AMR

APEC Conference on Strategies Against the Evolving Threats from Antimicrobial Resistance: From Awareness to Concrete Action

THE PHILIPPINES

Dr. Irene Florentino-Farinas
Medical Officer IV, Department of Health

Introduction

In the Philippines, majority of the infections are caused by MDR *Pseudomonas aeruginosa, Acinetobacter spp., Streptococcus pneumoniae*, methicillin-resistance *Staphylococcus aureus, Neisseria gonorhoeae*, MDR TB and XDR TB.

Creation of the Inter-Agency Committee on Antimicrobial Resistance

In 2014, former President Benigno Aquino signed the Administrative Order no. 42 series of 2014 entitled "Creating an Inter-agency Committee for the Formulation and Implementation of a National Plan to Combat Antimicrobial Resistance (AMR) in the Philippines."

Composition of the Inter-Agency Committee on Antimicrobial Resistance (ICAMR):

	Agency	Functions
Chair	Department of Health (DOH)	Primarily functions to provide technical secretariat support to the committee Responsible for establishing policies that address AMR Ensure that quality antimicrobials are accessible and affordable Regulate antimicrobials in the market Create essential medicines lists, treatment guidelines, systems, platforms, risk communication plans and IEC materials for human use Establish AMR and antimicrobial use surveillance programs
Co-chair	Department of Agriculture (DA)	Responsible for establishing policies that address AMR Ensure that quality antimicrobials are accessible and affordable Regulate antimicrobials in the market Create essential medicines lists, treatment guidelines, systems, platforms, risk communication plans and IEC materials for veterinary use Establish AMR and antimicrobial use surveillance programs
Members	Department of Trade and Industry (DTI)	Strengthen surveillance systems and laboratory detection capacity for AMR and their use in humans and animals Ensure the laboratories conform to international standards
	Department of Science and Technology (DOST)	Lead in the prioritization of AMR in health agendas and researches aimed to develop new antimicrobials and innovative technologies to improve diagnosis and treatment
	Department of the Interior and Local Government (DILG)	Coordinate and implement AMR policies to the local governments to ensure that strategies to address AMR reach communities and household level

The ICAMR is tasked to oversee the implementation of a unified, comprehensive, and a sustainable National Action Plan adhering to the WHO Six-Point Policy Package.

In 2016, the ICAMR, through the DOH, established a partnership with the Department of Education (DepEd) to include the concepts of AMR and rational use of antimicrobials in the elementary and high school curriculum. The Professional Regulatory Commission (PRC) and the Commission on Higher Education were also encouraged to include the rational use of antimicrobials and medicines in the undergraduate curriculum of the healthcare professionals.

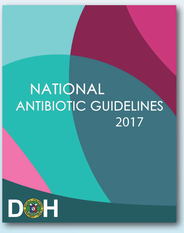
Development of the Philippine Action Plan to Combat Antimicrobial Resistance

The major actionable areas in the document entitled: "Philippine Action Plan to Combat Antimicrobial Resistance: One Health Approach" are as follows:

Actionable Areas in the Philippine AMR Plan

Cover Page of the Philippine AMR Action Plan launched in November 2015

The strategies, timeline, performance indicators, responsible agencies, and budget for each program and activity are also specified in the action plan.



National Antibiotic Guidelines published in 2017

National Antibiotic Guidelines

The National Antibiotic Guidelines aims to provide information on the treatment of choice or recommendations for selected pathogen-specific conditions based on recent evidences of clinical effectiveness, adverse effects, cost, and patterns of resistance; as well as the necessary dosing and monitoring guidelines for specific antimicrobials. The guidelines should be able to cover infectious diseases commonly observed in the country. The guidelines are also divided per organ system and will be published online every time the NAGCom has finished discussing a particular system.

Philippine AMR Summit

The 1st Philippine AMR Summit was organized by the PD in cooperation with the WHO, a two-day activity which commenced on 24-25 November 2015. This served as an avenue to showcase the programs that the country has been implementing since the signing of AO 42 in 2014. The tripartite global agencies - WHO, Food and Agriculture Organization (FAO) and the World Organization for Animal Health (OIE), who initially pushed the global movement to address AMR, as well as high-level officials of the ICAMR member agencies and international luminaries, graced this prestigious event. The highlight of the Summit was the formal launch of "The Philippine Action Plan to Combat Antimicrobial Resistance: One Health Approach." This was jointly developed by the inter-agency committee on AMR. During the Summit, a press conference was held to increase awareness on the threats of AMR and the importance of responsible use of antibiotics.

Contact details of the Philippine AMR Secretariat

Email address: amr.secretariat@gmail.com

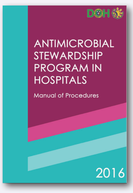
Website: www.pharmadiv.doh.gov.ph; www.icamr.doh.gov.ph

Photos during the celebration of the 1st Philippine AMR Summit in November 2015

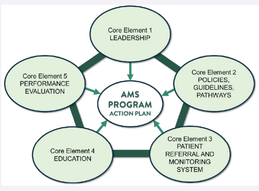
Since 2015, the country observes the Philippine Antibiotic Awareness Week every November in time for the celebration of the World Antibiotic Awareness Week.

National Antimicrobial Stewardship Program

In light of the global and national agenda to address the multi-sectoral threats of AMR, the DOH institutionalize the Antimicrobial Stewardship (AMS) Program in hospitals as part of the overarching Country Action Plan to combat AMR. This is to ensure rational prescribing, dispensing and use of antimicrobials. As such, the DOH selected two clinical pharmacists among the AMS pilot sites in 2015 to undergo the AMS training program in Singapore from 29 February to 18 March 2016. Moreover, the AMS Manual of Procedures (MOP) was developed in 2016 to facilitate the effective and systematic implementation of the program to all public and private hospitals in the country.



