Chulalongkorn University
Veterinary AMR activities

Faculty of Veterinary Science, Chulalongkorn University
Chulalongkorn University

19 faculties

- Faculty of Allied Health Sciences
- Faculty of Dentistry
- Faculty of Medicine
- Faculty of Nursing
- Faculty of Pharmaceutical Sciences
- Faculty of Psychology
- Faculty of Sport Sciences
- Faculty of Veterinary Science
- Faculty of Architecture
- Faculty of Engineering
- Faculty of Science
- Chulalongkorn Business School
- Faculty of Arts (Language & Literature)
- Faculty of Communication Arts
- Faculty of Economics
- Faculty of Education
- Faculty of Fine and Applied Arts
- Faculty of Law
- Faculty of Political Science

3 colleges, 1 school
15 institutes

<table>
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<tr>
<th>Colleges</th>
<th>School</th>
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<tbody>
<tr>
<td>College of Population Studies</td>
<td>School of Agricultural Resources</td>
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<td>College of Public Health Science, Petroleum and Petrochemical College</td>
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<td>Police Nursing College</td>
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<td>Red Cross College of Nursing</td>
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Institutes

- Language Institute
- Sasin Graduate Institute of Business Administration
- Aquatic Resources Research Institute
- Energy Research Institute
- Environmental Research Institute
- Institute of Asian Studies
- Institute of Biotechnology and Genetic Engineering
- Metallurgy and Materials Science Research Institute
- Social Research Institute
- Transportation Institute
- Chulalongkorn University Intellectual Property Institute
- Institute of Thai studies
CU VET AMR

Center of Antimicrobial Monitoring of foodborne Pathogen (in cooperation with WHO) (CUARM)

CUARM has run under the Memorandum of Understanding (MOU) between WHO and Faculty of Veterinary Science, Chulalongkorn University since 1999. It has served as regional reference centre and training site with the major tasks to monitor AMR in bacteria associated with food animals and their products and arrangement of international training in the area of microbiological diagnostics and AMR.

Objectives
- To establish collaboration joint among microbiologist, epidemiologist, medical practitioners, veterinarians, scientists and all other professionals in relevant area in surveillance and monitoring of foodborne diseases and AMR.
- To serve as a reference laboratory for Salmonella and other foodborne pathogens.
- To arrange training and support in diagnosis of foodborne diseases and AMR for domestic and international units and organizations.
- To conduct research in the area of foodborne diseases and AMR.

CUARM Services
- Measurement of disinfectant effectiveness by the Phenol-Coefficient test
- Production of test kits for detection of antibiotic residues in milk (the AM test) and meat (the CM test)
- Determination of microbiological quality of food, water, feed and other products
- Determination of serovars of Salmonella and other bacteria by serological test
- Determination of antimicrobial susceptibility in bacteria

Global Foodborne Infections Network: Southeast Asia and Western Pacific Region (GFN: SE Asia and Western Region)

GFN is a network of institutions and individuals committed to enhancing the capacity of countries to detect, respond and prevent foodborne and other enteric infections. GFN has been established in response to the impact of foodborne and other enteric diseases.

Objectives
- To promote the benefit of integrated surveillance through the engagement of decision-makers
- To foster multi-sectoral partnerships relevant to regional and country goals and need
- To support Member States to generate data to drive evidence-based decision-making in order to ultimately reduce the incidence of foodborne diseases

Research Unit in Microbial Food Safety and Antimicrobial Resistance (CUFSAE)

The department of veterinary public health (VPH) is fully equipped with human skill, scientific and technological knowledge, advance facilities and infrastructure and has been internationally recognized in the field of AMR and foodborne diseases. The VPH staff has worked in collaboration as a research group since 2005. Research unit in microbial Food safety and Antimicrobial Resistance has been officially established in 2014.

