One Health and important zoonoses in Myanmar

Nay Pyi Taw, January 25, 2018

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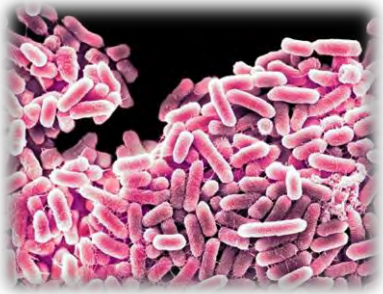
မွေးမြူရေးနှင့်ကုသရေးဦးစီးဌာန

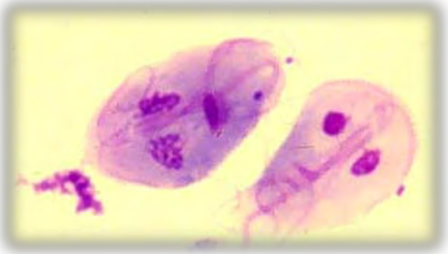
Contents

- Zoonoses
- One health
- One Health collaboration in Myanmar

Zoonotic Diseases

- Diseases that can be passed between animals and humans





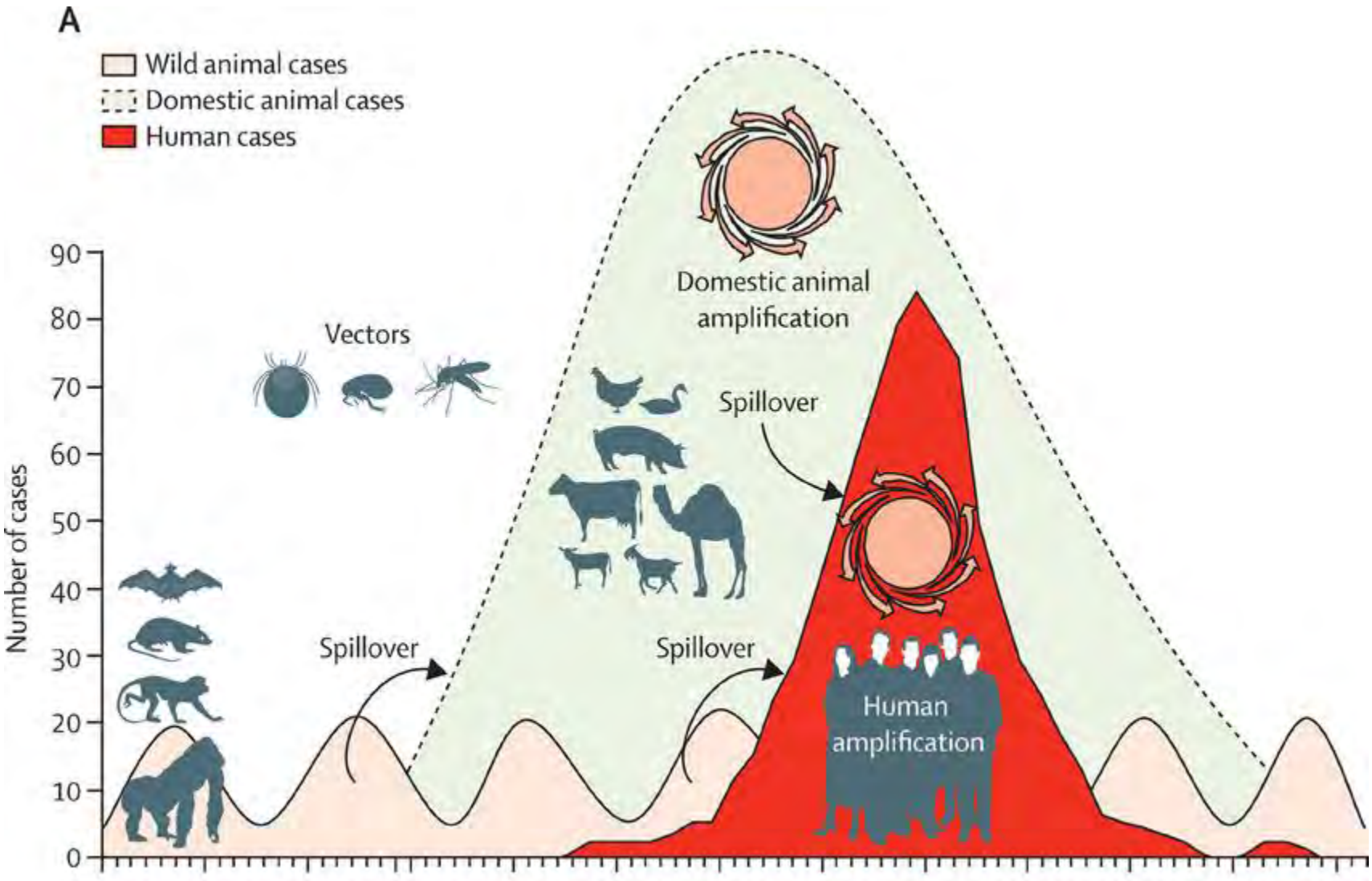
- At least 61% of all human pathogens are zoonotic.

- ~75% of all emerging pathogens in the past decade have been zoonotic.

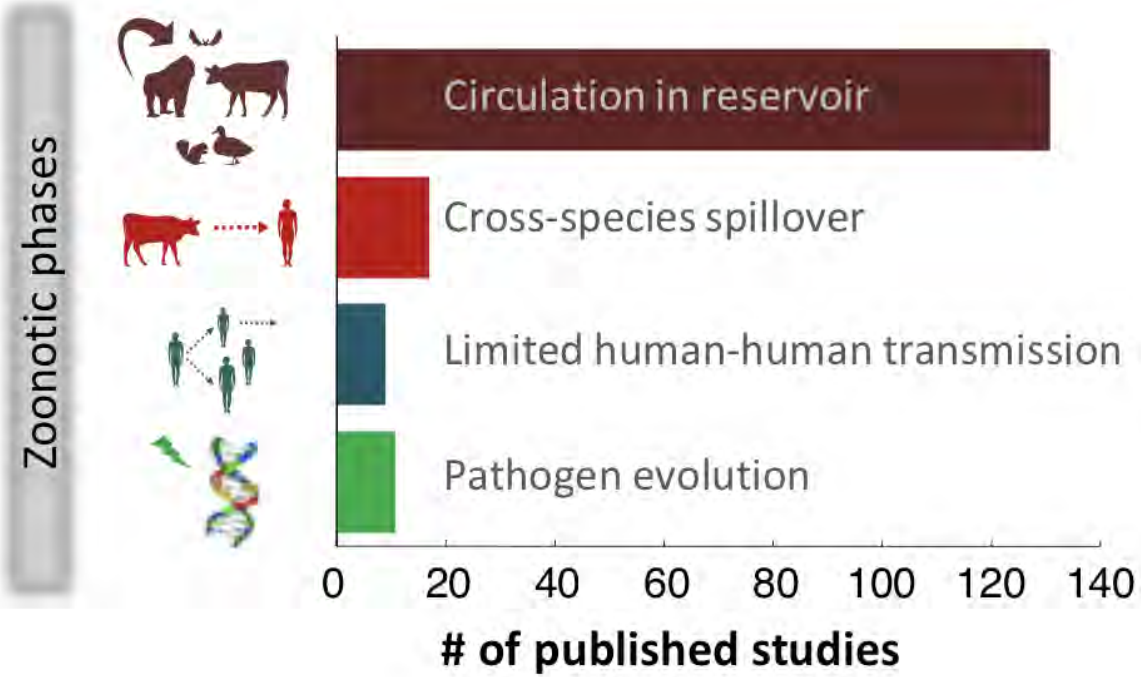
Why do you think this is true?

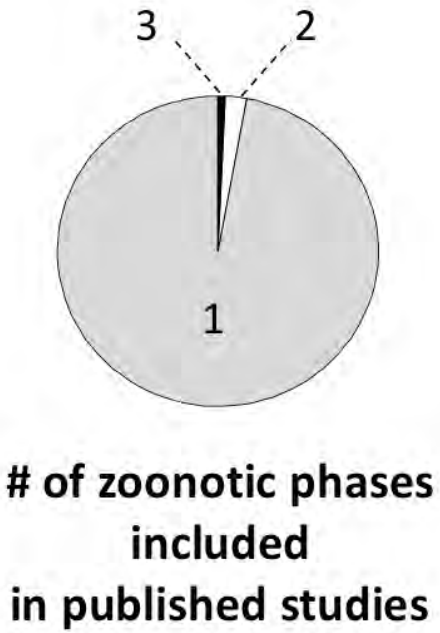
1. We interact with animals in our daily lives.
2. We raise animals for food or enjoyment.
3. We keep them in our homes as pets.
4. We come into close contact with animals at fairs and zoos.
5. We encounter wildlife when we are outdoors or bugs that transmit disease.

Zoonotic Disease and Spill over

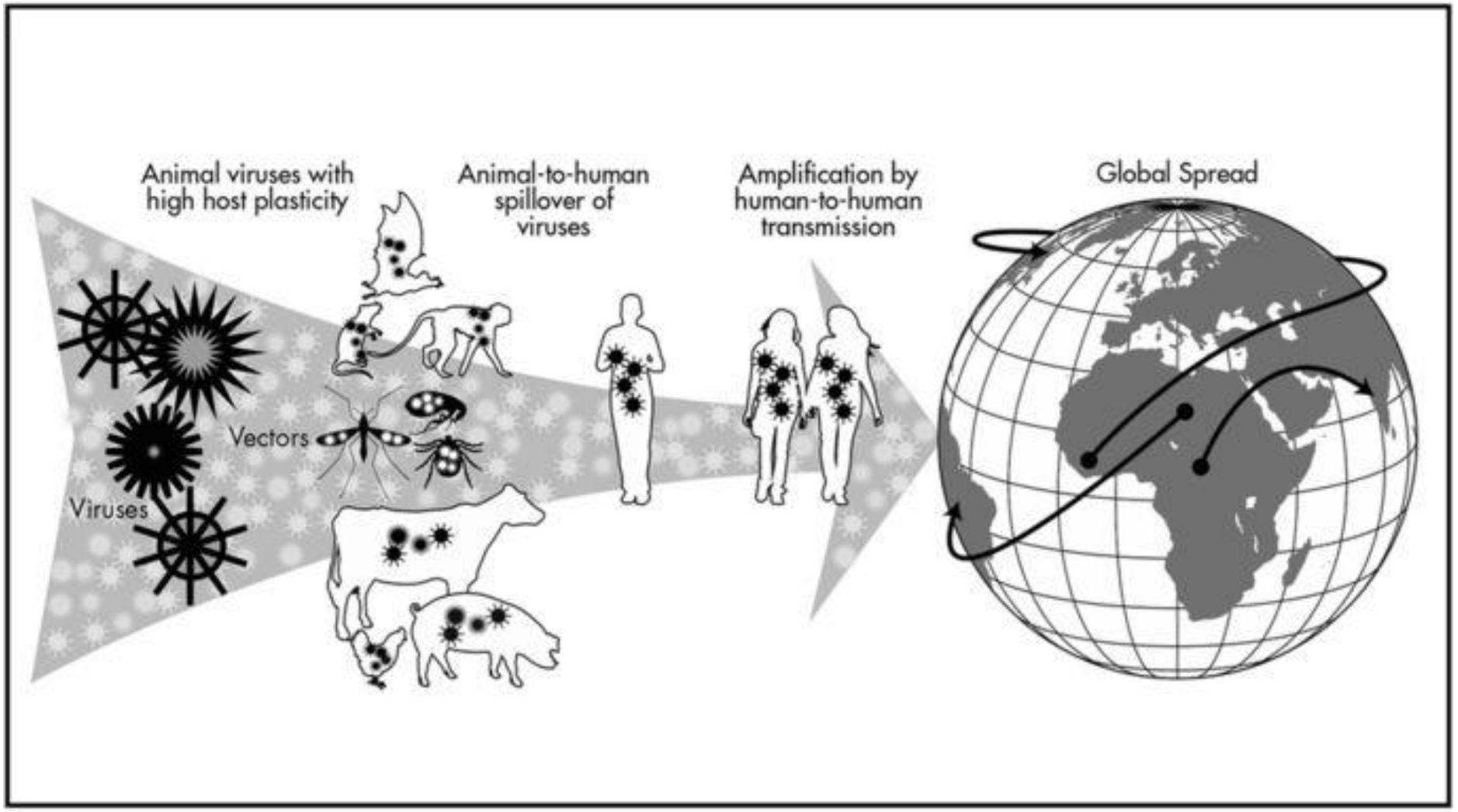


Zoonotic phases





Spill over and Pandemic Properties



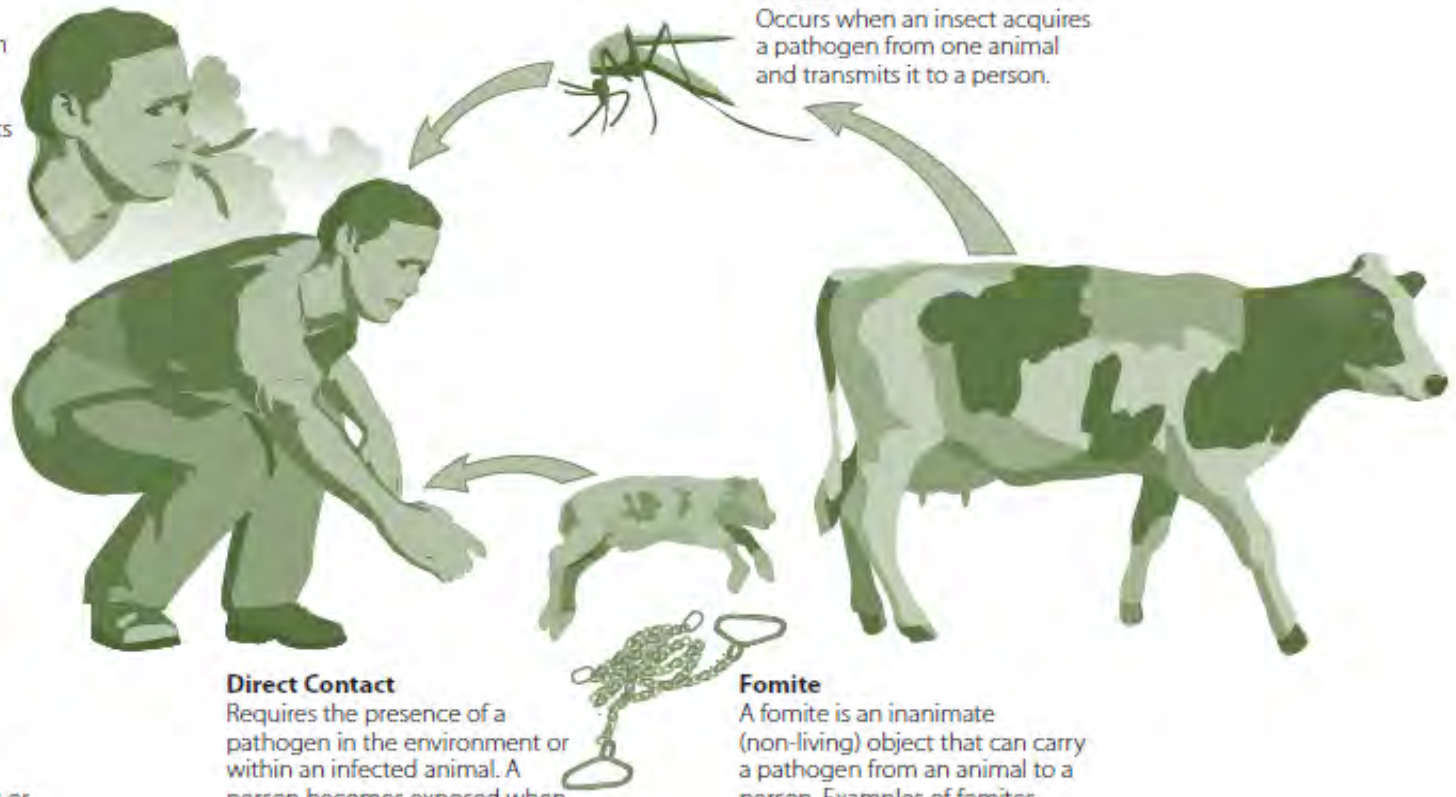
Pet Ownership and Zoonoses

Livestock and Zoonoses

TRANSMISSION ROUTES OF ZOONOTIC DISEASES

Aerosol
Occurs when droplets are passed through the air from an infected animal and are breathed in by a person. Most exposure occurs when droplets are created from birthing tissues (placenta, birthing fluids), soil contaminated with feces, urine or bacteria and a person breathes in the dust particles.

Vector
Occurs when an insect acquires a pathogen from one animal and transmits it to a person.



Oral
Occurs by ingesting food or water contaminated with a pathogen. This can occur if animal products, such as milk or meat, are not pasteurized or cooked properly. Eating or drinking after handling animals without washing your hands could also lead to oral zoonotic disease transmission.

Direct Contact
Requires the presence of a pathogen in the environment or within an infected animal. A person becomes exposed when the pathogen directly touches open wounds, mucous membranes or the skin.

