



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**

Colleges	• College of Population Studies • College of Public Health Science, Petroleum and Petrochemical College • Police Nursing College • Red Cross College of Nursing
School	• School of Agricultural Resources
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

Department of Veterinary Public Health,
Faculty of Veterinary Science,
Chulalongkorn University (CU VPH)

CU VET AMR is antimicrobial cluster
that is running by CU-VPH
and compose of
CUARM, GFN, and CUFSAR.

Department of Veterinary Public Health (CUVPH) was officially established on December 12, 1989 and was the 9th department of Faculty of Veterinary Science, Chulalongkorn University. CUVPH has played an important role in promoting health of human, health of animals and environment. The functions of CU VPH include teaching, conducting research, producing veterinarians and performing services. CUVPH is now engaging in research on food safety, antimicrobial resistance, emerging zoonotic agents and environmental health.

Tasks and Responsibilities

- Produce veterinary practitioners who can be leaders in animal and human health working,
- Produce graduates and higher graduates who can function effectively in veterinary public health field.
- Produce scientific research and develop new technology that yields benefit to learning and teaching activities and provides solutions to the problem relating to veterinary science.
- Produce scientific and public health services that benefit the country and the world regions.



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 (CUFSAR)

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.



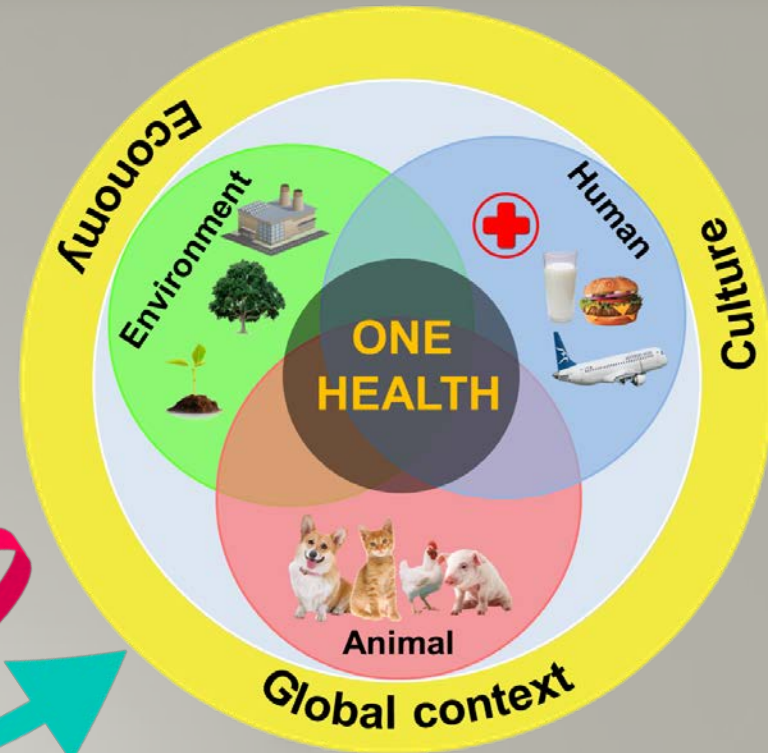
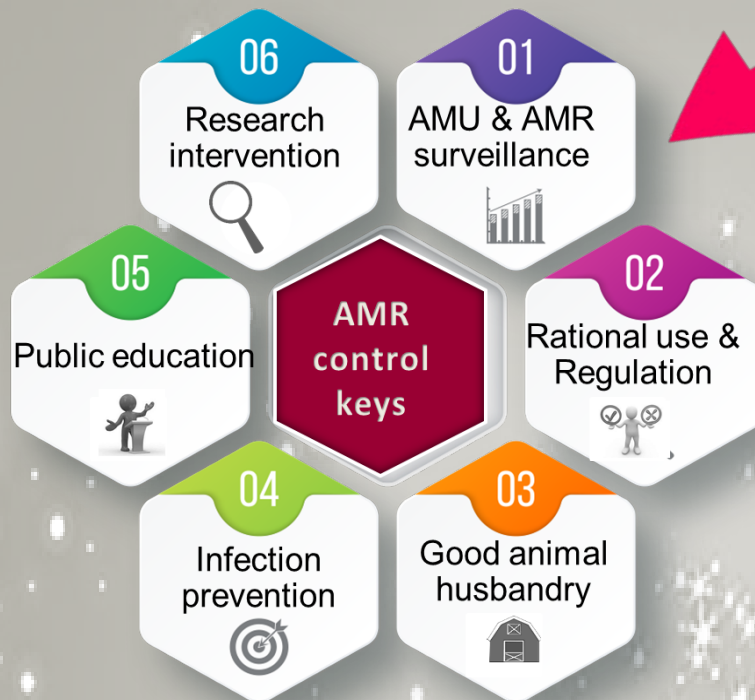
Objectives