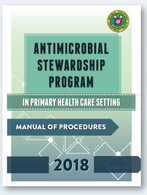
AMS MOP for Hospitals

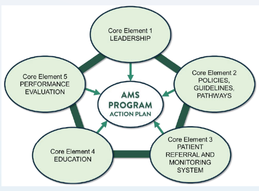


Core elements of the AMS Program in Hospitals

AMS in the Community Settings

In 2018, the DOH with support from the WHO, has developed the AMS MOPs for community settings which follows similar principles of the AMS program in hospitals. It also aims to strengthen the network between the hospitals and the primary care settings.





Core elements of the AMS program in the primary care settings

Antimicrobial Resistance Surveillance Program

As the country's response to the recommendation of the World Health Organization (WHO) Working Group on the Regional Information Network on Antimicrobial Resistance that a surveillance program be initiated among member states of the Western Pacific Region to contain and prevent resistance to antimicrobials, the Philippine Committee on Antimicrobial Resistance Surveillance Program was created in 1988 by the Department of Health's Department Order 339-J. The program aims to provide critical inputs to the Department of Health's effort to promote rational drug use by determining the status and developing trends of antimicrobial resistance of selected bacteria to specific antimicrobials.

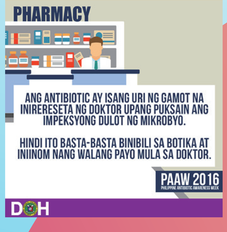
The publication of yearly ARSP data which will help the health practitioners in making clinical decisions to treat patients used as basis in the preparation and revision of Clinical Practice Guidelines, selection of antibiotics for inclusion in the National Formulary, identification of emerging antimicrobial resistant strains, and identification of outbreaks of antimicrobial resistant microorganisms.

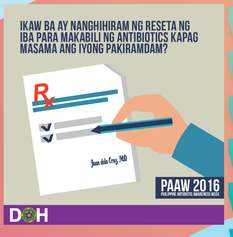
Point Prevalence Survey in Hospitals

In 2017, the Philippines has undertaken the conduct of point prevalence survey in hospitals which aims to: determine the prevalence of inpatient antimicrobial use in selected hospitals in the Philippines; identify targets for improvement in quality of antimicrobial prescribing; and, guide policy makers develop interventions to promote prudent antimicrobial use. The first dissemination forum on PPS data to relevant stakeholders (ICAMR member agencies, hospitals, professional organizations, medical associations, patient groups and civil society organizations) was conducted in June 13, 2018.

Advocacy Materials

The Philippines, with support from development partners, is able to develop information, education, and communication materials for AMR which are available in various media format.





Asia-Pacific Economic Cooperation

Centers for Disease Control

AMR

APEC Conference on Strategies Against the Evolving Threats from Antimicrobial Resistance:
From Awareness to Concrete Action

THAILAND

Thailand's Activities and National Strategic Plan on Antimicrobial Resistance (2017-2021):
The Animal and Agriculture Sector

Dr.Mintra Lukkana

Veterinarian, National Bureau of Agricultural Commodity and Food Standards, Ministry of Agriculture and Cooperatives

Vision
Reduction of mortality, morbidity and economic impact of Antimicrobial Resistance (AMR)

Mission
Establish policies and national multi-sectoral mechanisms which support an effective and sustained AMR management system

Goals
By the year 2021

1. 50% reduction in AMR morbidity
2. 20% reduction in antimicrobial use in human
3. **30% reduction in antimicrobial use in animal**
   The national databases of annual reports of veterinary medicine production and importation that pharmaceutical companies report to the Thailand Food and Drug Administration will be the main source of data for the assessment of antimicrobials used in animal. The amount of antibiotic used is calculated in terms of kilogram of active ingredient per Population Correction Unit (PCU), the calculation would be in comparison with the amount used in animals in the past three years
4. 20% increase of public knowledge on AMR and awareness of appropriate use of antimicrobials
5. AMR management system meets universally accepted standards

Thailand's National Strategic Plan on AMR consists of 6 strategies

1. AMR surveillance system using a "One-Health" approach
2. Regulation of antimicrobial distribution
3. Infection prevention and control and antimicrobial stewardship in human
   AMR prevention and control and antimicrobial stewardship in agriculture and animals
4. Public knowledge on AMR and awareness of appropriate use of antimicrobials
5. Governance mechanisms to develop and sustain AMR-related actions

Strategies 1-5 aim at resolving different aspects of AMR in an integrated manner. Strategy 6 aims at developing structures and mechanisms to implement Thailand's National Strategic Plan on AMR 2017-2021. Monitoring and evaluation of the implementation of Thailand's National Strategic Plan on AMR 2017-2021 will be based on the developmental evaluation approach, including the measurement of progress towards defined National Strategic Plan milestones, targets and goals in reference to an established baseline.

The National Strategic Plan on AMR 2017-2021 is Thailand's first national strategy that is specifically targeted towards addressing AMR issues. It sets clear and measurable goals as well as establishing an integrated framework to resolve AMR issues. It is also responsive to the national situation with an emphasis on multi-sectoral collaboration through the One Health approach and takes into account both national and international policies in order to systematize actions to address AMR. Thailand's National Strategic Plan on AMR 2017-2021 is also aligned with the Global Action Plan, reflecting the country's commitment to join forces internationally in resolving AMR issues.

Expected results:

Overall achievement

Successful implementation of Thailand's Strategic Plan on AMR 2017-2021 will be measured by two achievements as follows;

1. Achievement of the defined goals of the strategic plan
2. Achievement of the anticipated positive impacts that would be the result such as better health and safety for the public, compliance with the country's vision "stability, prosperity and sustainability" and Thailand's international commitment and responsibility on AMR problem solving.