Fomite
A fomite is an inanimate (non-living) object that can carry a pathogen from an animal to a person. Examples of fomites include contaminated obstetrical (O.B.) chains, brushes, needles, clothing or bedding (straw, shavings).

graphic created by Clint May, CFSPH

the Center for Food Security & Public Health
Iowa State University

Routes of Transmission

- Direct contact
  - Bite, scratch, contact with infected tissues
  - Ex. Rabies
- Indirect contact
  - Food/water-borne or touching infected object (fomite)
  - Salmonella, E. coli, Giardia
- Aerosolization
  - Inhalation, contact with respiratory droplets
  - Ex. Brucellosis, Psittacosis
- Vector-borne (animal serves as reservoir)
  - Mosquitos, ticks, fleas
  - Ex. Rocky Mountain Spotted Fever, West Nile Virus

Zoonotic Diseases Commonly Associated with Livestock & Poultry

- Influenzas – swine, poultry, humans
- Salmonella
- Anthrax
- E. coli
- Psittacosis
- Q-fever
- Brucellosis
- Tubercullosis
- And others….. Rabies

Significant zoonotic important Events

2006-2017: (9) waves of outbreaks associated with public animal exhibitions – mostly *Avian Influenza*

Influenza in Poultry
Significant zoonotic important Events

- H5N1 – 858+ human cases reported in 15 countries in Asia, Africa, Pacific, Near East since 2017. 60% cases were fatal.
- Almost all cases had poultry exposures.
- H7N9 – 1623+ cases in China & Malaysia in 2013 & 2014. source was poultry.

Cumulative number of confirmed human cases for avian influenza A(H5N1) reported to WHO, 2003-2017

Country	2003-2009*		2010-2014**		2015		2016		2017		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	8	5	0	0	0	0	0	0	0	0	8	5
Bangladesh	1	0	6	1	1	0	0	0	0	0	8	1
Cambodia	9	7	47	30	0	0	0	0	0	0	56	37
Canada	0	0	1	1	0	0	0	0	0	0	1	1
China	38	25	9	5	6	1	0	0	0	0	53	31
Djibouti	1	0	0	0	0	0	0	0	0	0	1	0
Egypt	90	27	120	50	136	39	10	3	2	1	358	120
Indonesia	162	134	35	31	2	2	0	0	0	0	199	167
Iraq	3	2	0	0	0	0	0	0	0	0	3	2
Lao People's Democratic Republic	2	2	0	0	0	0	0	0	0	0	2	2
Myanmar	1	0	0	0	0	0	0	0	0	0	1	0
Nigeria	1	1	0	0	0	0	0	0	0	0	1	1
Pakistan	3	1	0	0	0	0	0	0	0	0	3	1
Thailand	25	17	0	0	0	0	0	0	0	0	25	17
Turkey	12	4	0	0	0	0	0	0	0	0	12	4
Viet Nam	112	57	15	7	0	0	0	0	0	0	127	64
Total	468	282	233	125	145	42	10	3	0	0	858	453

* 2003-2009 total figures. Breakdowns by year available on subsequent tables.
** 2010-2014 total figures. Breakdowns by year available on subsequent tables.

Total number of cases includes number of deaths.
WHO reports only laboratory cases.
All dates refer to onset of illness.

Source: WHO/GIP, data in HQ as of 20 April 2017

World Health Organization

Overview

Hazard: Influenza A(H7N9) virus with pandemic potential.
Country: China; imported cases in Malaysia (1) and Canada (2).
Number of human cases: **1,623** confirmed; **620** deaths (since February 2013).
New findings in birds / environment since last update (24 November 2017): **3**
New human cases since last update (24 November 2017): **1**

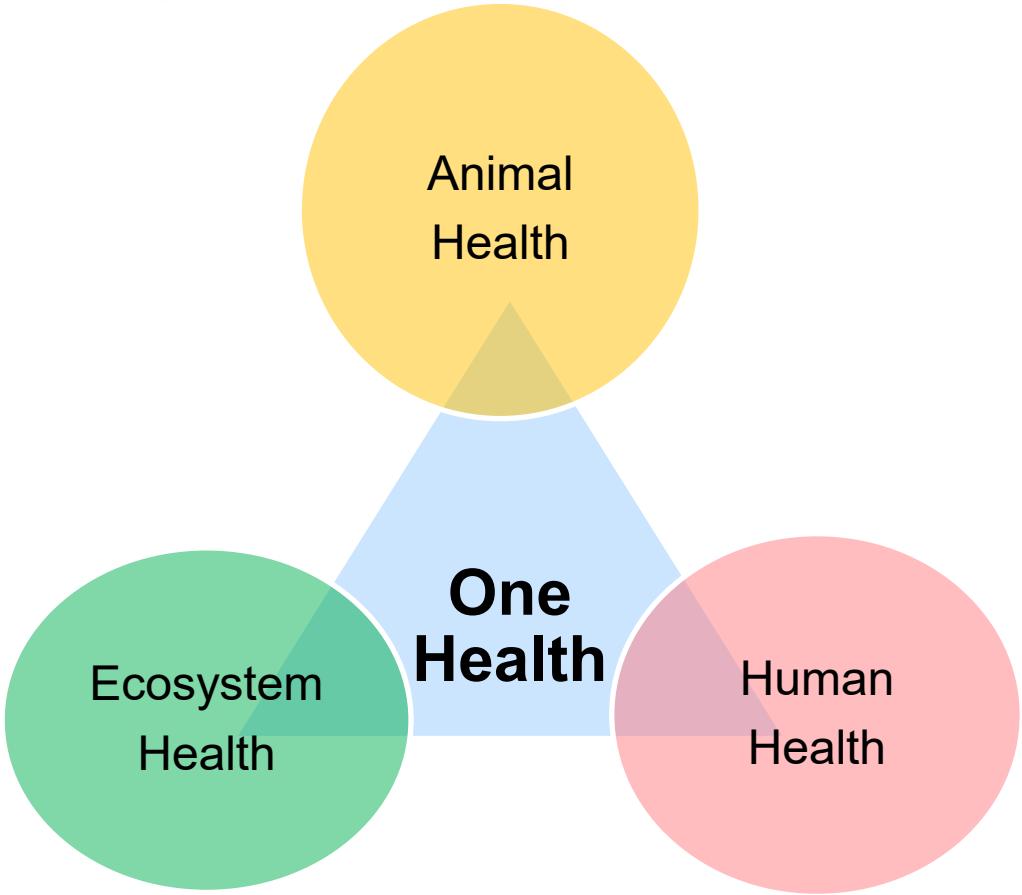
***Map 1**. Human cases and positive findings in birds or the environment*

Note: Human cases are depicted in the geographic location where they were reported; for some cases, exposure may have occurred in a different geographic location. Precise location of 63 human cases in Anhui (2), Beijing (2), Guangdong (1), Guangxi (1), Hebei (3), Hunan (1), Hubei (2), Jiangsu (2), Jiangxi (6), Sichuan (2), Zhejiang (3) and unknown (38) Provinces are currently not known, these cases are therefore not shown on the map.

“One Health”

1. • Animal Influenza
2. • Rabies
3. • Antimicrobial resistance

One Health Concept



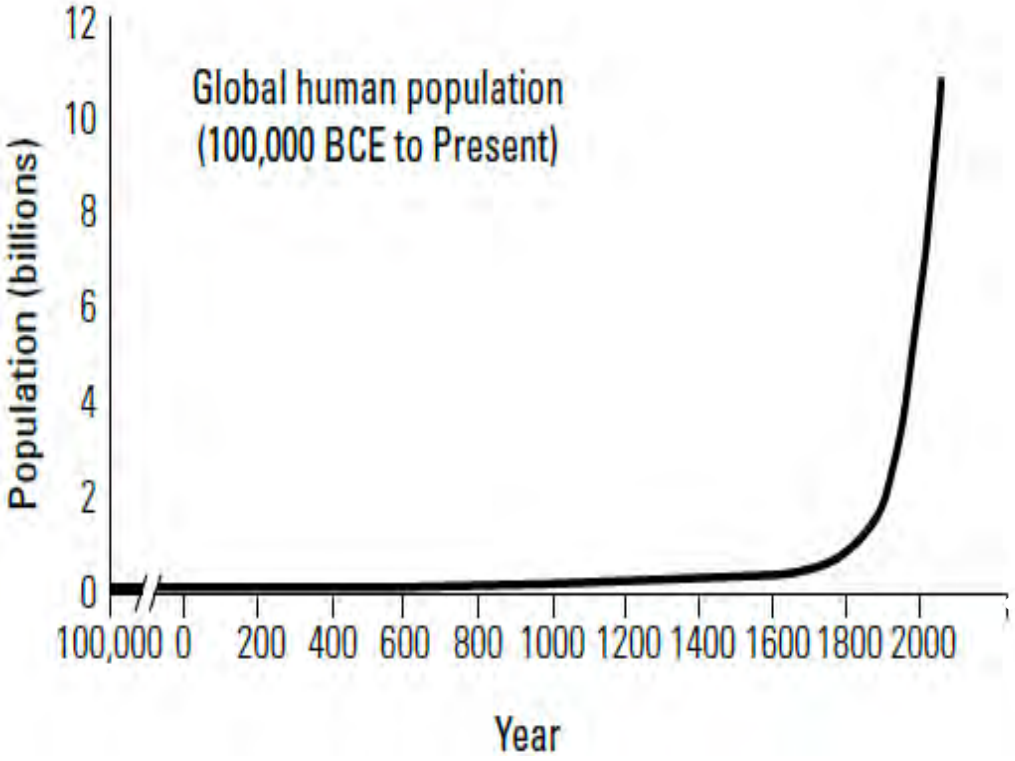
One Health ~~Concept~~ Approach

One Health advocates for the collective and cohesive investment in addressing health threats through a coordinated, collaborative, multi-disciplinary and cross sectoral approach.

This concept is evolved through several recommendations of world bodies for establishing a suitable approach towards

- preventing emerging & re-emerging diseases
- maintaining ecosystem
- integrity

One Health Drivers



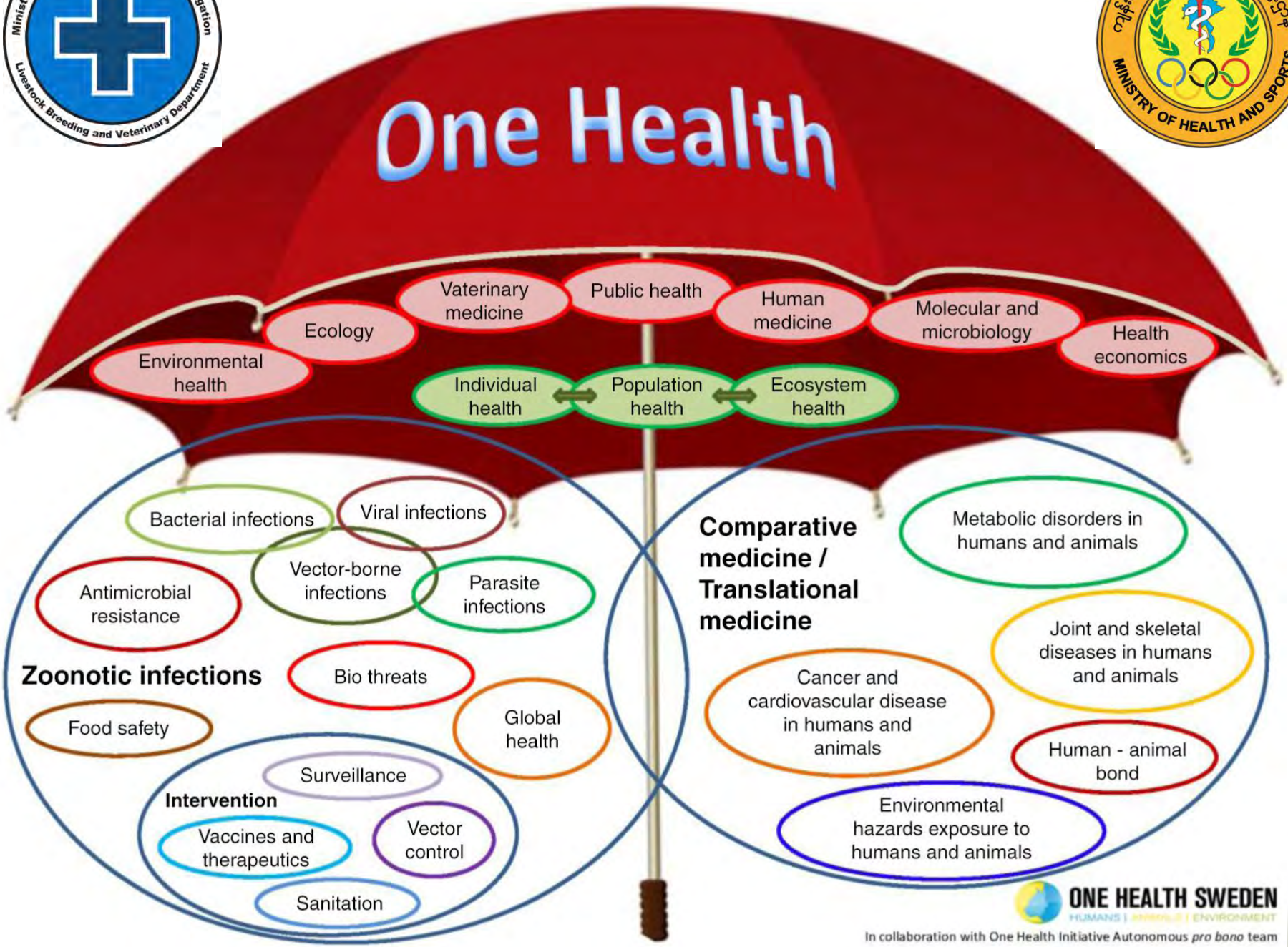
Approximate growth of the global population (Evans et al.,)

80% of agents having a potential bioterrorist use are zoonotic pathogens

75% of emerging diseases are zoonotic

60% of human pathogens are zoonotic

The world bank estimates that an influenza pandemic could cost the global economy **2 trillion dollars**



ONE HEALTH SWEDEN

In collaboration with One Health Initiative Autonomous *pro bono* team

Our OH Goals

- Open communication/networking
- Provide disease prevention education
- Enhance surveillance for disease risk
- Work together to mitigate zoonotic disease outbreaks when they occur

On Health Myanmar Development

"One Health Strategy Workshop" 9-10 March, Nay Pyi Taw

Representatives and participants from MLFRD, MOH, MOECAF, USAID Regional Asia, USAID MM, FAO RAP, FAO MM, FAO-ECTAD Bangladesh, FAO-ECTAD MM, WHO SEA, WHO MM, OIE SEA, P&R Thailand, PREDICT MM and MVA

Myanmar One Health (OH) Strategy

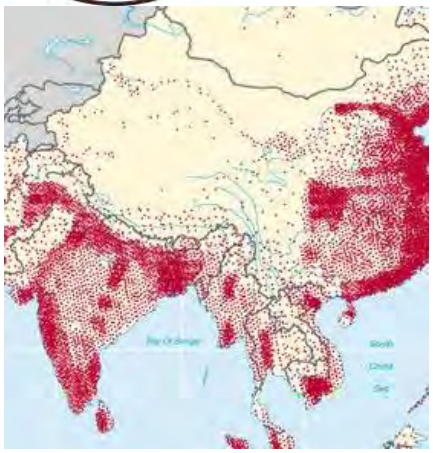
The One Health (OH) Strategy Workshop

(Nay Pyi Taw on 09 and 10 March 2016.)

One Health priority topics

- antimicrobial resistance (AMR) and
- six priority zoonotic diseases/syndromes, i.e.
  - **rabies**
  - zoonotic influenza
  - tuberculosis
  - food-borne diseases
  - anthrax, and
  - Japanese encephalitis.

Why One Health in Myanmar?

