Annual International Training Courses 2014

1. Course Title: Antimicrobial Resistance and Foodborne Diseases Associated with Livestock: Mechanisms, Diagnosis and Control

2. Duration : October 20 - November 7, 2014
Closing Date for Applications: August 4, 2014

3. Background and Rationale

Antimicrobial resistance (AMR) in foodborne pathogens have emerged and re-emerged as an important food safety issue in most parts of the world. Foodborne diseases are mostly linked to the consumption of food of animal origins particularly pork, chicken, beef, eggs, milk and milk products. The major cause of emergence and widespread of AMR-foodborne pathogens is antimicrobial use in food animal production. In the latter, large amounts of antimicrobials have been extensively used for three main purpose i.e. infection treatment, disease prevention and growth promotion, providing favorable conditions for selecting, spreading and maintaining of AMR bacteria that could be transmitted to humans through food chain (1). The well-known and common AMR-foodborne pathogene include Vancomycin-Resistant Enterococci (VRE), *Salmonella*, *Campylobacter*, *Escherichia coli* (2). The AMR problem is becoming seriously worse because foodborne pathogens have a tendency to develop resistance to many drugs used in both human and veterinary medicine simultaneously or to almost drugs currently available in markets (3). The emergence and wide distribution of AMR in bacteria originated from food animals have adverse impacts on (i) human health, (ii) population growth, (iii) food production and processing, (iv) agricultural and animal husbandry practices, (v) economy and (vi) international food trade.

International organizations e.g. WHO, OIE, Codex, ASEAN cooperation have addressed AMR as a global-food safety issue and therefore, international-interdisciplinary cooperation is essential to effectively combat the problem. However, control and prevention development of emerging and spreading of AMR related to food animals has not been successfully established in many countries where antimicrobial use is not well regulated. Most countries have faced the similar problem that is lacking of know-how and data on the burden of AMR and foodborne diseases. As a result, the true-root dimensions of the problem are unclear. AMR monitoring and surveillance programs are needed to be standardized and harmonized to generate the comparable data and to strengthen the control and prevention strategies. In this case, a global approach to enhance the detection and response of AMR in foodborne diseases needs to be initiate and all countries should promptly act for any emergency or outbreak that may occur at national, regional or international level.

Thailand has been successful in management and control of AMR in foodborne pathogens, particular in food animal production system and readily plays the leadership role in guiding and supporting for establishment of effective and efficient control and prevention strategic programs, particularly in the Asia-Pacific region. For this matter, Faculty of Veterinary Science, Chulalongkorn University has become aware of emerging and re-emerging of AMR in foodborne pathogens and provided all supports for the control and prevention implementations since year, 1999. Center of Antimicrobial Resistance Monitoring in Foodborne Pathogens (in cooperation with WHO) (i.e. also GFN: SE-Asia and Western

Pacific) are fully equipped with expert staff, scientific and technological knowledge and advanced facilities and have been nationally and internationally recognized in AMR and foodborne diseases. We have also full experience in organization of international workshop/training (e.g. up to seven international training in coopration with WHO). We acknowledge the significance of strengthening the effective direction for a global-action plan for AMR in food animals. Therefore, we propose the training project "Antimicrobial Use in Livestock and Antimicrobial Resistance in Bacteria Associated with Food Animals" that comprises three training courses including (1) Mechanisms, Diagnosis and Control (2) Standardization and Harmonization on monitoring and (3) Risk analysis and Responsible use for three consecutive years (Figure 1). The first training course for year 2014 is "Antimicrobial Use in Livestock and Antimicrobial Resistance in Bacteria Associated with Food Animals: Mechanisms, Diagnosis and Control.

4. Objectives

The objectives of the training course are as follows:

3.1. To provide and promote knowledge on mechanisms, diagnosis and control of AMR and foodborne pathogens associated with food animals
3.2. To review approaches to implement effective action plan for AMR control
3.3 To enhance and expand international cooperations and research networks on AMR and foodborne diseases between Thailand and other countries

5 Course contents

The course outline of the training on "Antimicrobial Use in Livestock and Antimicrobial Resistance in Bacteria Associated with Food Animals: Mechanisms, Diagnosis and Control" is as follows.

Course Outline

Day	Course content
1	- Registration - Opening ceremony - Introduction to AMR in food of animal origins - AMR and one health concept
2	- Antimicrobial use in livestock - Principles and application of food microbiology
3	AMR in microorganisms associated with livestock
4	Principles, mechanisms and dynamics of AMR
5	Country report presentation
6	Weekend: Cultural tour
7	Weekend: Self study
8	Principles and application of molecular biology in AMR
9	Principles and application of veterinary epidemiology in monitoring, surveillance, prevention and control of AMR
10	Principles and application of antimicrobial-resistance risk assessment
11	Principles and Approaches to responsible and prudent use of antimicrobial agents for livestock
12	Roundtable discussion on action plan for AMR control system" and identify country-specific limitation

13	Weekend: Cultural tour
14	Weekend: Self study
15	- Laboratory practice on standard antimicrobial susceptibility test
16	- Laboratory practice on standard antimicrobial susceptibility test
17	Field trip to national /local AMR monitoring units
18	Field trip to diagnostic laboratories
19	- Conclusion and discussion - Closing ceremony

5.2 Practice

Laboratory tests on "Antimicrobial susceptibility test followed CLSI standard". The techniques practice will include:

- Disk diffusion
- Agar dilution technique
- Broth microdilution technique

5.3 Field rips

5.3.1 Two field trips to diagnostic laboratories and national /local AMR monitoring Units

5.3.2 The participants will learn and practice on standard AMR susceptibility protocol and monitoring and control strategy plan of AMR

5.4 Advance Assignments

5.4.1 Country report: Each participant is required to give a country report presentation related to antimicrobial use and antimicrobial resistance in livestock in the country.