- 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, omniscience, 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



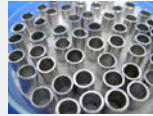
Task & responsibilities

Services
Trainings
Academic education
Research



AMR-related services

Determination of disinfectant effectiveness



Test kits for detection of antibiotic residues in milk and meat

Determination of microbiological quality of food and other products

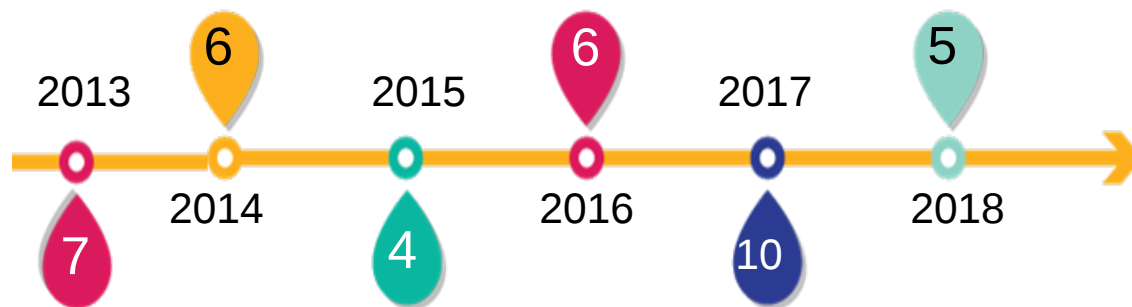


Determination *Salmonella* serovars

Determination of antimicrobial susceptibility



AMR-related training workshop





International training on “Antimicrobial Resistance in Foodborne Pathogens for ASEAN Universities”

**Faculty of Veterinary Science, Chulalongkorn University, Bangkok
26-30 August 2013**



RESEARCHER
LINKS



UNIVERSITY OF
LIVERPOOL



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



ASEAN STUDIES CENTER
CHULALONGKORN UNIVERSITY
ศูนย์อาเซียนศึกษา จุฬาลงกรณ์มหาวิทยาลัย



Research links on “Antimicrobial resistance in bacteria associated with livestock and animal products for Southeast Asian countries”

Faculty of Veterinary Science, Chulalongkorn University, Bangkok

16 - 19 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 and Progress in Asia**
16 March 2017

Antimicrobial use in food animals: Perspectives, Policy & Progress in ASIA
BITEC Bangna, Bangkok, Thailand
16 March 2017

25-27 April 2018

IMPACT Forum Building IMPACT Exhibition and Convention Center, THAILAND





CLINICAL AND
LABORATORY
STANDARDS
INSTITUTE®



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



Food and Agriculture
Organization of the
United Nations



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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



Food and Agriculture
Organization of the
United Nations



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Training on “sample collection and processing for AMR surveillance”
Faculty of Veterinary Science, Chulalongkorn University, Bangkok
28 - 29 September 2017



Food and Agriculture
Organization of the
United Nations



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



Food and Agriculture
Organization of the
United Nations



Hands-on Training on Sampling and Bacterial Isolation in Lao PDR
Vientiane, Lao PDR, 27 - 28 March 2018