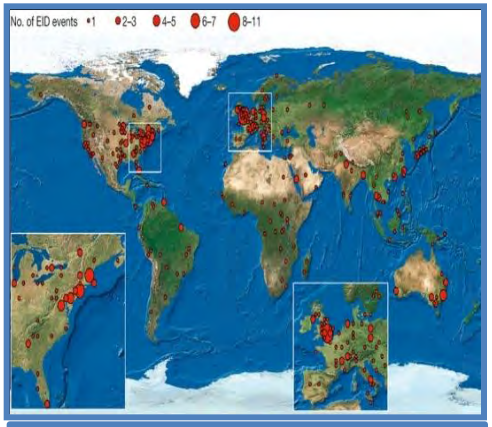


Population density

Vulnerable food security & safety

Fragile ecology

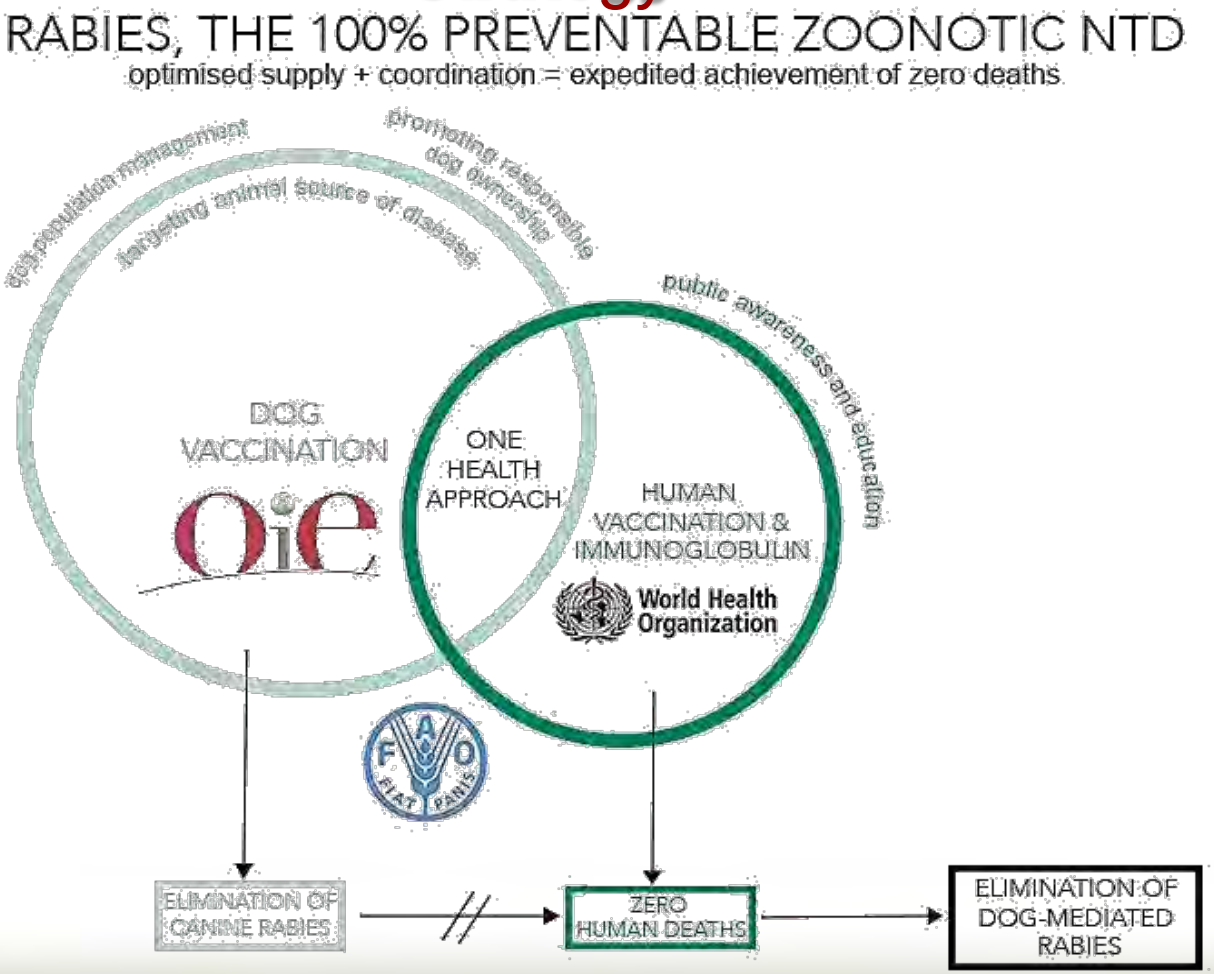
Natural Disaster



Hotspots for EID & rEID

Close contact to human-Animal

Zoonotic Disease Prevention and Control: Global Rabies Elimination Strategy



World Health Organization

WORLD ORGANISATION FOR ANIMAL HEALTH
Protecting animals, preserving our future

Food and Agriculture Organization of the United Nations

Global Alliance for Rabies Control

GLOBAL FRAMEWORK FOR THE ELIMINATION OF DOG-MEDIATED HUMAN RABIES

Dog-mediated human rabies kills tens of thousands of people every year worldwide. Freedom from dog-mediated human rabies is a global public good and is feasible with currently available tools.

In accordance with the consensus of the Global Conference (Geneva, 10-11 December 2015), this framework provides a coordinated approach and vision for the global elimination of dog-mediated human rabies. It is intended to harmonize actions and provide adaptable, achievable guidance for country and regional strategies.

The five pillars of rabies elimination (STOP-R)

1 SOCIO-CULTURAL

Rabies control involves a wide range of stakeholders including the general public. The socio-cultural context influences rabies perceptions and dog-keeping practices of at-risk populations. Understanding the context guides approaches to motivate behavioural change and plan feasible delivery of services.

Includes activities for:

- Awareness: build awareness of dog-mediated rabies as a preventable global public health problem including through participation in initiatives such as World Rabies Day and the EndRabiesNow campaign
- Responsible dog ownership: promote responsible dog ownership and dog population management practices, including dog vaccination, in accordance with OIE standards
- Bite prevention and treatment: develop and implement education programmes on bite prevention and first aid for both children and adults
- Post-exposure prophylaxis: Increase awareness and understanding of post-exposure prophylaxis (PEP) imperatives and options including intradermal administration
- Community engagement: encourage community involvement and engagement in activities to eliminate dog-mediated rabies

2 TECHNICAL

Effective animal health and public health systems are required to eliminate dog-mediated human rabies. These systems must be strengthened and resourced appropriately, and gaps identified and filled.

Includes activities for:

- Vaccination: ensure safe, efficacious and accessible dog and human vaccines and immunoglobulins, and promote and implement mass dog vaccination as the most cost-effective intervention to achieve dog-mediated human rabies elimination
- Logistics: collect data on needs forecasts to inform the vaccine procurement system and to create and sustain the logistics and infrastructure required for effective delivery and implementation of mass dog vaccination programmes and PEP administration
- Diagnostics: ensure capacity and capability for rapid and accurate rabies diagnosis through accessible, well equipped laboratories and trained personnel
- Surveillance: support improved surveillance, sampling, reporting, and data-sharing
- Technical support: provide guidance and technical support for the development and tailoring of regional and national plans, including promoting the use of existing tools
- Proof of concept: support proof-of-concept programmes, and then scale up through leveraging of success

3 ORGANIZATION

The One Health approach of close collaboration is applied. Leadership, partnership and coordination for rabies elimination activities arise from the human health and animal health sectors and other stakeholders.

Includes activities for:

- One Health: promote the One Health approach and intersectoral coordination through national and regional networks
- Good governance: establish good governance, including clear roles, chain of command, measurable outcomes and timelines
- Harmonization: align work plans and activities with national and regional priorities and approaches fostering synergies among sectors
- Coordination: coordinate and combine human resources, logistics and infrastructure of other programmes and initiatives, as appropriate and feasible
- Indicators and performance: identify targets and their indicators to support performance measurement, including surveillance and validation data, to identify areas requiring attention or extra support
- Monitoring and evaluation: support monitoring and evaluation of national plans to ensure timely and cost effective delivery

4 POLITICAL

Success depends on political will and support for elimination of dog-mediated human rabies. Political will results from recognition of rabies elimination as a national, regional and global public good.

Includes activities for:

- Political support: political support is essential and most relevant during and following country instability (political upheaval, natural disasters, etc.)
- International support: encourage countries to request a resolution on dog-mediated human rabies elimination through the World Health Assembly (WHO) and the General Assembly of Delegates (OIE)
- Legal frameworks: establish and enforce appropriate legal frameworks for rabies notification and elimination
- Demonstrating impacts: demonstrate the compelling case for mass dog vaccination programmes and their impact on protecting and saving human lives
- Regional engagement: support active national and regional engagement and cooperation to commit to a rabies elimination programme and promote the exchange of lessons learnt and experiences to leverage resources and engagement

5 RESOURCES

Rabies elimination activities frequently span several years and therefore require sustained, long-term support.

Includes activities for:

- Case for investment: promote the case for investment in dog-mediated human rabies elimination to persuade countries, policy makers and donors of the feasibility, merit and value of investing in rabies elimination strategies
- Business plans: prepare business plans based on the Global Framework for Dog-mediated Human Rabies Elimination
- Investment: encourage different forms of investment and partnerships (private and public investment) to leverage resources and engagement

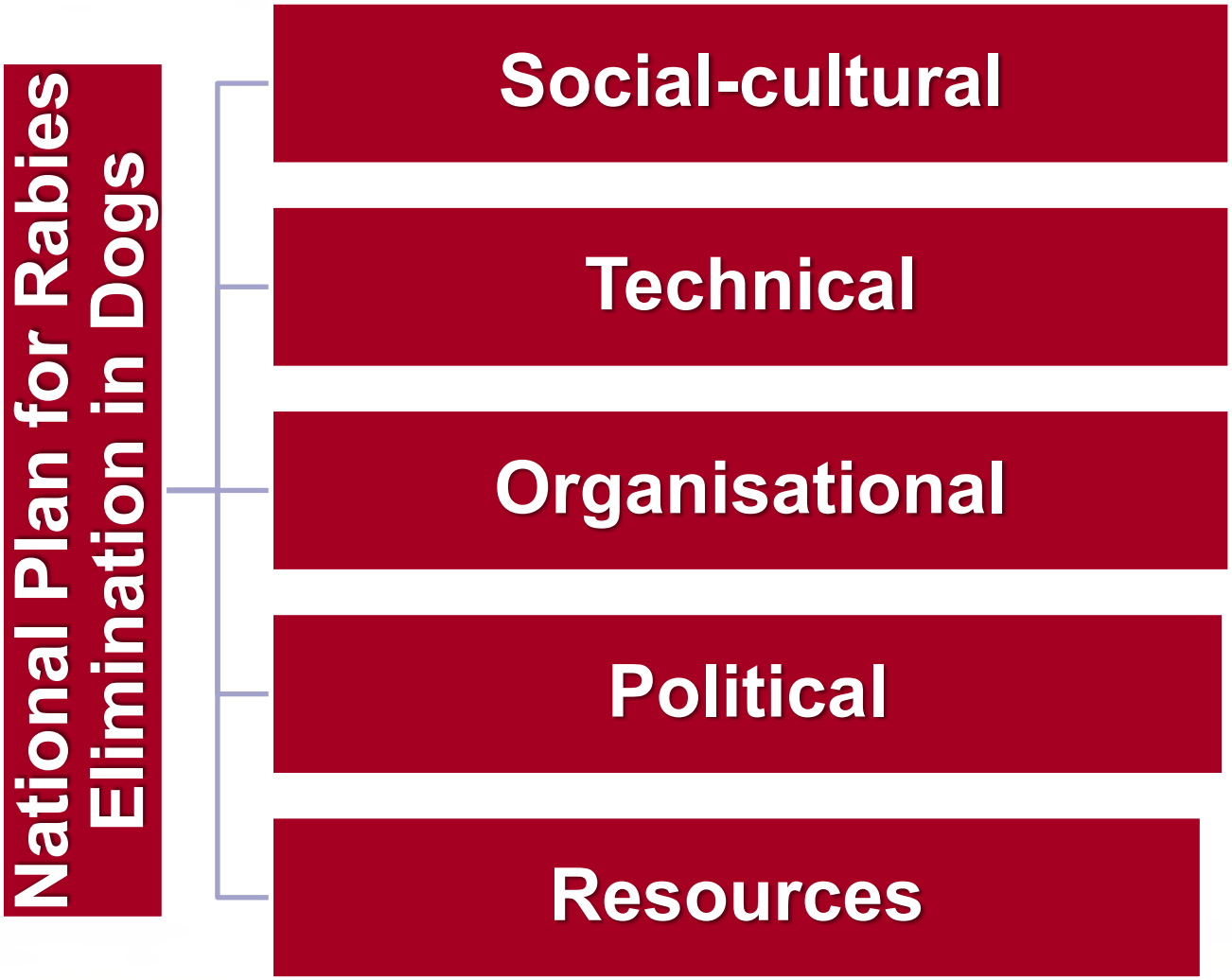
CRITICAL SUCCESS FACTORS

- Long-term political and social commitment
- Community engagement
- Sustainable vaccination of 70% of the at-risk dog population
- Proof of concept, start small, scale up
- Sufficient resources, logistics and infrastructure
- Promote vaccine banks and other strategies for acquisition of rabies immunologicals to ensure sufficient supply of quality-assured rabies vaccines and human immunoglobulins
- Reach remote, rural and at-risk populations
- Conduct performance measurement at all levels
- Maintain trained and motivated implementation personnel

STRATEGIC VISION: *zero human deaths from dog-mediated rabies by 2030 in participating countries*

The ASEAN Rabies Elimination Strategy

Myanmar Rabies Elimination Framework



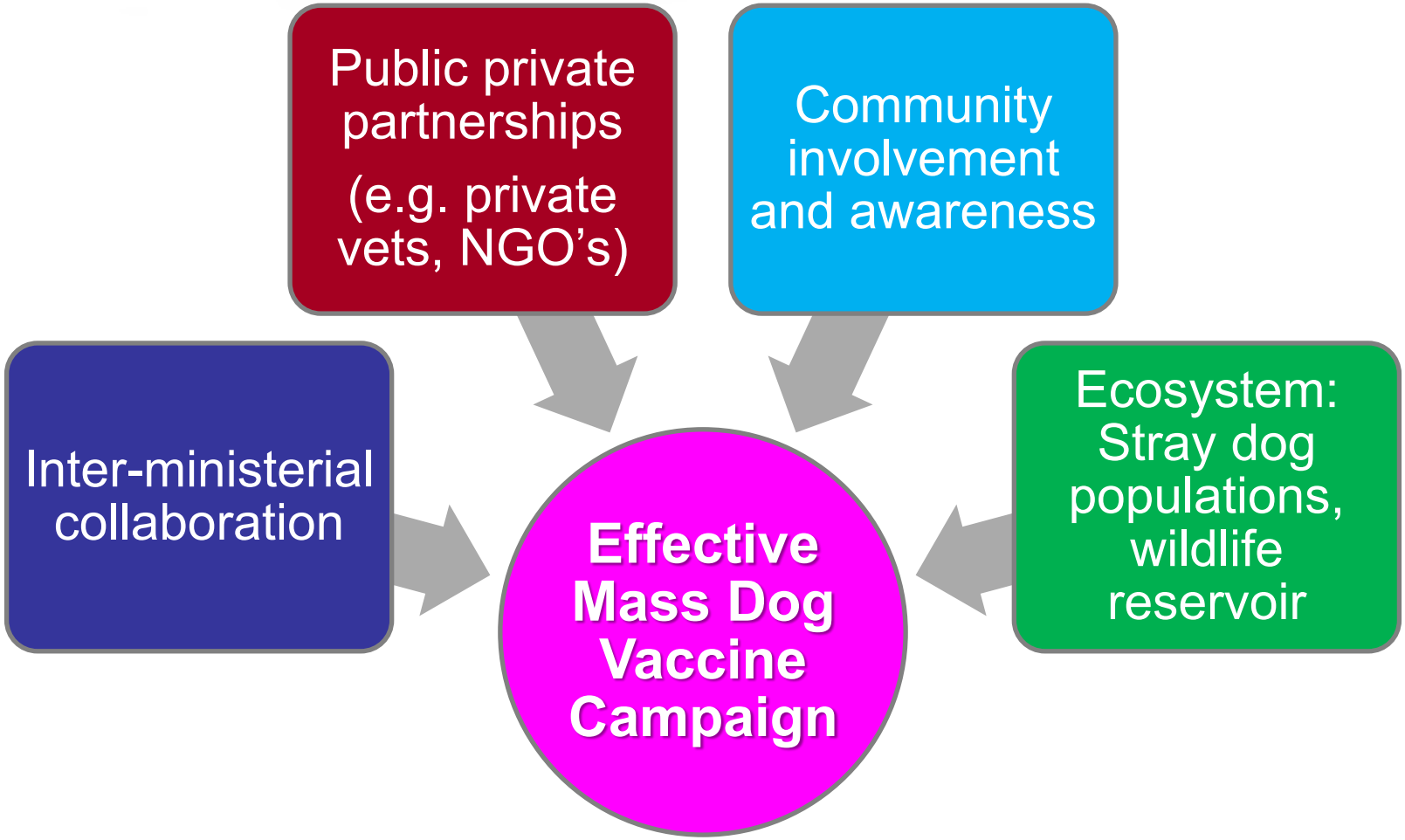
4 Rabies control and prevention

- **STANDZ Rabies Project**
  - ***Philippines*** **(ongoing)**
  - ***Myanmar*** **(ongoing)**
  - **Small Grant Facility in *Cambodia* (2015)**
- **OIE Regional Vaccine Bank for Rabies**
  - **EU-HPED Programme (finished last December 2014)**
  - **The Vaccine Bank mechanism still exists and continues to operate (funds now provided by countries or other donors)**