Objectives
- To develop reference laboratory for foodborne diseases and AMR.
- To conduct high quality research on microbial food safety and AMR.
- To produce quality veterinary graduates and researchers who have high competency, omnicience, and medical ethic.
- To enhance monitoring and surveillance as well as develop database and control system for foodborne pathogens and AMR at national and regional level.
- To promote and apply innovative knowledge by conducting training and workshop on microbial food safety & bacterial AMR at national and international level.
- To develop an internationally-renowned Center of Excellence for research and education in the field of microbial food safety and AMR in Asia-Pacific region.
Task & responsibilities

Services
Trainings
Academic education
Research
Determination of disinfectant effectiveness

Test kits for detection of antibiotic residues in milk and meat

Determination of microbiological quality of food and other products

Determination *Salmonella* serovars

Determination of antimicrobial susceptibility
AMR-related training workshop

2013 6 2014 7
2015 6 2016 4
2017 10 2018 5
International training on “Antimicrobial Resistance in Foodborne Pathogens for ASEAN Universities”
Faculty of Veterinary Science, Chulalongkorn University, Bangkok
26-30 August 2013
International Workshop on Antimicrobial Use and Antimicrobial Resistance in Foodborne Pathogens for Thai-UK researchers

Ibis Bangkok Riverside, Bangkok
7-10 July 2014
SEA-EU-NET II Young Researchers Fellowship

AMR Surveillance Masterclass

Faculty of Veterinary Science, Chulalongkorn University, Bangkok;
Faculty of Veterinary Science, Mahidol University, Salaya Campus, Nakhonpathom

1-5 August 2016
International Training on ‘Toward a One Health Approach to AMR’
Faculty of Veterinary Science, Chulalongkorn University, Bangkok
3 -27 July 2017
Antimicrobial use in food animals: Perspectives, Policy & Progress in Asia
BITEC Bangna, Bangkok, Thailand
16 March 2017
FAO-APHCA-DLD ASEAN Regional Training Workshop on “Antimicrobial Susceptibility Testing (AST) of Bacteria Isolated from Farm Animals”
Faculty of Veterinary Science, Chulalongkorn University, Bangkok
7-8 October 2014
Training on “Standardized and Harmonized Surveillance Methods for Antimicrobial Resistance in Food animals in South-East Asia”
Faculty of Veterinary Science, Chulalongkorn University, Bangkok
12 -16 June 2017
Training on “sample collection and processing for AMR surveillance”
Faculty of Veterinary Science, Chulalongkorn University, Bangkok
28 - 29 September 2017
Regional Training and Development of E-learning on Antimicrobial Resistance Testing and Surveillance in Aquaculture
Faculty of Veterinary Science, Chulalongkorn University, Bangkok
27 - 29 November 2017
Hands-on Training on Sampling and Bacterial Isolation in Lao PDR
Vientiane, Lao PDR, 27 - 28 March 2018
Hands-on Training on determination of *Salmonella* serovars and antimicrobial susceptibility testing (AST) in bacteria associated with food animals and meat products

Vientiane, Lao PDR, 9-11 October 2018
AMR learning tools

CLSI standard AST for bacterial isolated from animals

https://www.youtube.com/watch?v=lltapXZIlPg&t=47s

http://aqua-ast-chula.com/
Exchanged students/visitors
Exchanged students/visitors
Exchanged students/visitors

Department of Veterinary Public Health, University of Veterinary Science, Yezin, Nay Pyi Taw, Myanmar

Livestock Breeding and Veterinary Department, Director General Office, Nay Phi Taw, Myanmar

Department of Veterinary Public Health, University of Veterinary Science, Yezin, Nay Pyi Taw, Myanmar

Livestock Breeding and Veterinary Department, Director General Office, Nay Phi Taw, Myanmar
AMR-related research

One health approach to combat AMR & foodborne pathogens
Research on AMR in South East Asia

High prevalence and molecular characteristics of multidrug-resistant Salmonella in pigs, pork and humans in Thailand and Laos provinces

Nuananong Sinwat, Sunpetch Angkititrakul, Kari F. Coulson, Flor Marie Immanuelle R. Filapil, Dethaloun Meunsene and Rungtip Chuanchuen