Short-term achievement

Time period	Achievements
By three months	1. Establishment of National Committee on Antimicrobial Resistance (The committee consists of representatives from the Ministry of Public Health and the **Ministry of Agriculture and Cooperatives**, academic sector, professional societies and civil society organizations)
	2. Establishment of national policy on promoting rational drug use in hospitals, that integrates appropriate use of antimicrobials
By six months	3. Promulgation of a legislative order on withdrawal of antimicrobials from a household remedy list
By twelve months	4. An initiative on the integrated AMR surveillance system at least in two hospitals
	5. An initiative to establish an integrated system for AMR management in 24 provincial and regional hospitals in 12 area health systems
	6. Promulgation of a legislative order on antimicrobial reclassification
	7. Promulgation of a Ministry of Agriculture and Cooperatives Ministerial Order on regulation of the production, sales, and use of medicated feed Drugs, including antibiotics, are after mixed into feed referred to as medicated feed.
	8. An initiative on antimicrobial stewardship in two animal hospitals

The first meeting of National Committee on Antimicrobial Resistance on July 13, 2017 at the Government House (Photo: http://www.thaigov.go.th/news/contents/details/5183)

Highlighted strategic plan associated with the animal and agriculture sector

Strategy 4
"AMR prevention and control and antimicrobial stewardship in agriculture and animals"

Objective: Integrated and harmonized systems of AMR management and reduction of antimicrobial use in agricultural and animal sectors are applied to both public and private sectors.

Strategic action

1. Reduce use of antimicrobials in livestock farming and fisheries
2. Reduce antimicrobial resistant bacteria in the food production chain
3. Establish surveillance of antimicrobial use in crop production
4. Implement antimicrobial stewardship in animal hospitals and clinics
5. Educate relevant stakeholders in food animals and agriculture regarding appropriate use of antimicrobials

Activities and ongoing works on AMR: The Animal and Agriculture Sector

Strategy 1 AMR surveillance system using a 'One-Health' approach

Strategic actions	Activities
Develop the national integrated system of AMR surveillance and signaling	***Surveillance of AMR bacteria*** - livestock: *Salmonella* spp., *Campylobacter* spp., *E. coli* and *Enterococcus* spp. - fisheries: *Salmonella* spp., *E. coli* and *Vibrio cholera*
Strengthen capacity and networking of microbiology laboratories	***Enhancing laboratory capacities of AMR detection in livestock and fisheries*** - harmonize and implement standard method for AMR testing - provide the training courses on AMR detection for laboratory staffs

Strategy 2 Regulation of antimicrobial distribution

Strategic actions	Activities
Strengthen the antimicrobial distribution control system for both humans and animals	***Cooperation between the Ministry of Public Health (MoPH) and the Ministry of Agriculture and Cooperatives (MoAC)*** - Reclassify and control distribution channel of antimicrobials - Develop program of National Drug Account (NDA) and Thai Surveillance Antimicrobial Consumption (Thai-SAC) (Monitor values, consumption rates and distribution of all medicines)

Strategy 4 AMR prevention and control and antimicrobial stewardship in agriculture and animals

Strategic actions	Activities
Reduce use of antimicrobials in livestock farming and fisheries	***Reduce use of antimicrobials in livestock farming*** - Develop the regulations to control of manufacture, import, sale and use of medicated feed - "Raised without antibiotics in livestock animal" project - "Reduction of antibiotic used in livestock animal" project - Training veterinarians who responsible for a mixing of antimicrobial drugs at feed mills - Training farm veterinarians who control the use of antimicrobial drugs at farms - Develop the guidelines of Rational Drug Use (RDU) in livestock and fisheries - Training staff on the RDU in fisheries - Training staff on the regulation about Drugs Act and Food Act ***Post marketing surveillance of antimicrobial drugs & Residue monitoring plan in livestock and fishery products*** - Post marketing surveillance of veterinary drugs using in livestock - Monitoring plan of drug residues in livestock and fishery products ***Develop alternative ways to reduce antimicrobial use*** - Study project in the use of herbs and alternative products in livestock animals ***Cooperation between MoAC and MoPH to develop the regulation for monitoring the use of vaccines at farm-level***
Reduce antimicrobial resistant bacteria in the food production chain	***Develop regulations and measures about food safety in the food production chain*** - Develop mandatory agricultural standard for Good Agricultural Practices (GAP) farming - Develop agricultural standard for carcass transportation - Develop regulations in accordance with Control of Animal Slaughter for the Distribution of Meat Act, B.E. 2559 (2016) - Promote national & international standards of slaughterhouse e.g. Good Manufacturing Practice (GMP)
Establish surveillance of antimicrobial use in crop production	- Study project in the use of alternative products to cure greening disease in mandarin oranges - Develop the guideline on RDU in oranges
Implement antimicrobial stewardship in animal hospitals and clinics	- Implement antimicrobial stewardship in animal hospitals and clinics - Develop guideline on RDU in pets - Project on RDU in small animal teaching hospital
Educate relevant stakeholders in food animals and agriculture regarding appropriate use of antimicrobials	- Research project about AMR in livestock products and education/communication with relevant stakeholders - Training course/Public relations for staff and farmers to raise awareness about the problems of AMR

The kick-off meeting of "Raised without antibiotics in livestock animal" project took place in Bangkok, Thailand on August 7, 2018
(Photo: http://secretary.dld.go.th/webnew/index.php/th/news-menu/head-news-menu/3860-5-3)

References

The National Strategic Plan on AMR 2017-2021, www.amrthailand.net
www.thaigov.go.th
www.moac.go.th
www.dld.go.th
www.acfs.go.th
www.fisheries.go.th
www.doa.go.th
www.vetcouncil.or.th
www.fda.moph.go.th

Asia-Pacific Economic Cooperation

Centers for Disease Control

APEC Conference on Strategies Against the Evolving Threats from Antimicrobial Resistance:
From Awareness to Concrete Action

THAILAND

National Strategic Plan on Antimicrobial Resistance 2017-2021

Ms.Rathar Benchapalanont

Pharmacist, Food and Drug Administration, Ministry of Public Health

At a glance

Ministry of Public Health
Ministry of Agriculture and Cooperatives

In collaboration with
National Health Commission Offi ce of Thailand
National Health Security Offi ce
Thai Health Promotion Foundation
Health Systems Research Institute
International Health Policy Program
Drug System Monitoring and Development Program
Food and Agriculture Organization of the United Nations
World Health Organization

National Strategic Plan on Antimicrobial Resistance 2017-2021 Thailand

The National Strategic Plan on Antimicrobial Resistance (2017-2021) (NSP-AMR) is the first Thailand's strategy which addresses AMR specifically. It was developed by the AMR Coordination and Integration Committee (AMR-CIC), a multisectoral committee appointed by the Ministry of Public Health (MOPH) through a ministerial order in May 2015.