UPDATES ON PROGRESS | *RABIES VACCINE BANK*

Mass Dog Vaccine Campaign: A One Health approach (A perfect Model



OIE Myanmar Rabies Project: A One Health example

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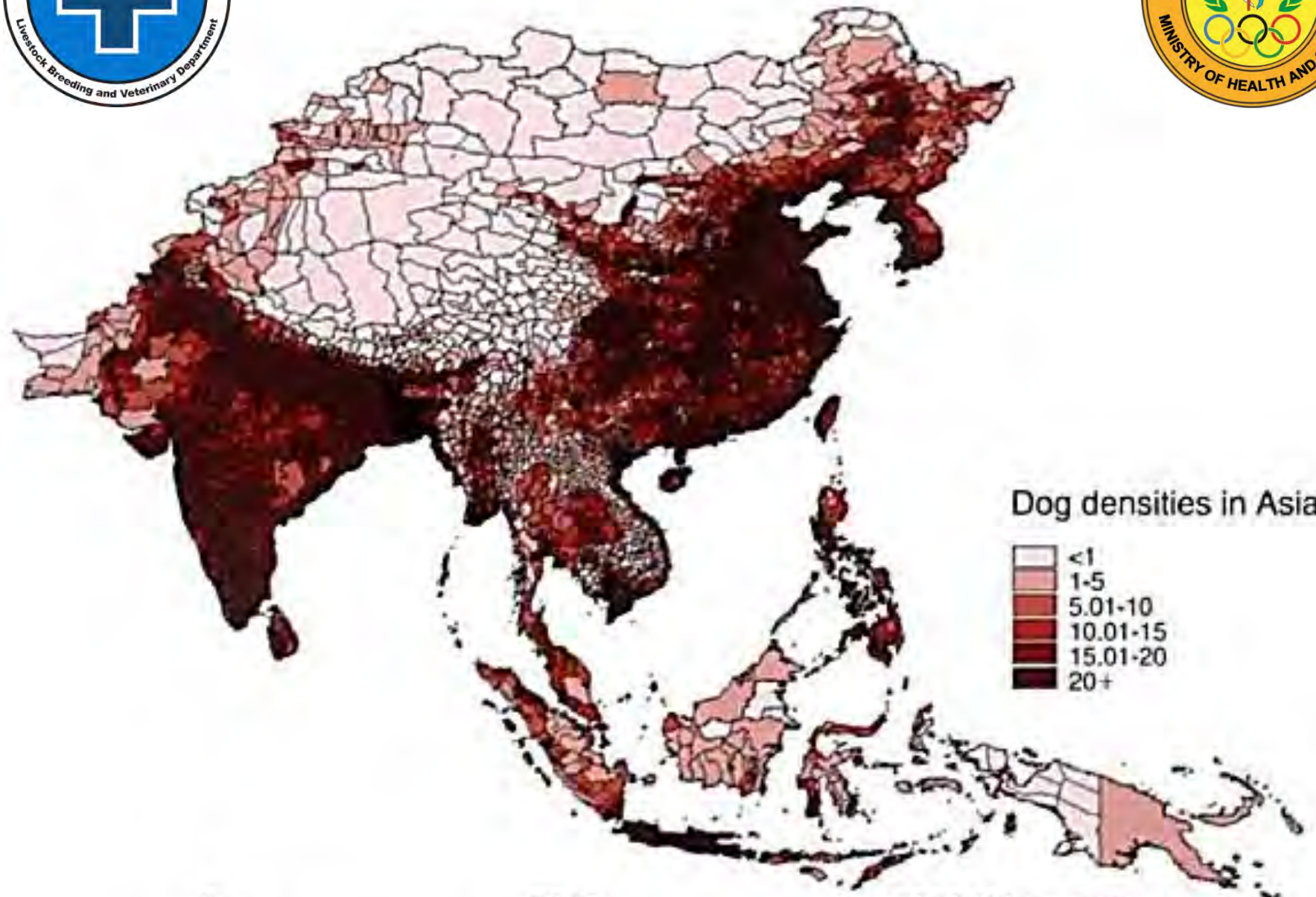
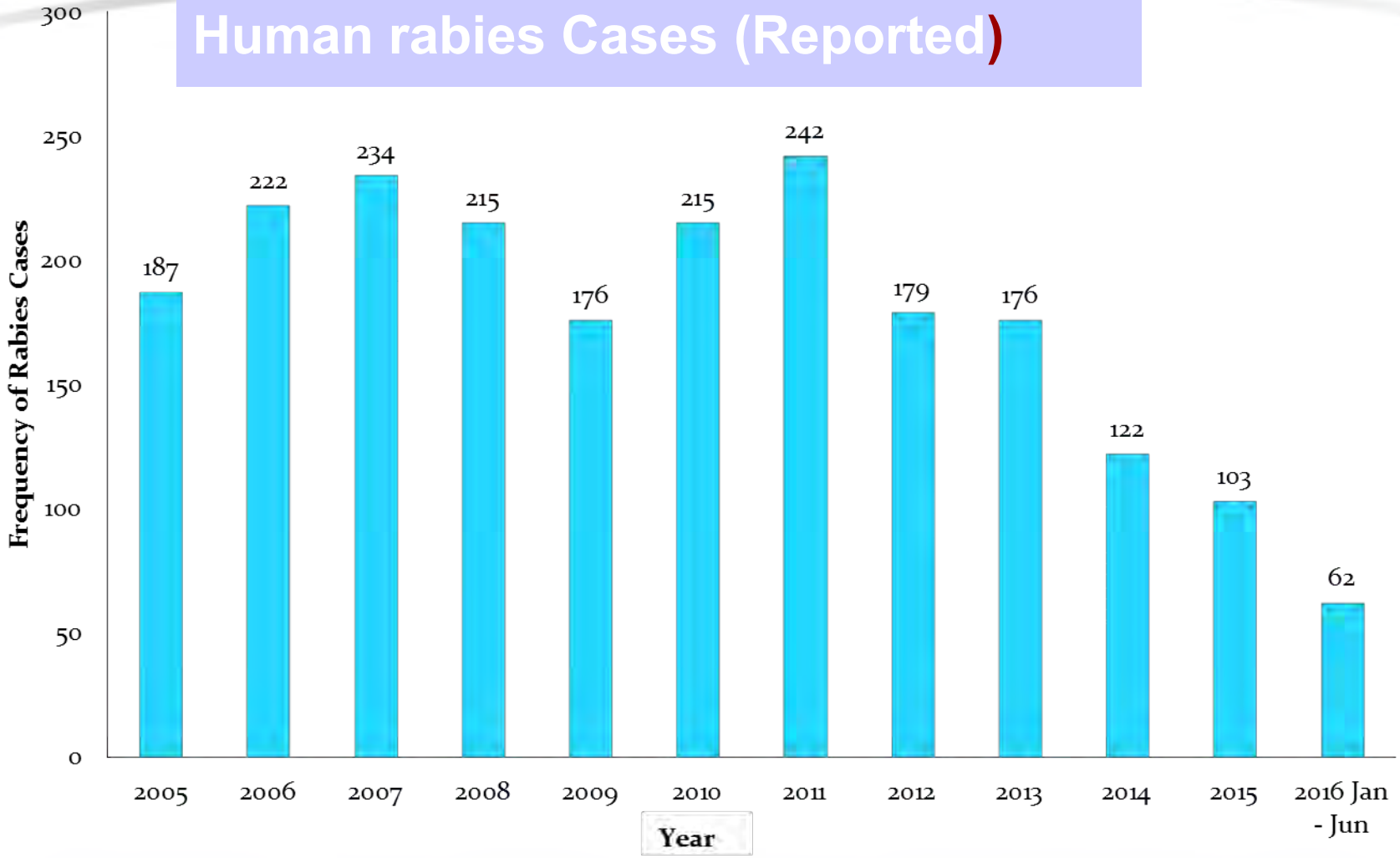
နိဒါန်း

ဧရိယာ- 261228 sq miles
လူဦးရေ-52 million
ခရိုင်-72
မြို့နယ်-330
ကျေးရွာ-64,917
ခွေးကောင်ရေ (ခန့်မှန်း) -4 million
ခွေးနှင့်လူဦးရေအချိုး- 1:6
လမ်းဘေးခွေး-70%
နှစ်စဉ်ခွေးကိုက်ခံရမှု(လူ)-15,000-20,000
တိရစ္ဆာန်များခွေးကိုက်ခံရမှု-unknown


Dog densities in Asia
<1
1-5
5.01-10
10.01-15
15.01-20
20+
0
3000
6000 Kilometers
N

Endemic situation

Human rabies Cases (Reported)



Source: D

Source – Department of Public Health
Data as of 27th August, 2016

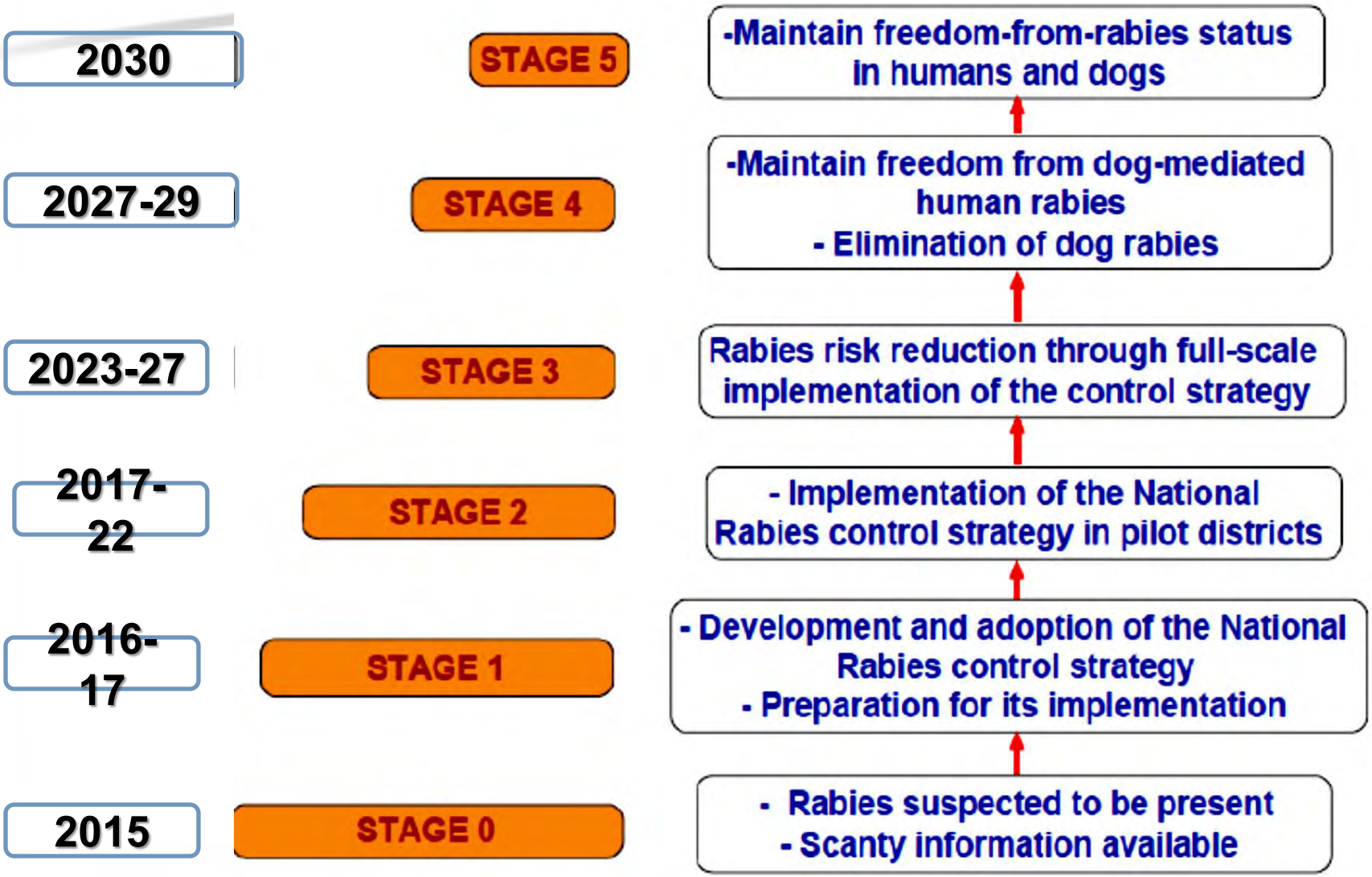
Rabies in Animals (lab Confirmed)

Year	Canine		Equine		Feline		Porcine		Total	
	tested	+	tested	+	tested	+	tested	+	tested	+
2008	2	-	-	-	2	-	-	-	4	0
2009	-	-	-	-	2	1	-	-	2	1
2010	12	5	-	-	2	1	-		14	6
2011	6	4	-	-	2	1	-		8	5
2012	6	3	-		-		-		6	3
2013	12	11	1	1	3	0	1	1	17	13
2014 *	3	3	-	-	-	-	-	-	3	3
2015	8	7	-	-	-	-	-	-	8	7

Source: LBVD, Yangon Veterin

Myanmar's Strategic Vision:
Zero Dog Mediated rabies fatality by 2020

Stages in Progressive Control Pathways



Piloting Mass Dog Vaccination in Lewei and Nyaung Oo(2016-2017)

လယ်ဝေးနှင့်ညောင်ဦးမှော်ဘီမြို့နယ်တွင်ရွေးပြေးခွေးရူးရောဂါ
ကာကွယ်ဆေးထိုးလုပ်ငန်းဆောင်ရွက်ချက်

STANDZ RABIES PROJECT MYANMAR

Livestock Breeding ary Department, LBVD

17 November World Ra

ရလဒ်ကောင်းများ

- ၂၀၁၃ ခုနှစ်မှ ၂၀၁၇ ခုနှစ်အတွင်း ခွေးကောင်ရေ (၃၃၀,၀၀၀) ခန့်ကာကွယ်ဆေးထိုးနှံပေးနိုင်ခဲ့
- Pilot ဒေသတွင် 70% ကာကွယ်ဆေးလွှမ်းခြုံမှုရရှိခြင်း
- လေ့ကျင့်ထားသော ကျွမ်းကျင်မှုရှိသည့် ကာကွယ်ဆေးထိုးလုပ်သားများစုဖွဲ့နိုင်ခဲ့ခြင်း
- SOP and vaccination Guideline ရရှိလာခြင်း
- One Health ဖြင့်ဆောင်ရွက်နိုင်ခြင်း
- အစုလိုက်ခွေးရူးရောဂါကာကွယ်ဆေး
- အတွေ့အကြုံများမျှဝေပေးနိုင်ခြင်း

ကမ္ဘာ့ခွေးရူးရောဂါတိုက်ဖျက်ရေးနေ့အခမ်းအနားများနှစ်စဉ်ကျင်းပလှုတ်ရှားခြင်း

11th

- ကာကွယ်ဆေးထိုးပေးခြင်း
- ပညာပေးခြင်း

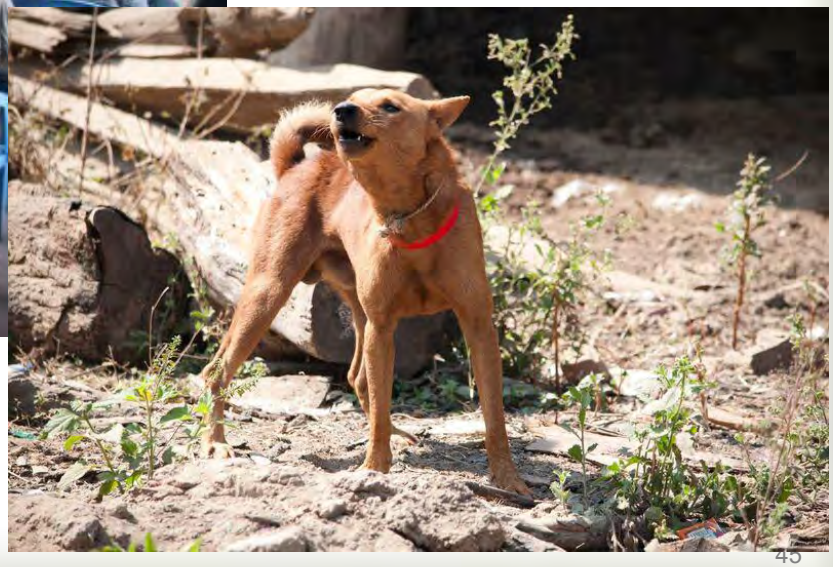
(၁၁) ကြိမ်မြောက်
ကမ္ဘာ့ခွေးရူးရောဂါကာကွယ်တိုက်ဖျက်ရေးနေ့အခမ်းအနား

RABIES: ZERO BY 30

ပြည်သူများပူးပေါင်းပါဝင်မှု

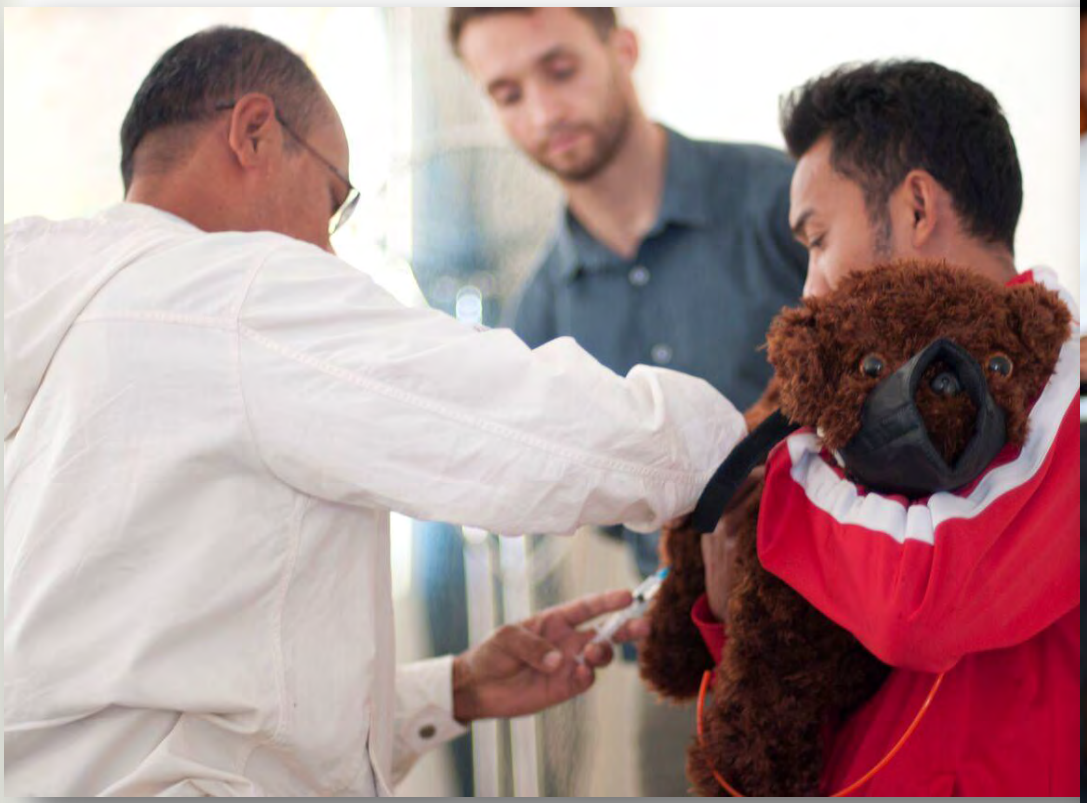
Public Awareness

Implementation:
ommunity Involvement (CAHW)



Implementation Training: LBVD officers

Implementation Training



Implementation – in the field

One Health Approach

‘It is amazing what can be accomplished when you don’t care who gets the credit.’