5.4.2 Reading Assignment: Each participant is required to prepare basic knowledge in microbiology.

5.4.3 Project Assignment: The participants will be assigned to develop proposal for "Action plan for AMR control system" and identify country-specific limitation. This will be discussed in "Round table discussion".

6. Number of participants: 20 persons

7. Participant Criteria

Veterinarian or public health professionals who have experience in the area of antimicrobial resistance, food microbiology and veterinary public health

8. Eligible Countries

Asia & Middle East: Bangladesh, Georgia, Indonesia, Jordan, Nepal, Philippines, Timor-Leste, Thailand

Oceania (Pacific Islands): Palau, Cook Island, Solomon Island, Marshall Island, Niue, Vanuatu

Africa: Angola, Benin, Ethiopia, Gambia, Ghana, Nigeria, Zambia

Latin America & others: Argentina, Belize, Brazil, Chile, Mexico, Peru

9. Venue

9.1 Faculty of Veterinary Science, Chulalongkorn University, Bangkok, Thailand

9.2 Department of Live Stock Development (DLD), Bangkok, Thailand

9.3 Accommodation will be arranged at the university or private hotel near Chulalongkorn University

10. Expected Results

10.1 The participants will gain knowledge on diagnostics, mechanisms and control strategies of AMR and foodborne pathogens associated livestock.
10.2 The participants will be capable of sketching action plan for AMR control system.
10.3 International cooperation network, particular in AMR associated with food animals, will be initiated among the participants and Faculty of Veterinary Science, Chulalongkorn University.

11. Evaluation
Participants must attend at least 80% training period to receive certificate.

Fellowship Arrangements:
1. Application Procedures

- Applicants interested in participating in the course must be nominated by their government and must submit three (3) completed nomination forms to the Royal Thai Embassy or Consulate in their respective countries before the closing date of application.
- In general, each country may nominate up to four (4) nominees for the course. However, nomination for certain courses may be limited to one or two nominees from each country due to limited seat available for participation.
- The Royal Thai Government will inform the nominating government (or relevant authority) whether or not nominee(s) have been accepted for the course, normally three weeks before the course starts.
- Further information about training courses held under AITC can be obtained from TICA's website: http://www.tica.thaigov.net/main

2. Allowances and Expenses

The Royal Thai Government will be responsible for the following allowances and expenses:

- An economy class electronic ticket (e-ticket) will be issued to each participant via email. Each of the participants is not allowed to change the flights route and schedules. Participants should not buy air tickets by themselves and should be advised that if they do so, the cost cannot be reimbursed from the Royal Thai Government. The Royal Thai Government will also arrange the domestic flight in Thailand for participants, if any.
- Each participant will receive a living allowance of 500 Baht (US$17) per day to cover meals, local transportation and other personal daily expenses. Accommodation will be arranged by the Royal Thai Government and all participants will stay at the same place. It is suggested that each participant should bring some pocket money approximately US$100 to cover the expenses before the allowance is paid.
- Minor medical treatment will be provided for participants who become ill during their stay in Thailand.
- The Royal Thai Government will provide transportation for the authorized field trips undertaken as part of the course.

3. Regulations

Participants are required to observe the following regulations:

- Participants must only stay at the places designated by the Royal Thai Government.
- Participants must strictly attend classes as scheduled and should not change their training subjects.
- Participants must not extend the training period.
- Participants must not bring any family members with them to Thailand.
- Participants must return to their home countries after the course completion (at the date as scheduled by the Royal Thai Government).
- Participants are required to travel only on the route designated by the Royal Thai Government and must not make any alterations. Please also be informed that the maximum allowable baggage that can be loaded on flights is 20 kilograms. Participants will be responsible for any cost incurred in exceeding this limit.
- Participants must observe rules and regulations of training institute(s).
- Participants must refrain from engaging in political activities, or any form of employment for profit or gain.

4. Visa Procedures

Prior to departure from their home country to Thailand, all participants must first obtain the appropriate visa from the Royal Thai Embassy or Consular representative in their countries. Presentation of the acceptance letter is required when applying for VISA. A maximum of 2,000 Baht VISA fee (approximately US$ 60) must be paid by a participant to the Royal Thai Embassy or Consular representative. Participants must request for the original receipt which could be later on reimbursed from the Royal Thai Government upon presenting the original receipt.

Further relevant information is available at the following addresses:

Human Resource Development Bureau (HRD Branch 2)
Thailand International Development Cooperation Agency
The Government Complex
Building B (South Zone) 8th Floor,
Chaengwattana Road, Lak Si, Bangkok 10210
Tel (662)203-5000 ext 43305
E-mail: tica@mfa.go.th
Website: http://tica.thaigov.net/main/en/home

Institution

1. Executing/Implementing Agency

1) Implementing agency:
Faculty of Veterinary Science, Chulalongkorn University
Henri-Dunant Rd., Wang-Mai, Pathumwan, Bangkok 10330 Thailand
2) Contact person: Associate Professor Dr. Rungtip Chuanchuen,
Department of Veterinary Public Health,
Tel: 662-218-9577-9 Fax: 662-218-9577
Email: rchuanchuen@yahoo.com

2. Cooperative organizations

1) Department of Medical Science, Ministry of Public Health
Tiwanon Rd, Amphur Muang, Nonthaburi 11000