The drafting process began in the mid of 2015 with full participation of and engagement by multi-stakeholders. The draft versions have gone through several rounds of public consultation including through the 2015 National Health Assembly (NHA)[1] and the 2016 formal public hearing forum. Synergizing the NSP-AMR development process, a NHA Resolution on the integrated approach addressing antibacterial resistance crisis was adopted in December 2015. Through these processes, the draft of NSP-AMR was finalized in the second half of 2016. Finally, through a joint proposal by MOPH and Ministry of Agriculture and Cooperatives (MOAC), the NSP-AMR was endorsed by a Cabinet resolution in August 2016.

The NSP-AMR is guided by two underlying concepts: ***'One Health' approach*** which recognizes the interconnectivity across human, animal and environmental health; and ***'Triangle that Moves the Mountain' concept*** which emphasizes the importance of resolving complex intersectoral issues through policy engagement and social movement driven by evidence from knowledge generation.

Three guiding principles shape the contents of NSP-AMR

- ***Action oriented*** with measurable goals and targets by implementing the NSP-AMR in stepwise manner leading toward continued advancement
- ***Synergistic efforts*** which orchestrate and promote coherence of the existing policies, processes and actions across relevant stakeholders
- ***Political engagement*** to ensure effective and sustainable implementation.

[1] The National Health Assembly (NHA), mandated by the National Health Act 2007, is a bottom-up, evidence-based participatory public policy process through inclusive engagements by government sector, the academia, private and people sectors across all 77 provinces of Thailand.

Vision:

Reduction of mortality, morbidity and economic impacts from AMR

Mission:

Establish policies and national multi-sectoral mechanisms which support effective and sustained AMR management system

Goals:

1. 50% reduction in AMR morbidity
2. 20% reduction in antimicrobial use in human
3. 30% reduction in antimicrobial use in animal
4. 20% increase of public knowledge on AMR and awareness of appropriate use of antimicrobials
5. Capacity of the national AMR management system is improved to level 4[2]

Strategies

1. AMR surveillance system using 'One Health' approach
2. Regulation of antimicrobial distribution
3. Infection prevention and control and antimicrobial stewardship in humans
4. AMR prevention and control and antimicrobial stewardship in agriculture and companion animals
5. Public knowledge on AMR and awareness of appropriate use of antimicrobials
6. Governance mechanisms to develop and sustain AMR-related actions

Monitoring and Evaluation

The monitoring and evaluation (M&E) will include a few key actions such as, establishing baseline indicators for 2016 and strengthening the infrastructure and the functioning of M&E systems which contribute to monitoring progresses of each goal against each of five targets. Evidence on AMR and magnitudes of antimicrobial use in human and animal will be regularly shared with prescribers in human and agriculture sectors, in order to change course of actions, general public and decision makers.

[2] This is measured by the WHO's Joint External Evaluation Tool (JEE) for International Health Regulations (2005)

Milestones on the NSP-AMR development

	Prior to 2014	2014	2015	2016
National actions	• **2012** AMR as an issue in the National Drug Development Strategy 2012-2016 • **2013** AMR as an issue in the National Strategic Plan on Emerging Infectious Disease 2013-2016	• **8 Oct** Multi-sectoral meeting to map roles of agencies and develop an integrated framework on AMR • **Dec 2014- Jan 2015** Informal meetings between MOPH and MOAC	• **6 May** Appointment of AMR-CIC to develop NSP-AMR • **Aug** Multi-sectoral brainstorming workshop for NSP-AMR development • **Nov** AMR-CIC launched a full report on 'Landscape of AMR situations and actions in Thailand' • **Dec** NHA resolution regarding antibacterial resistance	• **18 Jan** Revision of AMR-CIC by having a joint MOPH and MOAC secretariat team • **Apr-May** Public hearing of the draft NSP-AMR • **25 Jul** A joined proposal on NSP-AMR from MOPH and MOAC to the Cabinet • **17 Aug** The NSP-AMR was endorsed by the cabinet
International engagement	• **Sep 2011** Jaipur Declaration on AMR • **Dec 2011** World Health Day on AMR	• **Sep** Thailand as a contributing country on AMR in GHSA • **Nov** AMR as a flagship priority identified by SEARO Regional Director	• **8 May** Hosting a regional GHSA meeting consisting of AMR session • **19 May** Co-founding the Alliance of Champions fighting against AMR during WHA 68th • **19 May** Organizing the ministerial side event on AMR during WHA 68th on behalf of FPGH countries • **20 May** WHA resolution on GAP-AMR • **26 May** OIE resolution on combating AMR and promoting the prudent use of antimicrobial agents in animals • **Jun** FAO resolution on AMR in food and agriculture • **Nov** World Antibiotic Awareness Week	• **16 Apr** Communiqué of Tokyo Meeting of Health Ministers on AMR in Asia • **21 Sep** High level meeting on AMR in UNGA

AMR – Antimicrobial Resistance; **AMR-CIC** – AMR Coordination and Integration Committee; **FAO** – Food and Agriculture Organization of the United Nations; **FPGH** – Foreign Policy and Global Health; **GAP-AMR** – Global Action Plan on Antimicrobial Resistance; **GHSA** – Global Health Security Agenda; **MOAC** – Ministry of Agriculture and Cooperatives; **MOPH** – Ministry of Public Health; **NHA** – National Health Assembly; **NSP-AMR** – National Strategic Plan on Antimicrobial Resistance; **OIE** – World Organisation for Animal Health; **SEARO** – WHO South-East Asia Regional Office; **WHA** – World Health Assembly; **WHO** – World Health Organization; **UNGA** – United Nations General Assembly

Printing support is provided by WHO

Asia-Pacific Economic Cooperation

Centers for Disease Control

APEC Conference on Strategies Against the Evolving Threats from Antimicrobial Resistance:
From Awareness to Concrete Action