United States President Harry S. Truman

USAID FROM THE AMERICAN PEOPLE

Ministry of Agriculture, Livestock and Irrigation
Livestock Breeding and Veterinary Department

Food and Agriculture Organization of the United Nations

OIE

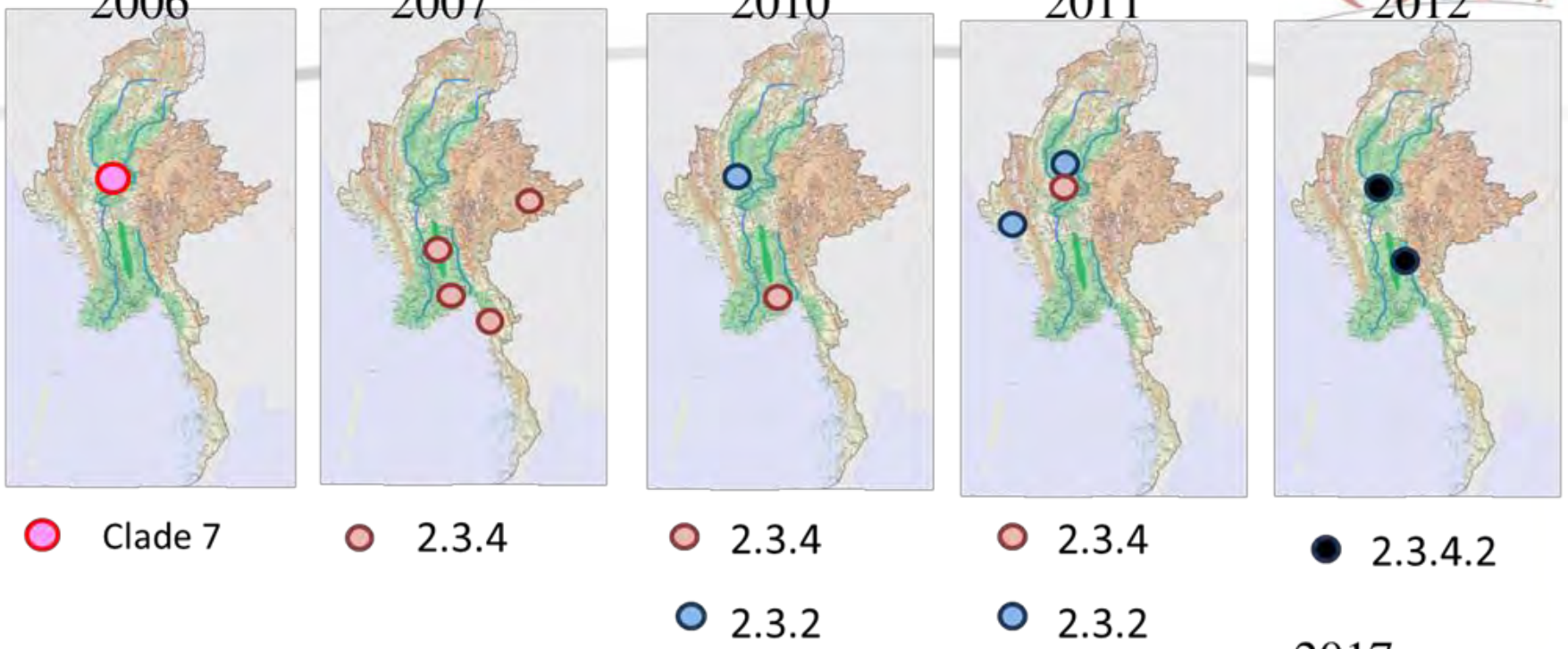
Avian Influenza Surveillance

Livestock Breeding and Veterinary department

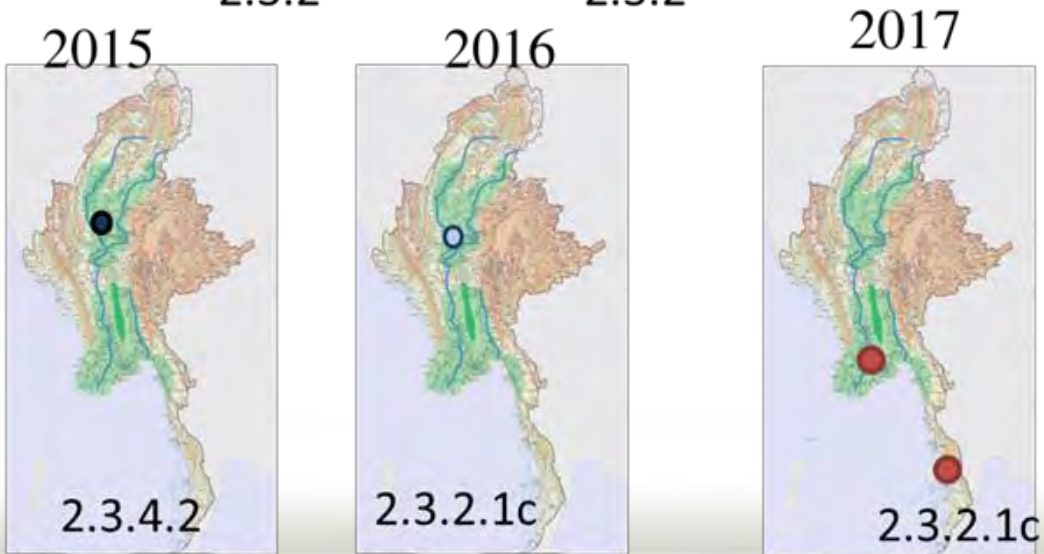
Nay Pyi Taw, Myanmar

22 December 2017

Location Maps of 9 waves of HPAI H5N1 Outbreaks in Myanmar



No Reported Case in 2008, 2009 and 2013, 2014



Preparedness (brief)

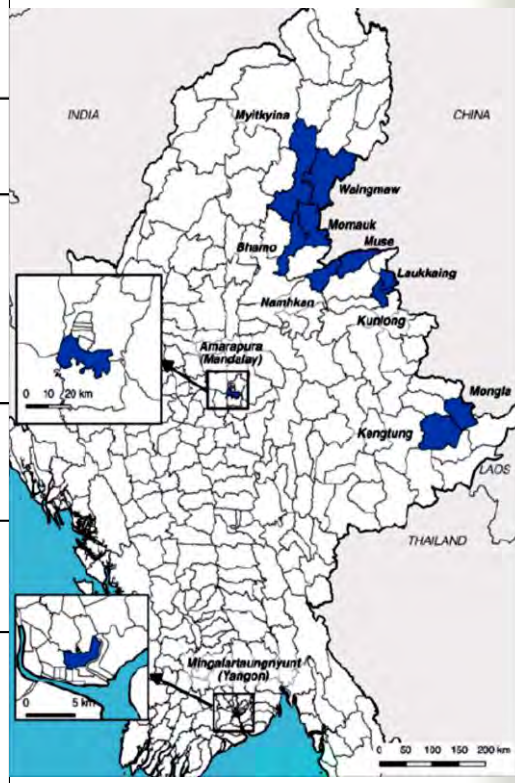
- Contingency plans for avian influenza: HPAI Contingency plan and H7N9 Contingency Plan (LBVD)
- National Steering Committee on prevention and control of Avian Influenza and Human Influenza Pandemic Preparedness & Response
- Table Top exercise and simulation exercises (One Health)
- National surveillance: Active and passive AI surveillance in border area, LBM and farms
- Strengthening laboratory capacity , resources
- **control** measures include: Joint outbreak response, investigation
  - No vaccination
  - Zoning
  - Movement control
  - Cleaning and disinfection
  - Public awareness and risk communicatior
  - Active and passive surveillance
  - **One health Coordination**

LBVD Laboratory capacities

Capacities	Yangon	Mandalay	ShweMyo (NPT)	Taungyi	Pathein	4 Quarantine Labs:
BSL2 enhanced	Yes	Yes	Yes	No	No	No
Biosafety Cabinet Class II	Yes	Yes	Yes	Yes	Yes	No
Serology (HA, HI,)	Yes	Yes	Yes	Yes	Yes	Yes
Serology (ELISA, IPMA, FAT)	Yes	Yes	Yes	No	No	No
Virus Isolation	Yes	Yes	Yes	No	No	No
Conventional PCR	Yes	Yes	Yes	No	No	No
Real Time PCR	Yes	Yes	Yes	No	No	No
Gene Sequencer	Yes	No		No	No	No

Routine and risk-based surveillance has been conducting in collaboration with FAO since 2006-2017

Year	Activities	Target	Organized by
2006-07	Routine Surveillance in LBM, Breeder Farm, Hatcheries, Commercial farms	HPAI	FAO/LBVD
2008	Wet land area (MoeyunGyi Area)	HPAI	FAO/LBVD
2009	•Wild Bird Related Areas Surveillance and Supply Chain Study, •National H5N1 Duck Cross Sectional Study In 54 townships	HPAI	FAO/LBVD
2011	HPAI Active Surveillance and duck cohort study in 78 townships	HPAI	FAO/LBVD
2012	Day Old to 5 Month Old Duck Longitudinal Duck Study	HPAI	FAO/LBVD
2013-14 2015-17	• H7N9 Emergency border area Surveillance (implemented) LBM surveillance • Risk Based Surveillance (ongoing)	LPAI HPAI/ LPAI	FAO/LBVD

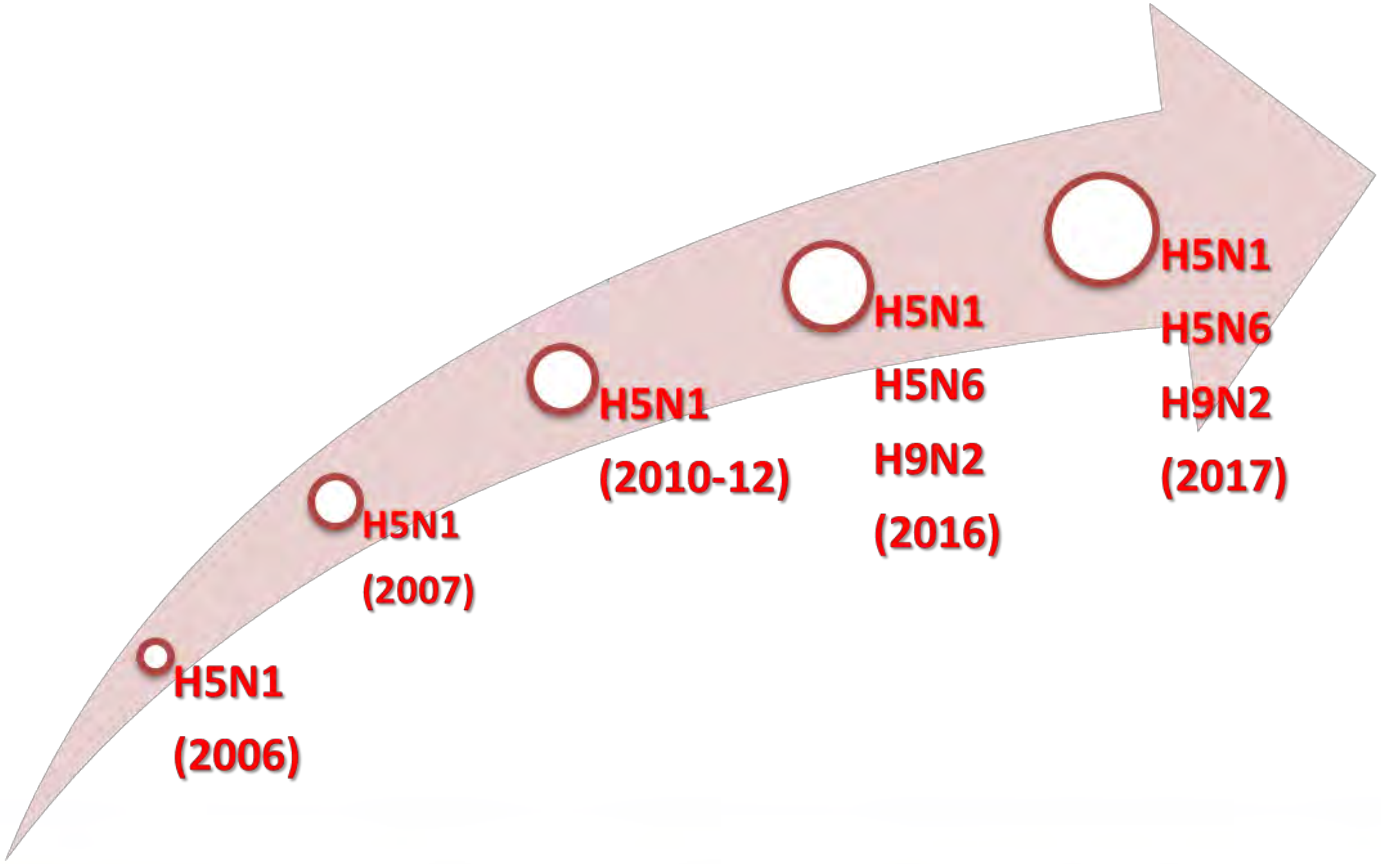


Since 2013 total of 6th Round of risk-based surveillance impl

Lesson learnt, benefit

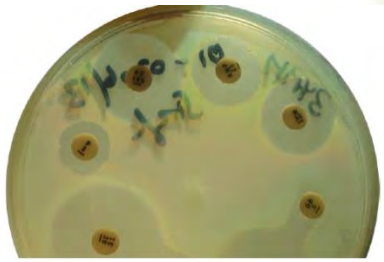
- **Lesson- Learnt from H5N1 Poultry Outbreak**
- **<u>Benefit:</u>**
  - **Rapid response and reduced impact**
  - **Contingency Plan, SOP, guidelines , structure in place**
  - **Joint investigation and response One Health**

AI epidemiology changes



Tackling Antimicrobial Resistance (AMR) by One Health Approach and role of veterinarian in Myanmar

by
Dr Min Thein Maw
Livestock Breeding and Veterinary Department
(10-1-2018)



- Three important topics

"One Health"

1. Animal Influenza
2. Rabies
3. Antimicrobial resistance

The Global Health Security Agenda (GHSA)