Food and Agriculture
Organization of the
United Nations



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

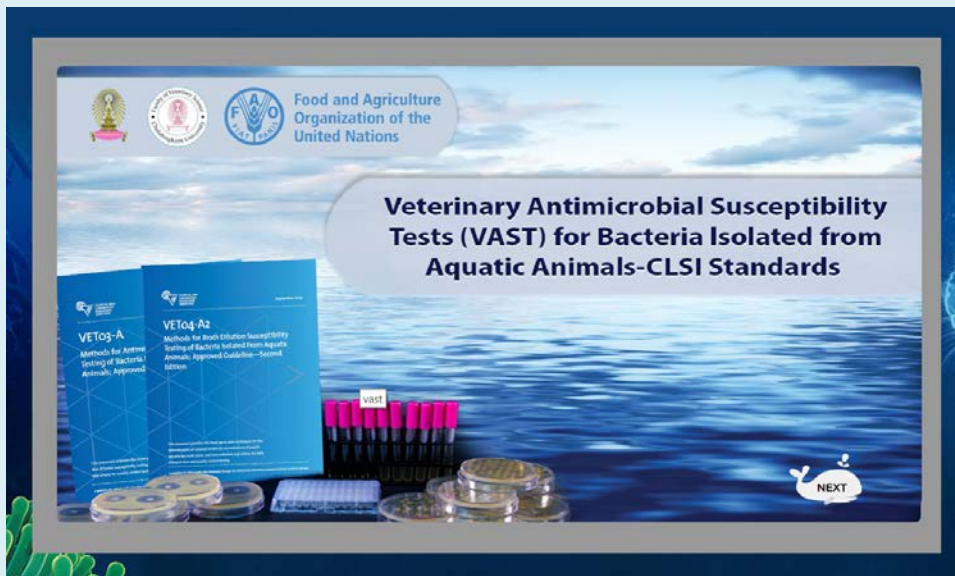
YouTube

vast antimicrobial susceptibility test



CLSI standard AST for bacterial isolated from animals

<https://www.youtube.com/watch?v=ILtapXZlIPg&t=47s>



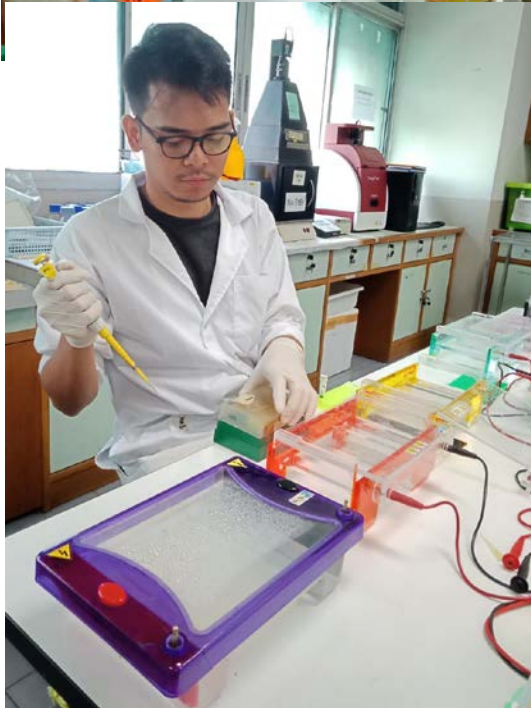
e-LEARNING

<http://aqua-ast-chula.com/>

Exchanged students/visitors



Exchanged students/visitors

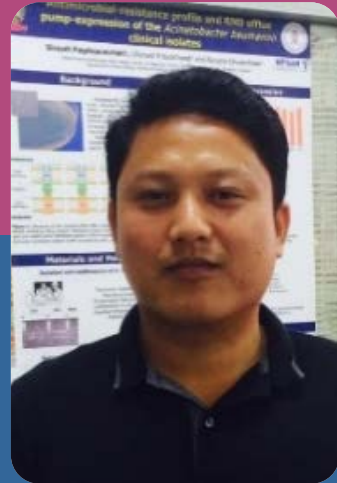


Exchanged students/visitors



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,¹ Sunpetch Angkittitrakul,² Kari F. Coulson,³ Flor Marie Immanuelle R. Pilapil,⁴ Dethaloun Meunsene⁵ and Rungtip Chuanchuen¹

FOODBORNE PATHOGENS AND DISEASE
Volume 12, Number 9, 2015
© Mary Ann Liebert, Inc.
DOI: 10.1089/fpd.2015.1946

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

Nuananong Sinwat,¹ Sunpetch Angkittitrakul,² and Rungtip Chuanchuen¹

ORIGINAL ARTICLE

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

Suthathip Trongjit¹, Sunpetch Angkittitrakul², R. Emerson Tuttle³, Jiratchaya Pongsere¹, Pawin Padungtod³ and Rungtip Chuanchuen¹

¹Research Unit in Microbial Food Safety and Antimicrobial Resistance, Department of Veterinary Public Health Science, Chulalongkorn University, Bangkok 10330, ²Research Group for Prevention Technology in Livestock, Medicine, Khon Kaen University, Khon Khan 40000 Thailand and ³Division of Global Health Protection, Thai Health–US Centers for Disease Control and Prevention Collaboration, Nonthaburi 11000 Thailand



ORIGINAL ARTICLE

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

Suthathip Trongjit¹, Sunpetch Angkittitrakul² and Rungtip Chuanchuen¹

¹Research Unit in Microbial Food Safety and Antimicrobial Resistance, Department of Veterinary Public Health, Faculty of Veterinary Science, Chulalongkorn University, Bangkok 10330, Thailand and ²Research Group for Prevention Technology in Livestock, Faculty of Veterinary Medicine, Khon Kaen University, Khon Kaen 40000, Thailand

Action on AMR in cooperation with FAO

2013



**FAO
reference center
for AMR**

2018

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





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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



FAO reference center for AMR: Workplan

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

1



Raising awareness on AMR

2



Developing capacity for surveillance of AMR and AMU

3



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

4



Conducting research on AMR & related topics

5



Provide advice for the AMR TAG for South-East Asia

• Participate AMR TAG meeting and provide advice

- 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
- 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 for AMR monitoring
- 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
- Conduct training on AMR testing and surveillance at different levels.
- Organize a proficiency test program
- Establish a national report of AMR situation in bacteria associated with animals in South East Asia
- Develop regional AMR database in South East Asia
- Develop target bacteria

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