MALAYSIA

Implementation of Intersectoral "One Health" Antimicrobial Resistance (AMR) Containment Programme in Malaysia

Suraya A.H[1], Azman A.B[1], PAA MNAR[1], Norazah A[2], Noraini M[3], Noor Amelia A.R[1], Puteri Fajariah[1], Hazimah H[3], Nor Farah B[1], Mardhiyah K[3], Suhaily O[1], Rohana O[1], RozanahS[4]

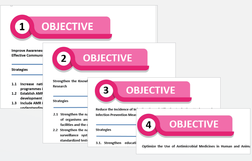
[1]Medical Development Division, MOH, Malaysia, [2]Institute for Medical Research, MOH, Malaysia, [3]Pharmaceutical Services Division, MOH, Malaysia, 4Department of Veterinary Services, MOA, Malaysia

Introduction

The incidence of AMR is increasing around the world and is affecting all levels of society, thus making AMR a global health threat of grave concern. AMR is a complex epidemiological problem due to the fact that various causal factors are intertwined. Generally, resistant organisms exists in humans, animals, food and the environment and they act as the key drivers of the occurrence of AMR. Thus, AMR is a major issue that requires a comprehensive and holistic "One Health" approach.

In 2016, the MOH steered the initiatives of One Health approach involving various ministries and agencies in combating AMR.

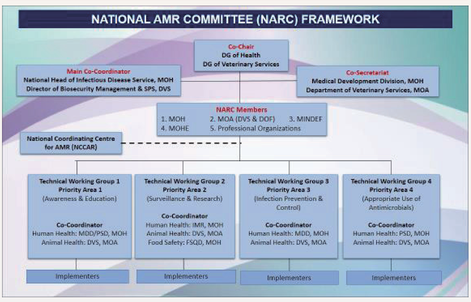
Malaysian Action Plan on AMR (MyAP-AMR) 2017-2021



MyAP-AMR was launched in 27th Feb 2018 by the Ministers of Ministry of Health and Ministry of Agriculture and Agro-based Industry

4 Key Priority Areas in MyAP-AMR:
i) Awareness and education;
ii) Surveillance and research;
iii) Infection prevention and control;
iv) Appropriate use of antimicrobials.

IntersectoralAMR Governance



The National AMR Committee (NARC) was established in March 2017 and acts as a coordinating body to govern the intersectoral AMR containment activities and its implementation.
Under the NARC framework, there are 4 technical working groups responsible for implementing the strategies and activities set in the MyAP-AMR

AMR One Health Activities

Nationwide World Antibiotic Awareness Week (WAAW) Campaign:
a) Printed media
b) Mass media
c) Electronic media
d) Social media
e) Training/conference/seminar/workshop

Conclusion

AMR is becoming an increasingly urgent challenge and a public health threat for Malaysia. We recognize the need to reduce the impact of AMR on morbidity, mortality, costs and burden on health systems.

Intersectoral coordination has been set up to oversee the implementation of activities in the national action plan. Regulation and enforcement of relevant products have been reinforced especially with regard to the prescription of human and veterinary medicines in the agro-industries. Malaysia has intensified the awareness and education program as well as strengthened the infection control, the antimicrobial stewardship programme and the surveillance system including the development of integrated AMR surveillance. The success of these measures can only be achieved through One Health approach.

Asia-Pacific Economic Cooperation

Centers for Disease Control

APEC Conference on Strategies Against the Evolving Threats from Antimicrobial Resistance:
From Awareness to Concrete Action

JAPAN

Surveillance of AMR and Antimicrobial Use

Japanese Veterinary Antimicrobial Resistance Monitoring(JVARM)

Mr. Takahiro Shirakawa

Inspector, National Veterinary Assay Laboratory, Ministry of Agriculture, Forestry and Fisheries

Monitoring of Antimicrobial Sales

Under the Pharmaceutical and Medical Device Act
(formerly known as Pharmaceutical Affairs Law)

Pharmaceutical companies
(Marketing Authorization Holder)

↓ ↑

National Veterinary Assay Laboratory

Summing up, Analysis, Evaluation

Report on the website of NVAL

Collates analyses and evaluates the data
Publishes the data in an annual report and posts it on the Web

e.g. Sales Amount and Sales Volume of Antimicrobials. (2005)

Class	Active substance	route of administration	Sales amout (¥ 1000)	Amount of active substance (kg)	Estimated Percentages of Sales for Each Animals Species				
					Beef Cattle	Dairy cow	Pig	Broiler	Layer	Dog/Cat
Tetracyclines	Oxytetracycline	oral	383,157	204154	1.8	1.3	84.5	8.1	4.3	
		injection	158,791	1162.7	11.6	5.6	82.5	0.07	0.07	0.09
		total	541,948	205316.7						
	Doxycyclin HCl	oral	520,321	23713.5			84.3	15.6		

http://www.maff.go.jp/nval/iyakutou/hanbaidaka/attach/pdf/h27-koukinzai_re.pdf

Monitoring of AMR

MAFF (Ministry of Agriculture, Forestry and Fisheries of Japan)
・Design risk managements and provide the data for risk assessments to FSC

FSC: Food Safety Commission

Report

Contract the Project

NVAL (National Veterinary Assay Laboratory)
FAMIC (Food and Agricultural Materials Inspection Center)
・Analyze, and evaluate data
・Research into molecular epidemiology, resistance mechanism

Isolated bacteria, Data ↓ Quality control

Isolated bacteria, Data ↓ Advice, Training seminar

Contracted research organization
・Collect feces in Slaughterhouses, isolate and identify bacteria, and measure MIC

Livestock Hygiene Service Center (170 centers)
・Collect feces in farm, isolate and identify bacteria, and measure MIC

Samples ↑ Slaughterhouses

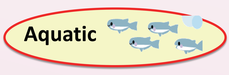
Samples ↑ Farm

Target bacteria;
- Indicator (*E. coli, Enterococcus spp.*), Zoonotic bacteria (*Salmonella spp., Campylobacter spp.*)

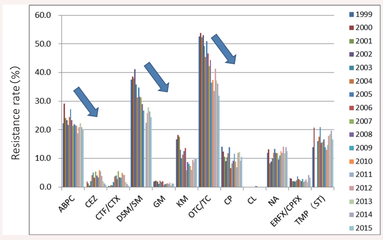
Target bacteria;
- Animal pathogen (Clinical isolate; *Salmonella, Stapylococcus, Actinobacillus pleuropneumoniae* etc.)