Biosecurity

Prevent 4: Immunization

Detect 1: National Laboratory System

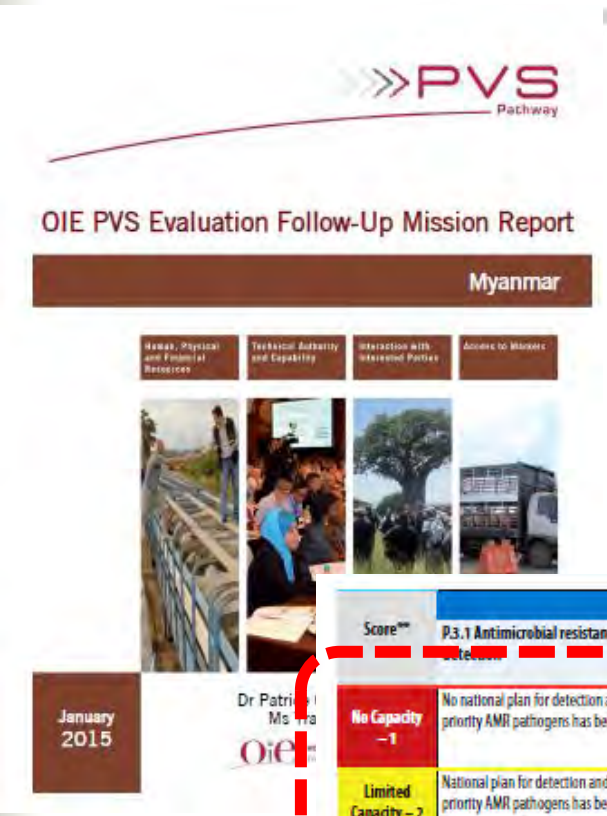
Detect 2 & 3: Real-Time Surveillance

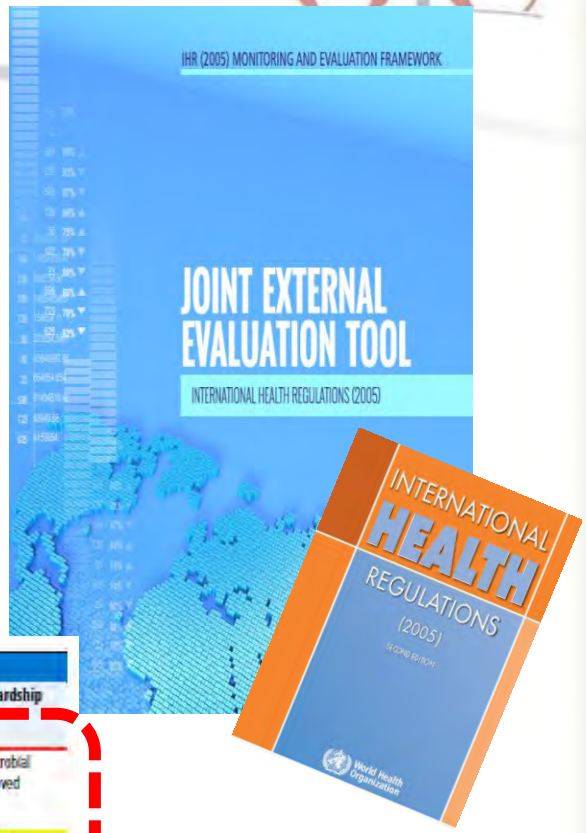
Detect 4: GHSA Reporting

Detect 5: Workforce Development

Respond 1: Emergency Operations Centers

PVS vs IHR-JEE and AMR MYANMAR





Score**	Indicators - Antimicrobial Resistance (AMR) *			
	P3.1 Antimicrobial resistance (AMR) detection	P3.2 Surveillance of infections caused by AMR pathogens	P3.3 Healthcare associated infection (HCAI) prevention and control programs	P3.4 Antimicrobial stewardship activities
No Capacity – 1	No national plan for detection and reporting of priority AMR pathogens has been approved	No national plan for surveillance of infections caused by priority AMR pathogens has been approved	No national plan for HCAI programs has been approved	No national plan for antimicrobial stewardship has been approved
Limited Capacity – 2	National plan for detection and reporting of priority AMR pathogens has been approved	National plan for surveillance of infections caused by priority AMR pathogens has been approved	National plan for HCAI programs has been approved	National plan for antimicrobial stewardship has been approved
Developed Capacity – 3	Designated laboratories are conducting detection and reporting of some priority AMR pathogens	Designated sentinel sites are conducting surveillance of infections caused by some priority AMR pathogens	Designated facilities are conducting some HCAI programs	Designated centres are conducting some antimicrobial stewardship practices
Demonstrated Capacity – 4	Designated laboratories have conducted detection and reporting of all priority AMR pathogens for at least one year	Designated sentinel sites have conducted surveillance of infections caused by all priority AMR pathogens for at least one year	Designated facilities have conducted all HCAI programs for at least one year	Designated centres have conducted all antimicrobial stewardship practices for at least one year
Sustainable Capacity – 5	Designated laboratories have conducted detection and reporting of all priority AMR pathogens for five years with a system for continuous improvement	Designated sentinel sites have conducted surveillance of infections caused by all priority AMR pathogens for five years with a system for continuous improvement	Designated facilities have conducted all HCAI programs for five years with a system for continuous improvement	Designated centres have conducted all antimicrobial stewardship practices for five years with a system for continuous improvement

* Antimicrobial resistance in bacteria, including tuberculosis AMR, is covered by this section. Viral, other non-bacterial pathogen and vector resistance is out of scope, unless integrated in national policies, standards or guidelines

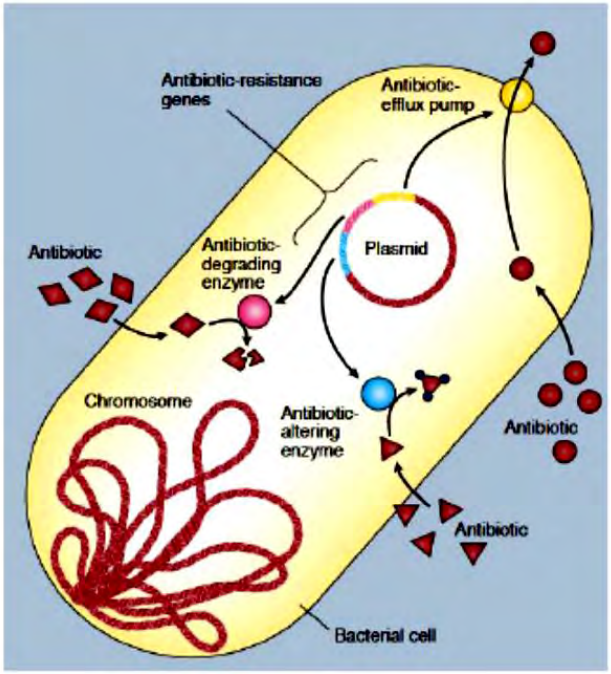
** For full scores, capabilities should be separately evaluated both in the human and animal sectors and mechanisms for regular comparison and joint policy development in a One Health fashion should be in place. For final scores, the average should be taken

What is antimicrobial resistance?

- The ability of a microorganism to multiply or persist in the presence of an increased level of an antimicrobial agent

Mechanisms of ABR

- Enzymes that alter or degrade antibiotic (e.g. β-lactamases, etc.)
- Efflux pumps (e.g. resistance to tetracyclines)
- Alteration of the intracellular target of antibiotic (e.g. 'ribosome protection' against tetracyclines)



Antibiotics vs AMR: Antimicrobial Resistance

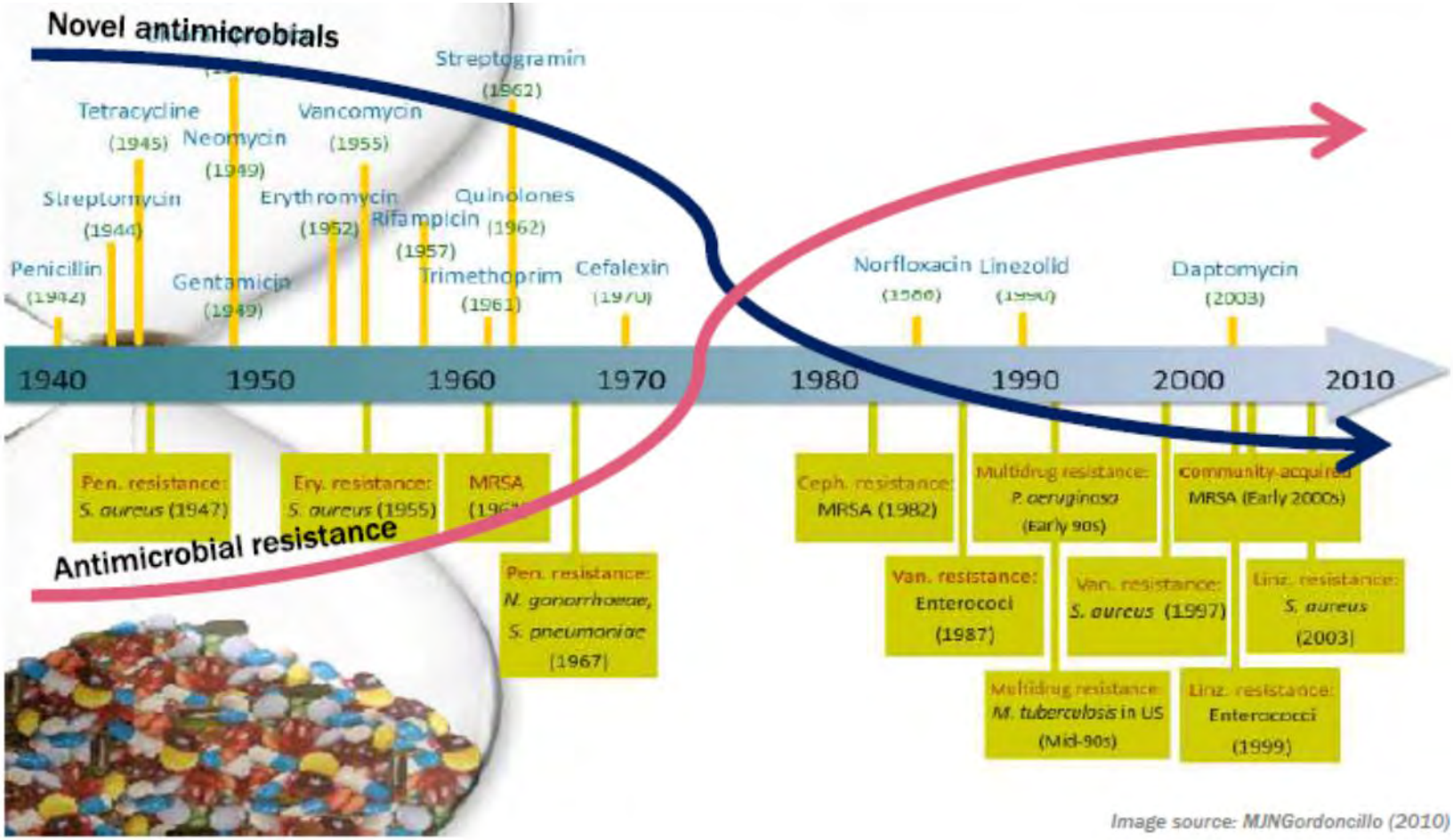
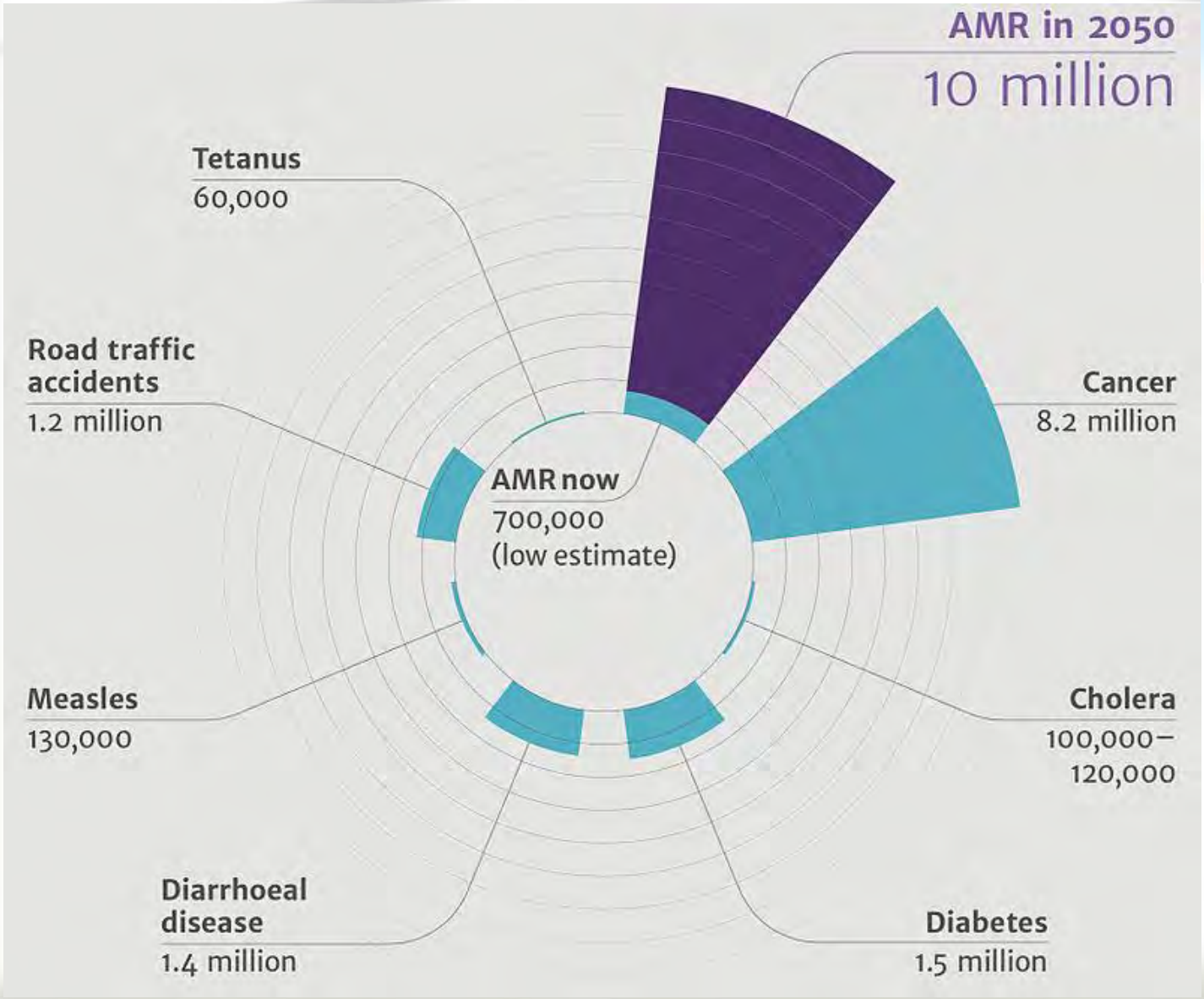
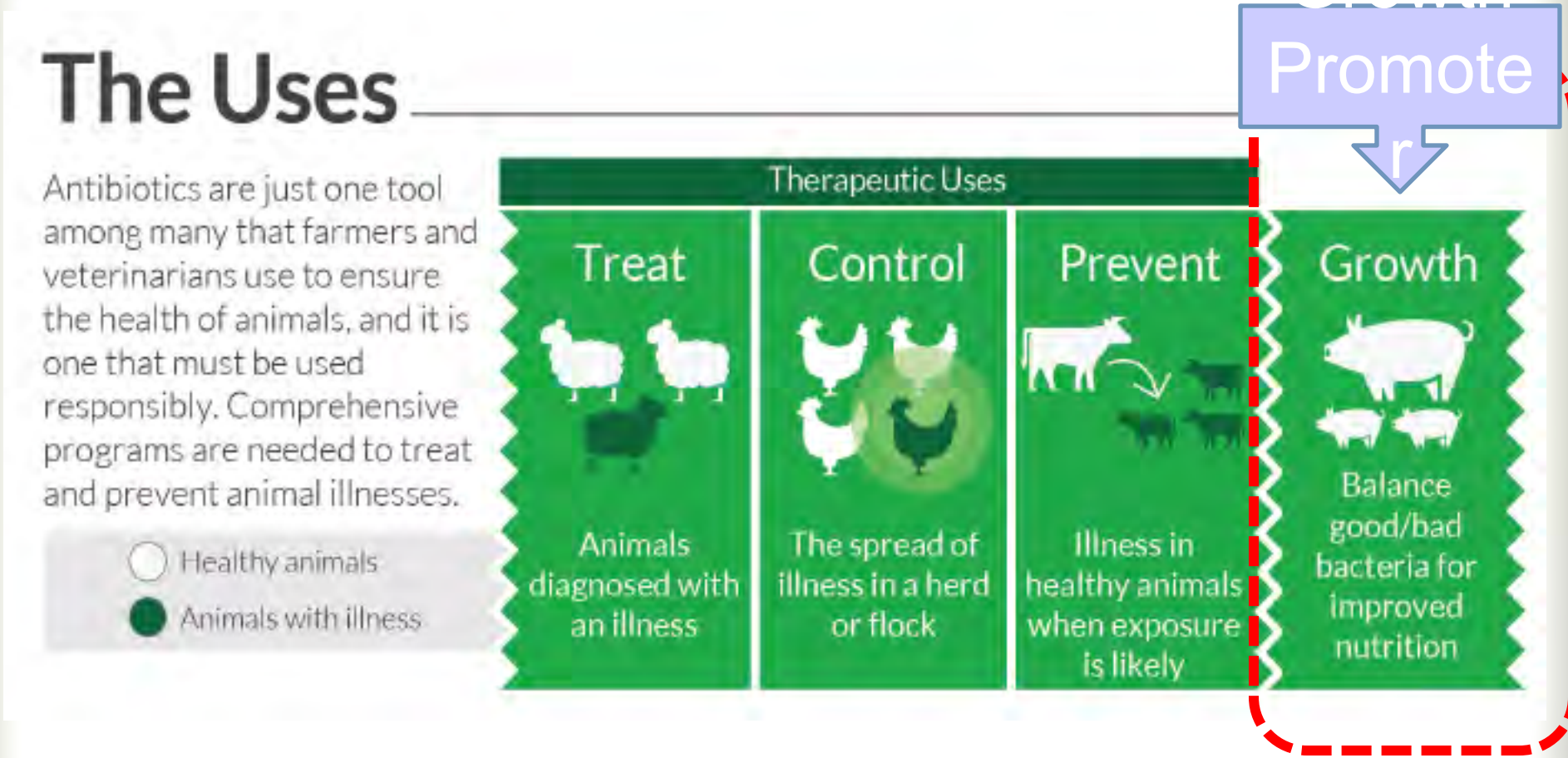