Characterization of Antimicrobial Resistance in Salmonella enterica Isolated from Pork, Chicken Meat, and Humans in Northeastern Thailand

Nuananong Sinwat, Sunpetch Angkititrakul and Rungtip Chuanchuen

Prevalence and antimicrobial resistance in Salmonella enterica isolated from broiler chickens, pigs and meat products in Thailand–Cambodia border provinces

Suthathip Trongjit, Sunpetch Angkititrakul, R. Emerson Tuttle, Jiratchaya Poungseree, Pawin Padungtod and Rungtip Chuanchuen

Occurrence and molecular characteristics of antimicrobial resistance of Escherichia coli from broilers, pigs and meat products in Thailand and Cambodia provinces

Suthathip Trongjit, Sunpetch Angkititrakul and Rungtip Chuanchuen
Action on AMR in cooperation with FAO

FAO Assessment Tool for Laboratory and AMR Surveillance System: FAO-ATLASS

- Cambodia, June 2016
- Thailand, March 2017
- Indonesia, March 2017
- Vietnam, April 2017
- Lao PDR, May 2017
- Myanmar, March 2017
- Philippines, December 2017
- Cambodia, December 2017
- Singapore, May 2018
- Vietnam, July 2018
SERVICE to assess laboratory capacities of selected countries in Southeast Asia, develop laboratory protocols on AMR testing and conduct regional laboratory trainings on AMR diagnosis

1. Assess the functional laboratory capacities for national and regional AMR monitoring in Southeast Asian countries

2. Provide laboratory protocol on AMR testing and monitoring in bacteria associated with food animals in the Southeast Asia

3. Organize the meetings/trainings toward standardization & harmonization of AMR monitoring for relevant personals
Regional AMR Surveillance Guideline #1

- provide guidelines on the harmonized scheme for AMR testing and monitoring
- support the harmonization of global AMR surveillance.
- support establishing baseline data in the prevalence of AMR in foodborne & commensal bacterial isolates
- assess and determine effects of interventions on AMR & AMU
Conducting research on AMR & related topics

Raising awareness on AMR

Developing capacity for surveillance of AMR and AMU

Promoting prudent use of antimicrobials & strengthening governance related to AMU & AMR

Provide advice for the AMR TAG for South-East Asia

- Participate World Antibiotic Awareness week
- Develop AMR awareness raising materials
- Organize seminar, training or workshop on AMR issues based on One Health concept

- Support and provide advice on development of guideline for prudent use of antimicrobials in animals
- Organize seminar, training and/or workshop related to prudent use of antimicrobials and AMR based on One Health concept
- Conduct research on use of new generation methods and rapid test for AMR
- Conduct collaborative research on AMR and related issues among the scientists inside and outside the region
- Conduct research on detection/isolation methods and alternative to antibiotics
- Conduct "Research link" training/workshop on AMU & AMR
- Develop collaborative research network among the member states
- Develop regional AMR database in South East Asia

- Assessment for AMR laboratory capacity using FAO-ATLASS.
- Develop online multimedia and learning materials on AMR, AST and related topics.
- Provide advice and support for implementation of national laboratory-based surveillance for AMR.
- Conduct training on AMR testing and surveillance at different levels.
- Organize a proficiency test program
- Participate AMR TAG meeting and provide advice
- Assessment for AMR laboratory capacity using FAO-ATLASS.
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Action on AMR in cooperation with FAO

2013-2016
• Review of AMR situations in Asia
• Report of global AMR
  • AMR training
• 2016-Assessment of laboratory capacity for AMR in Southeast Asia

2017
• Assessment of laboratory capacity for AMR in Southeast Asia
• AMR monitoring and AST training
• Guideline for AMR surveillance in bacteria associated with food animals

2018
• Awaiting formal recognition as FAO Reference Center for Antimicrobial Resistance
• Assessment of laboratory capacity for AMR in Southeast Asia
• Organization of training on AST
• Development of AMR study tool

2019 -2020
• Assessment of laboratory capacity for AMR in South Asia
• Proficiency test program
• Development of AMR study tool
• Resistance-sharing network