◆JVARM was established in1999 and has continuously conducted nation-wide monitoring.
◆JVARM report are published in Japanese every year and in English every few years (http://www.maff.go.jp/nval/English/index.html).

◆Monitoring of AMR on companion animals has launched since last year.
◆Monitoring of AMR on aquatic animals has been strengthened since last year.

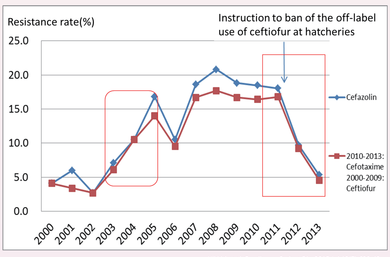


Antimicrobial resistance rates in *E.coli* isolated from healthy food producing animals(JVARM)



◆Resistant rates were higher in tetracyclines, streptomycins and Ampicillin, and the resistant rates for these drugs have been decreasing.
◆As for the cephalosporins and fluoroquinolones, which are very important as human drugs, resistance rates remain low, at comparable levels to those in EU and USA.

Resistance rate of cephalosporin in *E. coli* isolates from healthy broilers(JVARM)



Hiki M et al. Foodborne Pathog Dis. 2015 Jul;12(7):639-43.

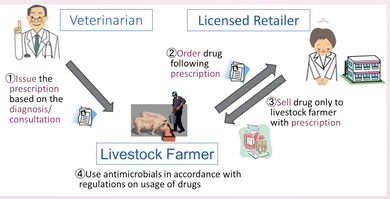
◆In some hatcheries, the off-label use of ceftiofur had been performed for in ovo vaccination or vaccination of 1-day-old chickens.
◆MAFF showed these JVARM data to poultry industries, and instructed to ban of the off-label use of ceftiofur at hatcheries.
◆The prevalence of broad-spectrum cephalosporin resistance in *E.coli* significantly decreased thereafter.

Prudent Use of Antimicrobials

◆MAFF developed guidelines and DVD texts for prudent use of veterinary antimicrobials to ensure the concept of "prudent use".
(DVD URL: https://www.youtube.com/watch?v=n6fFobLik9A)

Veterinary Legislation

Prescription system



Asia-Pacific Economic Cooperation

Centers for Disease Control

APEC Conference on Strategies Against the Evolving Threats from Antimicrobial Resistance:
From Awareness to Concrete Action

JAPAN

Pharmaceuticals and Medical Devices Agency

Regulatory collaboration to combat to AMR

Dr. Junko Sato
Director,Office of international cooperation, Pharmaceuticals and Medical Devices Agency

Challenge for Development of anti-AMR Product

- Limited number of patients
- Sporadically occurrence of patients
- Urgency to initiate therapy
- Complications in patients background

Collaboration between EMA, FDA and PMDA


MEETING SUMMARY

Tripartite meeting held between the EMA, FDA and PMDA in Kyoto, Japan to discuss convergence on approaches for the evaluation of antibacterial drugs

The third tripartite meeting yielded significant progress in our discussions on recommended clinical trial designs for evaluating antibacterial drugs and ways to further enhance collaboration in this therapeutic area among the Agencies.

- The discussions at this meeting built on the work of prior meetings leading to further alignment on a number of clinical trial design elements for key indications for antibacterial drugs, such as the approaches for studying antibacterial drugs for uncomplicated gonorrhoea and uncomplicated urinary tract infections.
- The importance of adequately characterizing pharmacokinetic and pharmacodynamic relationships, particularly for drugs that are developed to address serious infections with unmet need was reiterated.
- The importance of obtaining clinical data in pediatric patients was recognized along with the challenges of gathering such data in a timely fashion. The three Agencies will work together to explore options to streamline pediatric antibacterial drug development.
- Monitoring benefit-risk throughout the lifecycle of a product was recognized as an important activity, particularly for drugs approved based on a more limited clinical program.
- To respond to unmet medical needs in the antibacterial area, EMA, FDA and PMDA will continue to work together under their

https://www.pmda.go.jp/english/int-activities/outline/0018.html

Recognition of three regulatory agencies

There is benefit in further convergence on the data requirements for the approval of antibacterial agents.
It may be appropriate to accept a greater degree of uncertainty regarding the benefit-risk balance when developing new antibacterial agents that can be used to treat patients with limited treatment options, e.g. it may be acceptable to conduct trials in smaller numbers of patients than would usually be required.
It is important to conduct sound analyses of the pharmacokinetic-pharmacodynamics relationship for the purposes of selecting dose regimens for study in clinical trials, including regimens that may minimize the risk of selecting for resistant organisms.
There is value in developing clinical trial networks to facilitate the evaluation of new antibacterial agents and the development of such networks is encouraged.

Workshop on development of antibacterial medicinal products for paediatric patients

Date: 21th-22th June, 2018
Venue: EMA(London)
Hosts: EMA, PMDA, FDA
Discussion points

- ✓ General considerations on regulatory requirements
- ✓ Challenges with paediatric trials
- ✓ Efficacy Assessment
- ✓ Safety Assessment
- ✓ Studying neonates

Discussion points in EMA-FDA-PMDA meeting

Utilization of Modeling and Simulation
Follow-Fiber simulation
Monte Carlo Simulation
PK/PD modeling etc.
Utilization of Clinical Network
Paediatric development
Pathogen focused development?

For acceleration of anti-AMR product development

Regulatory convergence
Well collaboration among stakeholders
Internationally
Over disciplinary in own region
Utilization of alternative methods

Go forward for patients !