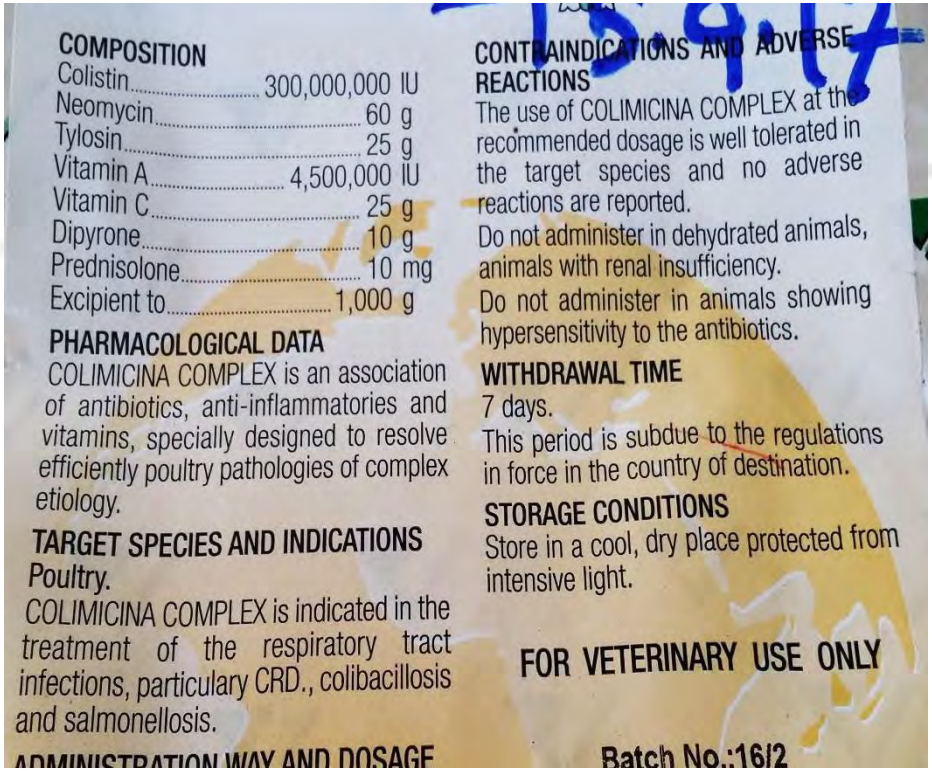
Image source: MJNGordoncillo (2010)

Deaths attributable to antimicrobial resistance every year compared to other major causes of death



Types of Antibiotic Uses in Livestock





COMPOSITION

Colistin	300,000,000 IU
Neomycin	60 g
Tylosin	25 g
Vitamin A	4,500,000 IU
Vitamin C	25 g
Dipyrone	10 g
Prednisolone	10 mg
Excipient to	1,000 g

PHARMACOLOGICAL DATA

COLIMICINA COMPLEX is an association of antibiotics, anti-inflammatories and vitamins, specially designed to resolve efficiently poultry pathologies of complex etiology.

TARGET SPECIES AND INDICATIONS

Poultry.

COLIMICINA COMPLEX is indicated in the treatment of the respiratory tract infections, particulary CRD., colibacillosis and salmonellosis.

ADMINISTRATION WAY AND DOSAGE

CONTRAINDICATIONS AND ADVERSE REACTIONS

The use of COLIMICINA COMPLEX at the recommended dosage is well tolerated in the target species and no adverse reactions are reported.

Do not administer in dehydrated animals, animals with renal insufficiency.

Do not administer in animals showing hypersensitivity to the antibiotics.

WITHDRAWAL TIME

7 days.

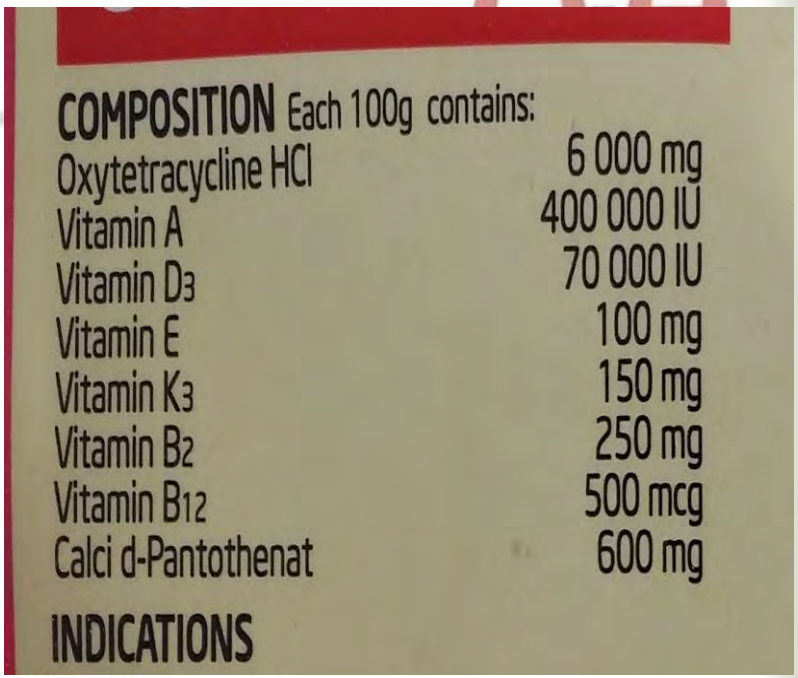
This period is subdue to the regulations in force in the country of destination.

STORAGE CONDITIONS

Store in a cool, dry place protected from intensive light.

FOR VETERINARY USE ONLY

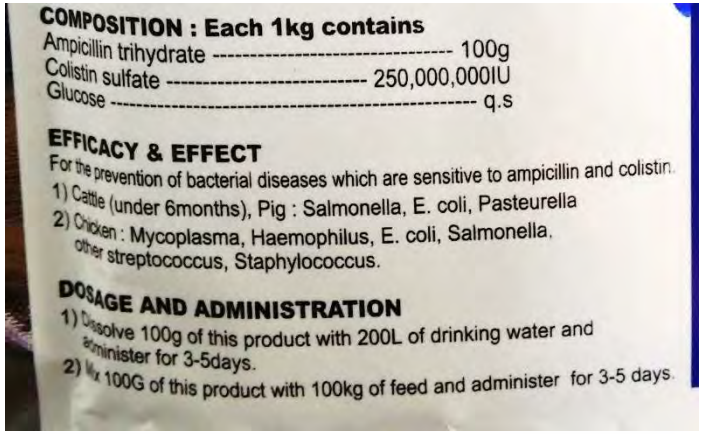
Batch No.:16/2



COMPOSITION Each 100g contains:

Oxytetracycline HCl	6 000 mg
Vitamin A	400 000 IU
Vitamin D_3	70 000 IU
Vitamin E	100 mg
Vitamin K_3	150 mg
Vitamin B_2	250 mg
Vitamin B_{12}	500 mcg
Calci d-Pantothenat	600 mg

INDICATIONS



COMPOSITION : Each 1kg contains

Ampicillin trihydrate	100g
Colistin sulfate	250,000,000IU
Glucose	q.s

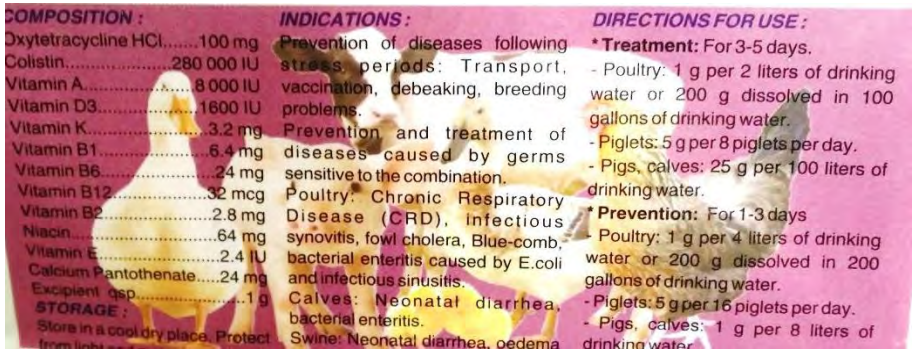
EFFICACY & EFFECT

For the prevention of bacterial diseases which are sensitive to ampicillin and colistin.

1) Cattle (under 6months), Pig : Salmonella, E. coli, Pasteurella
2) Chicken : Mycoplasma, Haemophilus, E. coli, Salmonella, other streptococcus, Staphylococcus.

DOSAGE AND ADMINISTRATION

1) Dissolve 100g of this product with 200L of drinking water and administer for 3-5days.
2) Mix 100G of this product with 100kg of feed and administer for 3-5 days.



COMPOSITION :

Oxytetracycline HCl	100 mg
Colistin	280 000 IU
Vitamin A	8 000 IU
Vitamin D3	1600 IU
Vitamin K	3.2 mg
Vitamin B1	6.4 mg
Vitamin B6	24 mg
Vitamin B12	32 mcg
Vitamin B2	2.8 mg
Niacin	64 mg
Vitamin E	2.4 IU
Calcium Pantothenate	24 mg
Excipient qsp	1 g

STORAGE :

Store in a cool dry place. Protect from light

INDICATIONS :

Prevention of diseases following stress periods: Transport, vaccination, debeaking, breeding problems.

Prevention and treatment of diseases caused by germs sensitive to the combination.

Poultry: Chronic Respiratory Disease (CRD), infectious synovitis, fowl cholera, Blue-comb, bacterial enteritis caused by E.coli and infectious sinusitis.

Calves: Neonatal diarrhea, bacterial enteritis.

Swine: Neonatal diarrhea, oedema

DIRECTIONS FOR USE :

***Treatment:** For 3-5 days.

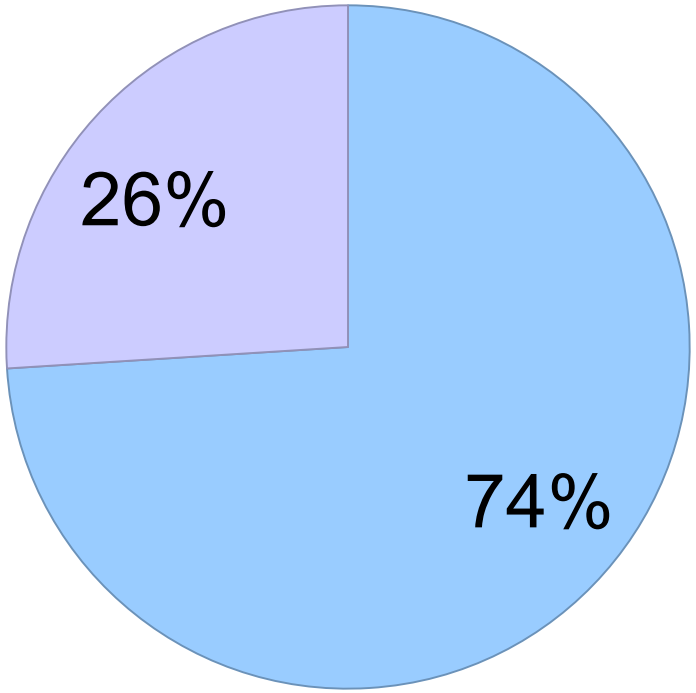
- Poultry: 1 g per 2 liters of drinking water or 200 g dissolved in 100 gallons of drinking water.
- Piglets: 5 g per 8 piglets per day.
- Pigs, calves: 25 g per 100 liters of drinking water.

***Prevention:** For 1-3 days

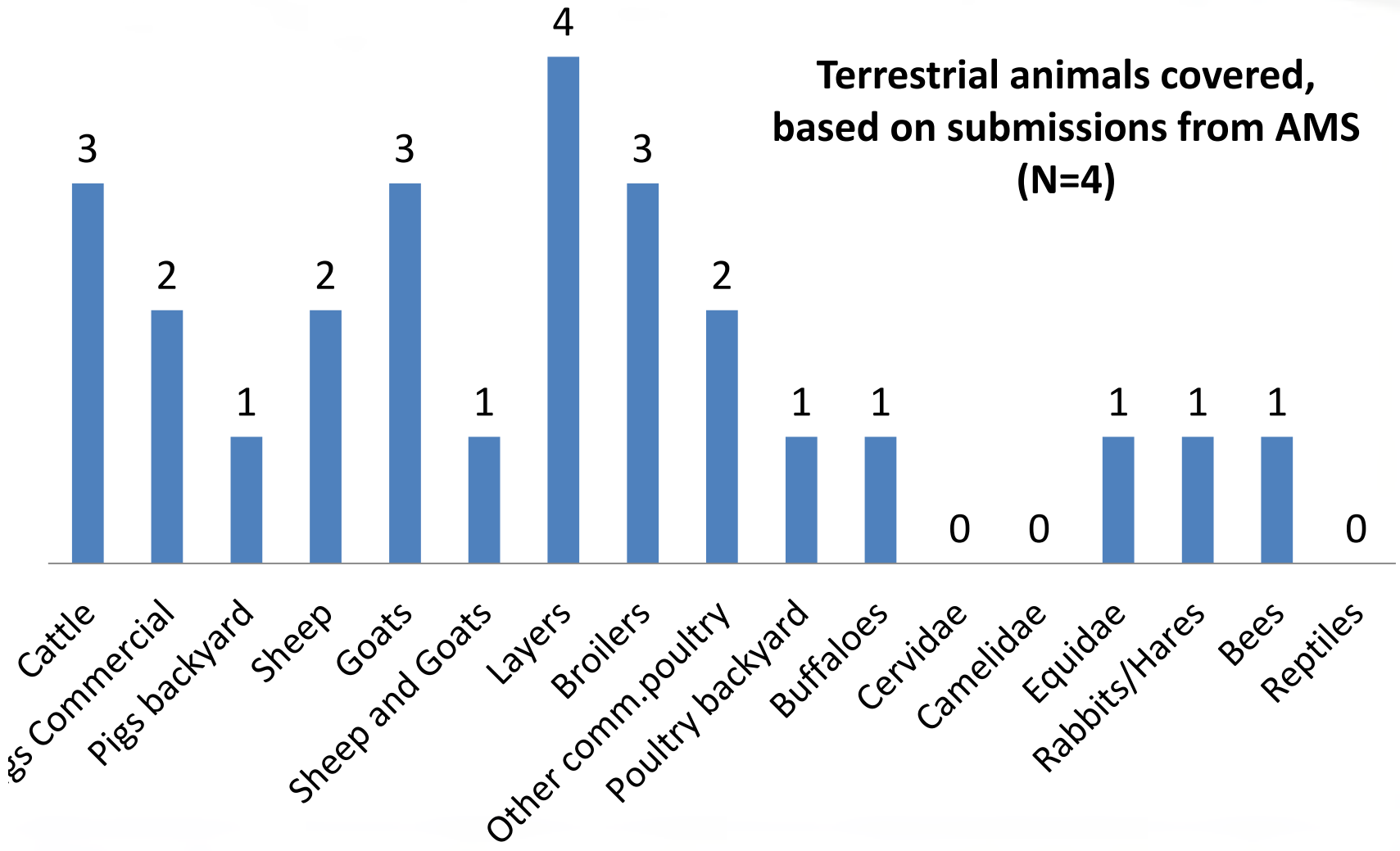
- Poultry: 1 g per 4 liters of drinking water or 200 g dissolved in 200 gallons of drinking water.
- Piglets: 5 g per 16 piglets per day.
- Pigs, calves: 1 g per 8 liters of drinking water

Authorization of antimicrobial growth Promoters in OIE member countries (2015)

- Antimicrobial growth promoters authorized (26%)
- Antimicrobial growth promoters not authorized (74%)

