

Thailand's Annual International Training Course (AITC) 2017

"Toward a One Health Approach to Antimicrobial Resistance"

I. **Course Title:** Toward a One Health Approach to Antimicrobial Resistance (OHFSAR)
(Priority to FEALAC Member Countries)

II. **Duration:** 3 – 28 July 2017

III. **Closing Date for Application:** 19 May 2017

IV. **Background and Rationale**

Antimicrobial resistance (AMR) is a complicated, multifaceted and urgent global health problem. Concurrently, infections with foodborne bacterial pathogens e.g. *Salmonella*, *Campylobacter*, *Escherichia coli*, and *Shigella* have been a common cause of disease throughout the world. However, drug resistant bacteria associated with food animals and their products have been increasingly reported. The situation has become more complicated due to emerging and spread of bacteria simultaneously resistant to many drugs, or so called multidrug resistant (MDR) bacteria. As antibiotics are important tools for treatment of bacterial infection, AMR compromises the ability to treat these infections and is a serious threat to public health. It was estimated that AMR causes >23,000 deaths in the United States each year, >38,000 deaths per year in Thailand and >25,000 deaths per year in European Union (WHO Global Antimicrobial Resistance Global report on Surveillance 2014). All animals carry bacteria in their intestines that can contaminate meat or other animal products when food animals are slaughtered and processed, and when they are sold in the markets. These bacteria can also spread into the environment and water when animals pass their stool and slurry. A major way for human to receive foodborne bacterial infection is consumption of contaminated food and water and contact with the animals' stool. Infection with AMR bacteria may result in increased recovery time, increased medical expenses, treatment failure, death from infection, economy loss and interfered international food trade. These also reflect the connection between AMR, food safety and environment.

The One Health approach recognizes that human health of is linked to animal health and environment. Up to date, One Health Scheme to improve the health of animals and humans has been developed and become an important framework for addressing many health threats, including AMR in both medical and veterinary science. This interface has become an important tool to combat AMR

appropriately and effectively. The One Health approach is based on the collaborative efforts across the public health, veterinary medicine and environment sectors. Such collaboration is imperative to ensuring an active and effective response to AMR threat and to ensuring that the strategic action is not limited to local or national level. However, knowledge and technology among stakeholders in the different world regions greatly varies. Awareness and understanding of AMR in developing countries is somewhat lacking and not comparable with that in the US and Europe. These differences have become a major hindrance for the implementation of a global control and prevention strategic plan to control and prevent AMR in both human and animal medicine.

Faculty of Veterinary Science, Chulalongkorn University has been aware of emerging and re-emerging of AMR in foodborne pathogens and provided all supports for the control and prevention implementations since year, 1999. Currently, department of veterinary public health (CUVPH) that is in charge of the AMR cluster consisting of Research Units in Microbial Food Safety and Antimicrobial Resistance (CUFSAR), Center of Antimicrobial Resistance Monitoring in Foodborne Pathogens (in cooperation with WHO) (CUARM) and Global Foodborne Infections Network: South-East Asia and Western Pacific Region. CU-VPH has been fully equipped with expert staff, scientific and technological knowledge and advanced facilities and has been nationally, regionally and internationally recognized in the area of food safety and antimicrobial resistance.

V. Objectives

The objectives of the training course are as follow;

- To promote knowledge and technology on the application of One Health.
- To provide understanding on approach for controlling and preventing foodborne pathogens and AMR.
- To enhance and expand international collaborations and research networks on AMR and foodborne diseases between Thailand and other countries.

VI. Course contents

6.1. Course Outline: Main topics include:

- One health, antimicrobial use, and antimicrobial resistance, impact on society and economy.
- Principle and epidemiology of AMU and AMR.
- Approaches to AMR monitoring and surveillance.
- Technology and implementations for controlling and preventing AMR.

6.2 Practice

- Laboratory practice in "Standard antimicrobial susceptibility test for standardized and harmonized AMR surveillance". This will include lecture, multimedia and demonstration.
- Computer laboratory practice in "Statistics for AMR monitoring and surveillance"

6.3 Field trips

- Two field trips to slaughterhouse, diagnostic laboratories, national /local AMR monitoring units and hospitals.
- Cultural tour to Ayudhaya.
- Campus tour.

6.4 Advance Assignments

Country report: Participants are required to prepare for a country report presentation on the situation related to antimicrobial use and antimicrobial resistance in their country/territory.

Reading Assignment: Participants are required to complete reading assignment in order to prepare themselves with basic knowledge on microbiology.

Group discussion and project assignment: Participants will be assigned a group discussion to identify ways forward on the roles of stakeholders in holistic approach to reduce the antimicrobial usage including veterinary pharmaceutical industry, wholesale and retail distributors, veterinarians, food animal producers, animal feed manufacturers and consumer.

VII. Number of Participants: 20 persons (Priority to FEALAC Member Countries)

VIII. Qualifications

Candidates must possess qualifications as specified in "Guideline for Thailand's Annual International Training Course Programme" No. 2 "Qualifications." Moreover, candidates must be veterinarians, public health professionals, medical doctors or research scientists who have experience or responsibilities in the area of antimicrobial resistance, food microbiology, food safety and veterinary public health.

Apart from the AITC eligible countries/territories, nomination of candidates from the following FEALAC member countries is welcomed;

- Australia
- Brunei
- Japan
- New Zealand
- Republic of Korea
- Singapore

Successful candidates from the AITC eligible countries/territories will be offered round-trip economy-class international air ticket and domestic cost, while successful candidates from the above-mentioned countries will be offered an award which covers domestic cost (accommodation, allowance, social program, insurance and airport meeting service) during the period of training in Thailand.

IX. Venue and Training Institution:

Faculty of Veterinary Science, Chulalongkorn University
Henri-Dunant Rd., Wang-Mai, Pathumwan,
Bangkok 10330 Thailand

X. Contact

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