Asia-Pacific Economic Cooperation

Centers for Disease Control

APEC Conference on Strategies Against the Evolving Threats from Antimicrobial Resistance: From Awareness to Concrete Action

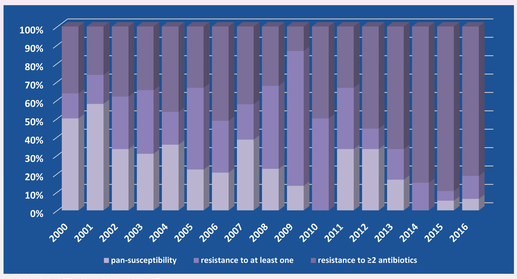
PERU

The National Action Plan on Antimicrobial Resistance

Mr. Victor Fiestas Solórzano
Infectious Disease Specialist, National Institute Health

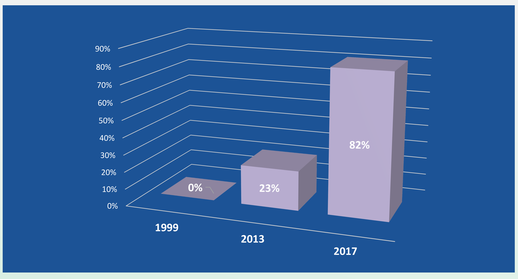
The Ministry of Health of Peru through the National Institute of Health (INS) initiated surveillance of antimicrobial resistance in 1997 and since 2002, our country participates in the in the regional laboratory-based surveillance systems of the Pan American Health Organization (PAHO): SIREVA (Sistema Regional de Vacunas) and later SIREVA II (Sistema de Redes de Vigilancia de Agentes Bacterianos Causantes de Meningitis y Neumonías) and the Latin American Antimicrobial Resistance Surveillance Network (ReLAVRA).

Antimicrobial resistance Streptococcus pneumoniae in Peru



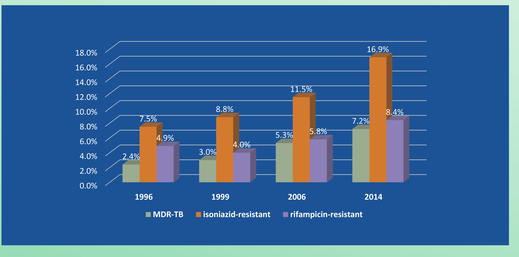
Natinal Institute of Health, Peru

Neisseria gonorrhoeae ciprofloxacin resistance in Peru



1.Portilla J. Susceptibilidad antimicrobiana in vitro de cepas de Neisseria gonorrhoeae procesadas en el Instituto Nacional de Salud, Lima-Perú 1998-1999. Rev Peru Med Exp Salud Publica. 2003; 20(4): 216-9
2.Tsai AY et al. The U.S. military's Neisseria gonorrhoeae resistance surveillance initiatives in selected populations of five countries. MSMR. 2013; 20(2): 25-7
3.Jorge-Berrocal A, Mayta-Barrios M & Fiestas-Solorzano V. Antimicrobial resistance of Neisseria gonorrhoeae in Peru. Rev Peru Med Exp Salud Publica. 2018; 35(1): 155-156

Anti-tuberculosis drugs resistance among new patients, Peru 1996-2014



Promotion of rational use of antibiotics in the community

The National Drug Regulatory Authority (Dirección General de Medicamentos, Insumos y Drogas, DIGEMID) developed guidelines for the rational use of medicines (including antibiotics) in the community

http://www.digemid.minsa.gob.pe/UpLoad/UpLoaded/PDF/Publicaciones/URM/P22_2012-09-17_Manual_comunidad.pdf

The National Action Plan on Antimicrobial Resistance, 2018-2021

Peru has deployed initiatives over more than two decades to address antimicrobial resistance; however, these initiatives have not had the expected results

In 2016, the Ministry of Health commissioned the National Institute of Health to prepare the national plan, taking as a framework the WHO Global Action Plan on Antimicrobial, which integrates a multisectoral (Ministry of Agriculture, Ministry of Environment, Ministry of Education) response under the "One Health" approach.

1st workshop, National Institute of Health September 2016

Human health	Ministry o Health	DIGEMID
		DIGESA
		Oficina General de Cooperación y Asuntos Internacionales
		Centro Nacional de Epidemiología
		Instituto Nacional de Salud
		Dirección General de Intervenciones Estratégicas en Salud Pública
		Seguro Integral de Salud
		Secretaría de Coordinación del Consejo Nacional de Salud
		SUSALUD
		Oficina General de Planificación y Presupuesto
		Dirección General de Personal de la Salud
		Oficina General de Comunicaciones (MINSA)
		Unidad Funcional de Gestión de la Calidad en Salud (MINSA)
	MINDEF	Dirección de Sanidad de las Fuerzas Armadas
	MINTRA	ESSALUD
	Colegios profesionales	Colegio Médico del Perú
		Colegio de Químicos Farmacéuticos
	Universidades	Instituto de Medicina Tropical D.A. Carrión UNMSM
		Instituto de Medicina Tropical Alexander Von Humbolt -UPCH
Animal health	MINAGRI	SENASA
	PRODUCE	SANIPES
	Colegios profesionales	Colegio Médico Veterinario del Perú
Enviroment	MINAM	Ministerio del Ambiente
Food	MINSA	DIGESA
	MINAGRI	SENASA
	PRODUCE	SANIPES

Last workshop, Colegio Médico del Perú April 2018

The plan will be made official through a Supreme Decree with the signature of the President and the ministers of the corresponding sectors.

