interface
- Antimicrobial resistance surveillance
- Dynamics and economics of cross-species disease transmission
- The students will work through a practical example of an animal-human transmission model and a cross-sector economic analysis of an intervention.

A five page paper will be prepared by each resident during the workshop and presented (ten minutes) at the end of the seminar. The written paper consists of a One Health study plan of the transmission dynamics of a selected zoonosis or non-communicable disease with a plan for an economic assessment. A pass/fail mark will be given for the written paper and presentation.

Venue: [Swiss Tropical and Public Health Institute](#), Socinstr. 57, 4051 Basel, Switzerland

Registration: Please contact Dr. Lisa Crump at lisa.crump@swisstph.ch
(Registration closes on 24 May; maximum of 20 participants)

Registration fee: As this Workshop for ECVPH Residents is approved and supported by ECVPH, there is **NO registration fee**. Lunch is available for 10 CHF daily. Coffee breaks are included.

Participants must cover on their own all costs related to travel and accommodation (NO further refund will be made !).

Accommodation: Swiss TPH can reserve hotel rooms (starting from 120 CHF per night; on request until 1 May). Contact for any questions regarding accommodation/travel arrangements: travel.research@swisstph.ch

Travel information: Basel is easily to reach by plane and catered by low cost airlines/flights booking right in advance.

PROGRAMME

Date	Content	Reading
Wed 24.6.2020		
9.00-10.00	Introduction to the course, presentation of the participants and their backgrounds	
10.00-10.30	Coffee / Tea break	
10.30-12.00	Introduction to advanced One Health Methods (Jakob Zinsstag)	(Zinsstag, 2015) Chapter 5
12.00-13.30	Lunch	
13.30-15.00	Dog-human rabies transmission dynamics: From simple to deterministic models to metapopulation matrix models (Nakul Chitnis)	(Zinsstag et al., 2017; Laager et al., 2019)
15.00-15.30	Coffee / Tea break	
15.30-17.00	One Health economics: the example of rabies (Jakob Zinsstag)	(Mindekem et al., 2017)
17.00-17.30	Selection of assessment topics	
Thu 25.6.2020		
08.15-9.30	Economics of brucellosis control (Jakob Zinsstag)	(Roth et al., 2003; Zinsstag et al., 2009; Narrod, 2012)
9.30-10.00	Coffee / Tea break	
10.00-12.00	Models and "Reality" (Jan Hattendorf)	
12.00-13.30	Lunch	
13.30-15.00	Calculation of R_0 for multihost transmission models (Nakul Chitnis)	
15.30-16.00	Coffee / tea break	
16.00-18.00	Self-study / preparation of assignment	
Fri 26.6.2020		
8.15-09.30	Introduction to One Health approaches to antimicrobial resistance (Jakob Zinsstag)	(Nguyen-Viet et al., 2009)
9.30-10.00	Coffee / tea break	
10.00-12.00	One Health Transdisciplinary Methods (Jakob Zinsstag)	MOOC TD
12.00-13.30	Lunch	
13.30-16.00	Finalization of course assignment	
17.00-18.00	Presentations of course assignment by participants.	

Literature

- Laager, M., Lechenne, M., Naissengar, K., Mindekem, R., Oussiguere, A., Zinsstag, J., Chitnis, N., 2019. A metapopulation model of dog rabies transmission in N'Djamena, Chad. *Journal of theoretical biology* 462, 408-417.
- Mindekem, R., Lechenne, M.S., Naissengar, K.S., Oussiguere, A., Kebkiba, B., Moto, D.D., Alfaroukh, I.O., Ouedraogo, L.T., Salifou, S., Zinsstag, J., 2017. Cost Description and Comparative Cost Efficiency of Post-Exposure Prophylaxis and Canine Mass Vaccination against Rabies in N'Djamena, Chad. *Front Vet Sci* 4, 38.
- Narrood, C., Zinsstag, J., Tiongco, M., 2012. A one health framework for estimating the economic costs of zoonotic diseases on society. *EcoHealth*.
- Nguyen-Viet, H., Zinsstag, J., Schertenleib, R., Zurbrugg, C., Obrist, B., Montangero, A., Surkinkul, N., Kone, D., Morel, A., Cisse, G., Koottatep, T., Bonfoh, B., Tanner, M., 2009. Improving environmental sanitation, health, and well-being: a conceptual framework for integral interventions. *EcoHealth* 6, 180-191.
- Roth, F., Zinsstag, J., Orkhon, D., Chimed-Ochir, G., Hutton, G., Cosivi, O., Carrin, G., Otte, J., 2003. Human health benefits from livestock vaccination for brucellosis: case study. *Bull. World Health Organ* 81, 867-876.
- Zinsstag, J., Durr, S., Penny, M.A., Mindekem, R., Roth, F., Menendez Gonzalez, S., Naissengar, S., Hattendorf, J., 2009. Transmission dynamics and economics of rabies control in dogs and humans in an African city. *PNAS* 106, 14996-15001.
- Zinsstag, J., Lechenne, M., Laager, M., Mindekem, R., Naissengar, S., Oussiguere, A., Bidjeh, K., Rives, G., Tessier, J., Madjaninan, S., Ouagal, M., Moto, D.D., Alfaroukh, I.O., Muthiani, Y., Traore, A., Hattendorf, J., Lepelletier, A., Kergoat, L., Bourhy, H., Dacheux, L., Stadler, T., Chitnis, N., 2017. Vaccination of dogs in an African city interrupts rabies transmission and reduces human exposure. *Science translational medicine* 9.
- Zinsstag, J., Schelling, E., Waltner-Toews, D., Whittaker, M., Tanner, M., 2015. *One Health: The theory and practice of integrated health approaches*. CABI.