Web page about the National Action Plan on Antimicrobial Resistance: antimicrobianos.ins.gob.pe

Asia-Pacific Economic Cooperation

Centers for Disease Control

APEC Conference on Strategies Against the Evolving Threats from Antimicrobial Resistance:
From Awareness to Concrete Action

INDONESIA

Progress on AMR Control Programme in Indonesia

Dr. Triya Novita Dinihari
Head Section for Early Warning, Dg for Diseases Prevention and Control, Ministry of Health

INTRODUCTION

Data on AMR have been patchy, sporadic and selective → few university labs (unconnected)
Some independent studies on AMR and AMU conducted
35.2% households keep medicines (including AM) at home for various reason (Basic Health Research, 2013)
80% AB use in animal husbandry was in poultry
Most of commercial poultry in Indonesia are owned by people with low biosecurity level
National Action Plan on AMR Indonesia 2017-2019 has already in place since May 2017, developed by multisectoral collaboration, in-line with GAP AMR One Health approach, supported by WHO and FAO (http://www.who.int/antimicrobial-resistance/national-action-plans/library/en/)

Policy and regulation on AMR

National Action Plan on AMRIndonesia 2017 -2019

Sectoral efforts
Joint consultations
2015-2016

National Action Plan development workshop (Hotel Harris Bekasi) Jan 11-13, 2017

- Multi-sectoral Governance Mechanism
- Strategic Plan, 2017-2019

GOAL

To ensure continuity of successful treatment and prevention of infectious diseases with effective and safe medicines that are quality-assured, used in a responsible way and accessible

STRATEGIC OBJECTIVES

SO-1	SO-2	SO-3	SO-4	SO-5
Improve awareness and understanding of antimicrobial resistance through effective communication , education and training	Strengthen the knowledge and evidence base through surveillance and research	Reduce the incidence of infection through effective sanitation, hygiene and infection prevention measures	Optimize the use of antimicrobial medicines in human and animal health	Increase investments in new medicines, diagnostic tools, vaccines and other interventions to reduce antimicrobial use

1. Improve awareness and understanding

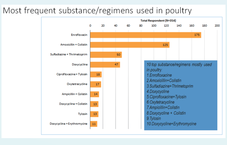
Public awareness campaigns through the Community Movement on Smart Use of Medicines (GeMa CerMat) program, prioritized in AMR and prudent use of antibiotics
Nationwide dissemination of information and educational material for increasing public awareness and knowledge, through printed, electronic, and social media

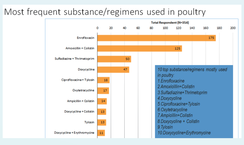
Public awareness has been implemented to farmers, veterinary medicine association, feed production association, and student of faculty of veterinary medicine through stadium generale.
Antibiotic awareness week has been done routinely support by MoH with WHO, some hospitals and pharmacist association and MoA with FAO and university.

2. Strengthen knowledge through surveillance & research

18 surveillance sites in referral hospitals coordinated by MoH/ARCC
AMR surveillance on livestock conducted by National Veterinary Product Assay Laboratory
8 Regional Disease Investigation Centers for surveillance including AMR in animal health.
National reference laboratory for AMR surveillance for human and animal health has not established yet.
Preparation phase of Global Surveillance on ESBL Producing E.Coli (Tricycle project) with One Health approach, collaborative work between MoH, Min. of Agriculture and Min. of Environmental and Forestry.

AMR and AMU survey (2017 and 2018) in poultry conducted



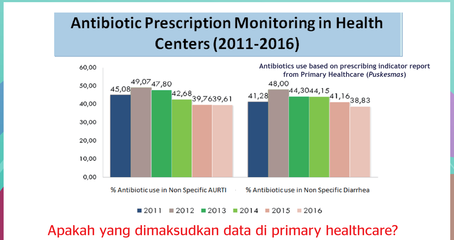


3. Reduce incidence of infection

2017: Health Minister decree no.27/2017 infection prevention and control in health facilities guideline
2015: Health Minister decree no.8/2015 antimicrobial resistance control programme in hospital
Infection Prevention and Control (IPC) program in healthcare settings available, including regulations and guidelines, committees in healthcare settings both for referral (hospital) and primary (health center) healthcare, and trained personnel
AMR, IPC and HAI include in national accreditation for hospital
Hand hygiene already implemented in healthcare facilities (hospital and health center) primary health care
Large-scale farms have now been awarded free AI compartment certificates, one of the indicators in the audit is the implementation of biosecurity in the farm.
Policy and guidelines biosecurity in the farm have been established.

4. Optimize use of antimicrobial medicines

The Essential Medicines List and National Formulary with its restriction for the reference of antimicrobials use in healthcare facilities are available
Guideline on Antibiotic Use has been in place
Some hospitals have capacity to produce AMR patterns and the use of antimicrobials (AMU)
Regulation and policy on the Antimicrobial Stewardship Programme (AMSP) for health center is under development (apakah yang dimaksud PPRA di RS?)
AMR is included in trainings, workshops and seminars for health professionals
Regulation No. 18 /2009 and regulation No. 41 /2014: prohibit use of certain AB for animal that to be consumed by human and for AGP
Minister of Agriculture decree No. 14/2017: prohibit use of certain AB for animal (detail)
AB use for growth promoter was banned since 1 Jan 2018
Antimicrobial use (AMU) monitoring in health center (for non-pneumonia ARTI and acute diarrhea) has been regularly reported.
NADFC conducts pre and post market control of antimicrobial medicines as part of quality assurance activities.
GMP, GDP, GPP control has already performed on the production, distribution and healthcare facilities



Apakah yang dimaksudkan data di primary healthcare?

5. Ensure sustainable investment for R&D and implementation of control measures

NIHRD-MoH focuses on vaccine development under vaccine consortium (TB and Dengue) and antimalarial which consist of the government, industry, and academic

CHALLENGES

Misuse and overuse on AB in human, livestock and agriculture
- Common and unnecessary prescription of ABs by doctors
- High rates of self-medication
- OTC purchase
- Antibiotics use without prescribing

Weak of environmental sector engagement in AMR programme
National reference laboratory (NRL) and national coordinating center (NCC) on AMR have not established yet
Weak policy enforcement and poor governance (maksudnya ?)
Lack of awareness

CONCLUSION

Continue and expand the public awareness to all the community level, and educate more health professionals and other stakeholders
Need to establish Inter-ministerial committee for AMR control for coordinated actions to achieve NAP deliverables
Multisectoral national action plans on AMR are fundamental but sustainable implementation is a major challenge

Asia-Pacific Economic Cooperation

Centers for Disease Control