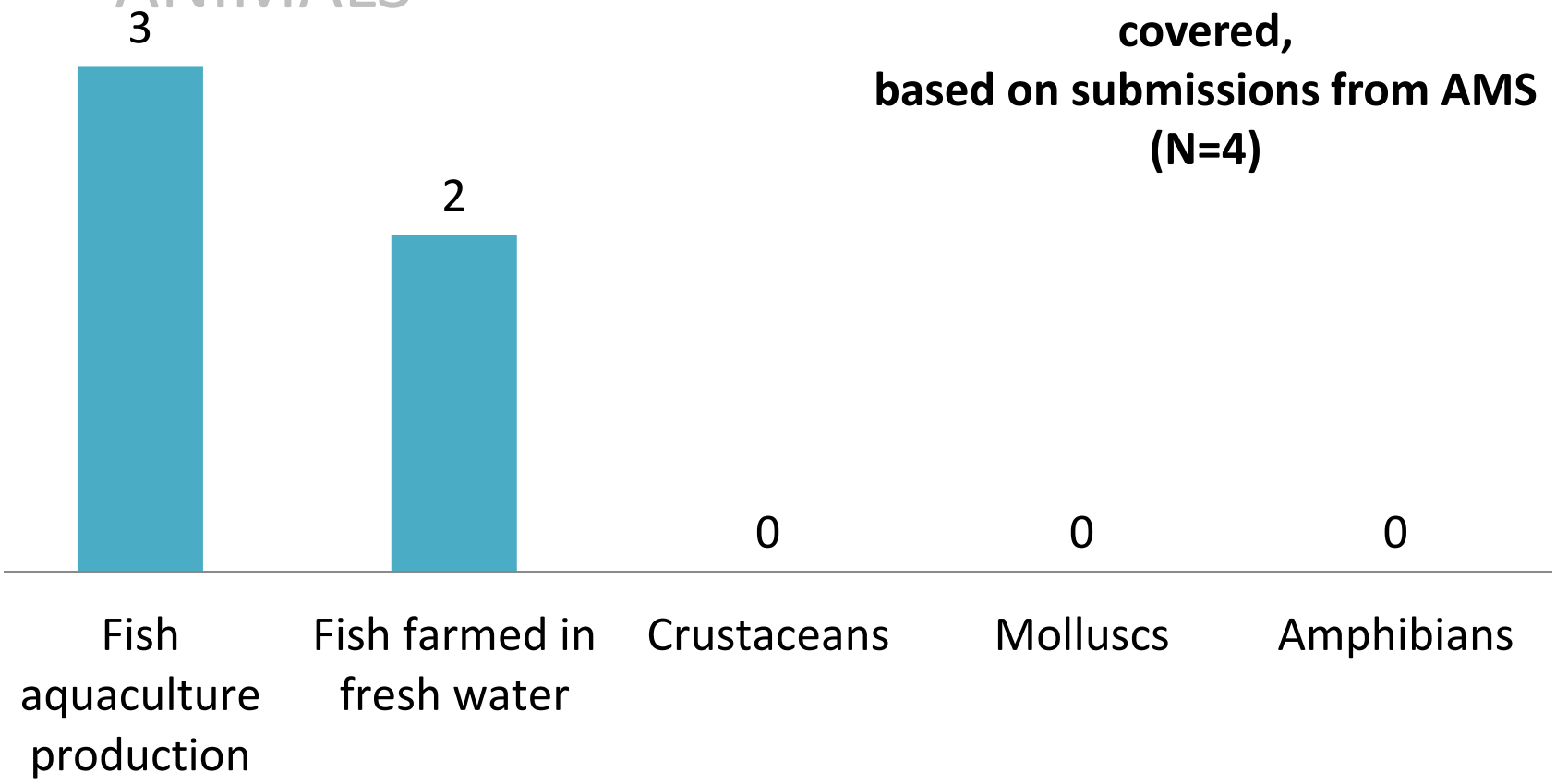


Submissions from ASEAN Member States

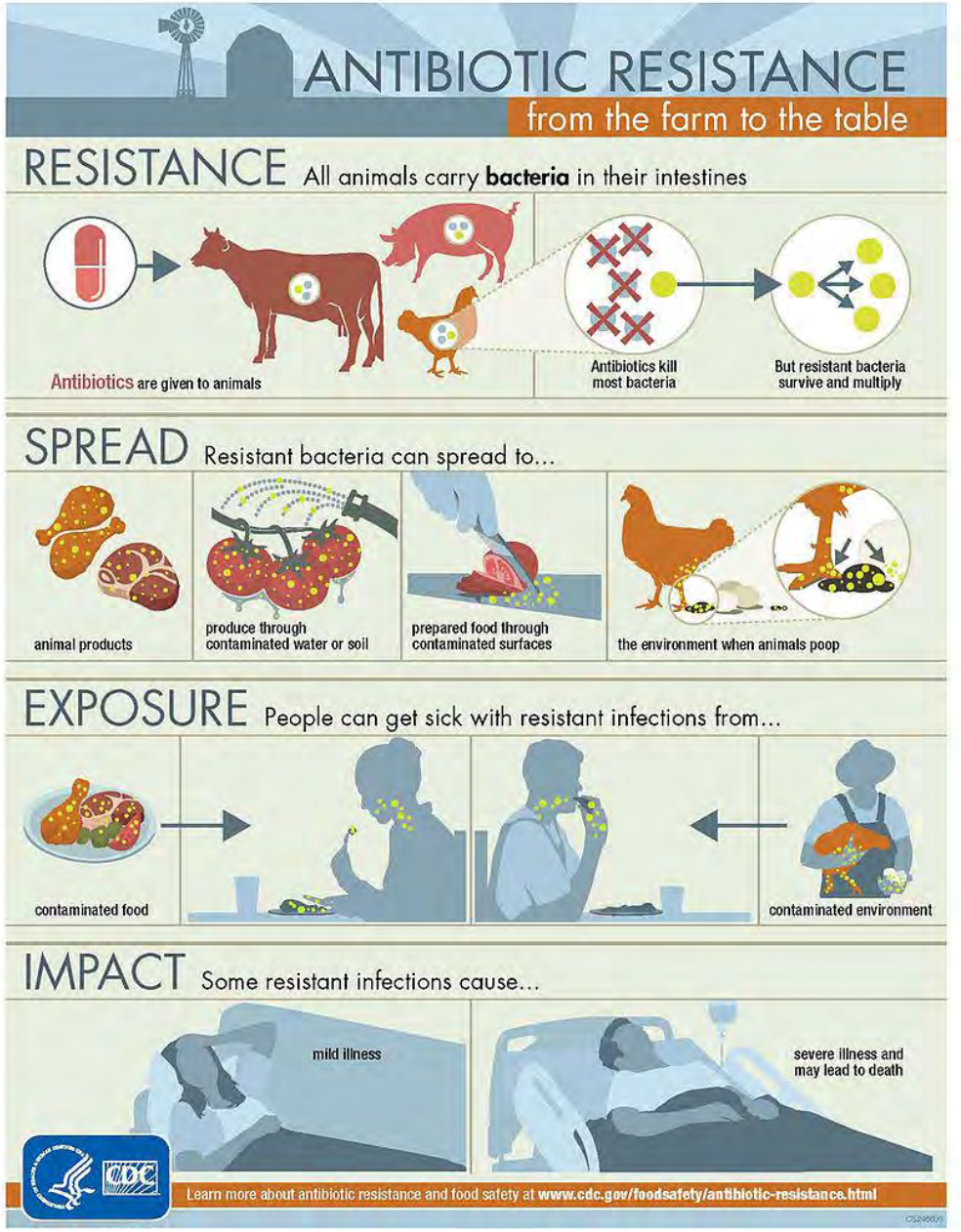


Submissions from ASEAN Member States

Food-producing aquatic animals covered,
based on submissions from AMS (N=4)



Spread of AMR animal-human interface



Issues of AMR for the Vet

- Reduced efficacy of treatment
- AMR in zoonotic bacteria
  - Consumer protection/food safety
  - Self protection from occupational disease

Measure taken by LBVD

- National Planning for Responsible and prudent use of antibiotics
- Veterinarian are parts of solution
  - Well trained Vets
  - Well supervised
  - Veterinary Council
  - Myanmar Veterinary Association
- Raised awareness among players
  - National Authorities
  - Veterinarians
  - Breeders and animals owners
- Campaigns World Antibiotic Weeks
- Standards (HACCP, GMP, GAHP)

National Livestock AMU/AMR Control Plan

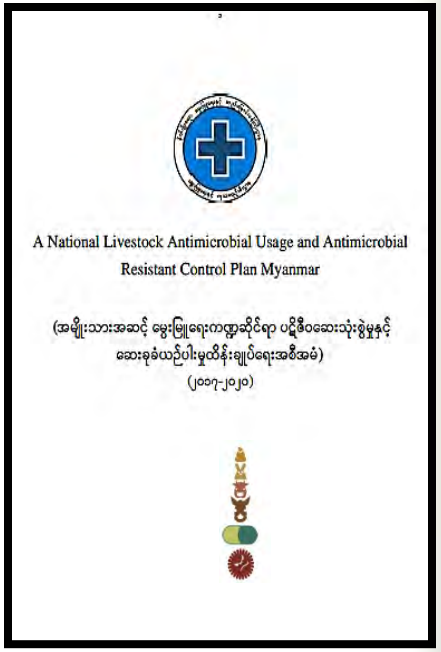
1. **IMPROVE awareness and understanding** of AMR through effective communication, education and training;

2. **STRENGTHEN knowledge and evidence** base through surveillance and research;

3. **REDUCE the incidence of infection** through effective sanitation, hygiene and infection prevention measures;

4. **OPTIMIZE the use of antimicrobial medicines** in human and animal health; and

5. **DEVELOP the economic case** for sustainable investment that takes account of the needs of all countries, and increase investment in new medicines, diagnostic tools, vaccines, and other interventions.


A National Livestock Antimicrobial Usage and Antimicrobial Resistant Control Plan Myanmar

(အမျိုးသားအဆင့် မွေးမြူရေးကဏ္ဍဆိုင်ရာ ပဋိဇီဝဆေးသုံးစွဲမှုနှင့် ဆေးခုခံယှဉ်ပါးမှုထိန်းချုပ်ရေးအစီအမံ)

(၂၀၁၇-၂၀၂၀)

What Policy makers can do?

- Control the use of antibiotic through veterinary supervision (strengthen regulatory and supply chain)
- Guidelines and recommendations on the use of antibiotics in food animals
- Ensure the existence of appropriate veterinary legislation
- Advocate responsible and prudent use
- Ban antibiotic as growth promoter or phase out non therapeutic use of antibiotics in food animals

What Veterinarian can do?

- Only prescribe when necessary
- Test bacterial sensitivity
- Raised awareness among animal owners
- Encourage good practice (GAHP)
- Keep your knowledge update

What Breeder and Animal Owners can do?

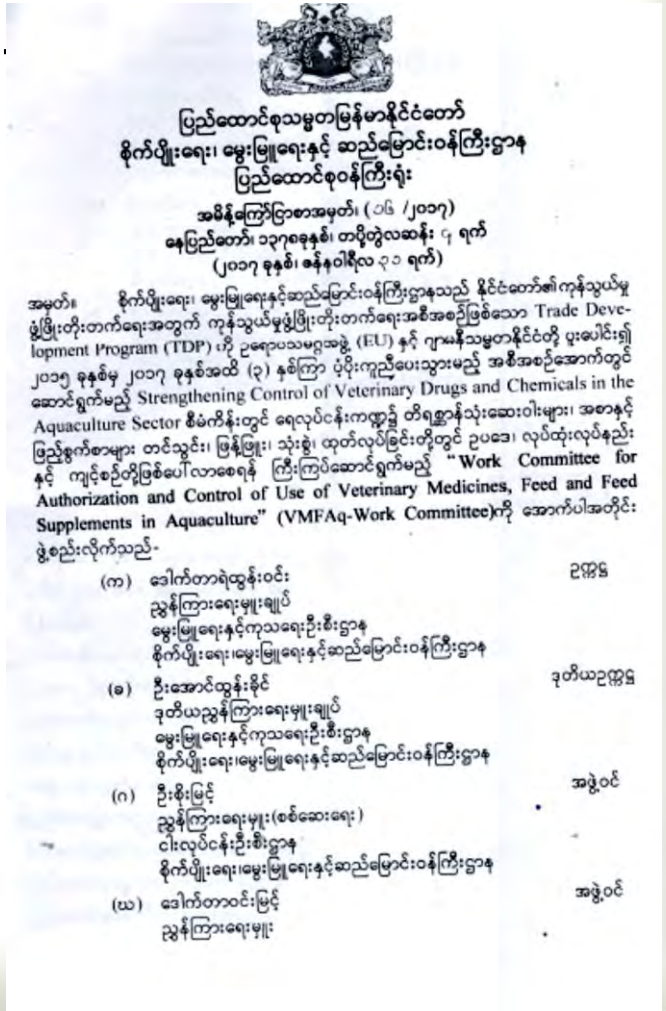
- Only use antibiotics prescribed by your veterinarian
- Respect the treatment dose and duration
- Always procure antibiotic from authorized sources
- Prevent infection by following good Husbandry practices
- Keep records of antibiotics administered

National Plan (livestock) Implementation

1. Strengthening Veterinary Supervision

- Veterinary medical and feed stu
  Committee
  - VmfAq-TWG
- Proposed Prohibited substances list by VMFAq

1. Chloramphenicol
2. Chloroform
3. Chlorpromazine
4. Colchicine
5. Dapsone



ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
စိုက်ပျိုးရေး၊ မွေးမြူရေးနှင့် ဆည်မြောင်းဝန်ကြီးဌာန
ပြည်ထောင်စုဝန်ကြီးရုံး

အမိန့်ကြော်ငြာစာအမှတ်၊ (၁၆ /၂၀၁၇)
နေပြည်တော်၊ ၁၃၇၈ခုနှစ်၊ တပို့တွဲလဆန်း ၇ ရက်
(၂၀၁၇ ခုနှစ်၊ ဧပြီလ ၃၁ ရက်)

အမှတ်။ စိုက်ပျိုးရေး၊ မွေးမြူရေးနှင့်ဆည်မြောင်းဝန်ကြီးဌာနသည် နိုင်ငံတော်၏ကုန်သွယ်မှုမဟာဗျူဟာတိုးတက်ရေးအတွက် ကုန်သွယ်မှုမဟာဗျူဟာတိုးတက်ရေးအစီအစဉ်ဖြစ်သော Trade Development Program (TDP) ကို ဥရောပသမဂ္ဂအဖွဲ့ (EU) နှင့် ကုလသမဂ္ဂတိုင်းရင်းသားများညီလေးသွားမည့် အစီအစဉ်အောက်တွင် ဆောင်ရွက်မည့် Strengthening Control of Veterinary Drugs and Chemicals in the Aquaculture Sector စီမံကိန်းတွင် ရေလုပ်ငန်းကဏ္ဍ၌ တိရစ္ဆာန်သုံးဆေးဝါးများ၊ အစာနှင့် ဖြည့်စွက်စာများ တင်သွင်း၊ ဖြန့်ဖြူး၊ သုံးစွဲ၊ ထုတ်လုပ်ခြင်းတို့တွင် ဥပဒေ၊ လုပ်ထုံးလုပ်နည်းနှင့် ကျင့်စဉ်တို့ဖြစ်ပေါ်လာစေရန် ကြီးကြပ်ဆောင်ရွက်မည့် "Work Committee for Authorization and Control of Use of Veterinary Medicines, Feed and Feed Supplements in Aquaculture" (VMFAq-Work Committee)ကို အောက်ပါအတိုင်း ဖွဲ့စည်းလိုက်သည်-

(က) ဒေါက်တာရဲထွန်းဝင်း ဥက္ကဋ္ဌ
ညွှန်ကြားရေးမှူးချုပ်
မွေးမြူရေးနှင့်ကုသရေးဦးစီးဌာန
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(ခ) ဦးအောင်ထွန်းခိုင် ဒုတိယဥက္ကဋ္ဌ
ဒုတိယညွှန်ကြားရေးမှူးချုပ်
မွေးမြူရေးနှင့်ကုသရေးဦးစီးဌာန
စိုက်ပျိုးရေး၊မွေးမြူရေးနှင့်ဆည်မြောင်းဝန်ကြီးဌာန

(ဂ) ဦးစိုးမြင့် အဖွဲ့ဝင်
ညွှန်ကြားရေးမှူး(စစ်ဆေးရေး)
ငါးလုပ်ငန်းဦးစီးဌာန
စိုက်ပျိုးရေး၊မွေးမြူရေးနှင့်ဆည်မြောင်းဝန်ကြီးဌာန

(ဃ) ဒေါက်တာဝင်းမြင့် အဖွဲ့ဝင်
ညွှန်ကြားရေးမှူး

2. Evidence based research surveillance of AMR

An Integrated management-based approach for surveillance and control of zoonoses in emerging livestock systems (ZELS) 2015-2020

- **FOCUS: AMR zoonoses in Pig Supply chain**
  - *Salmonella*
  - *Streptococcus suis*
  - *E.coli*

Farm

Abattoir

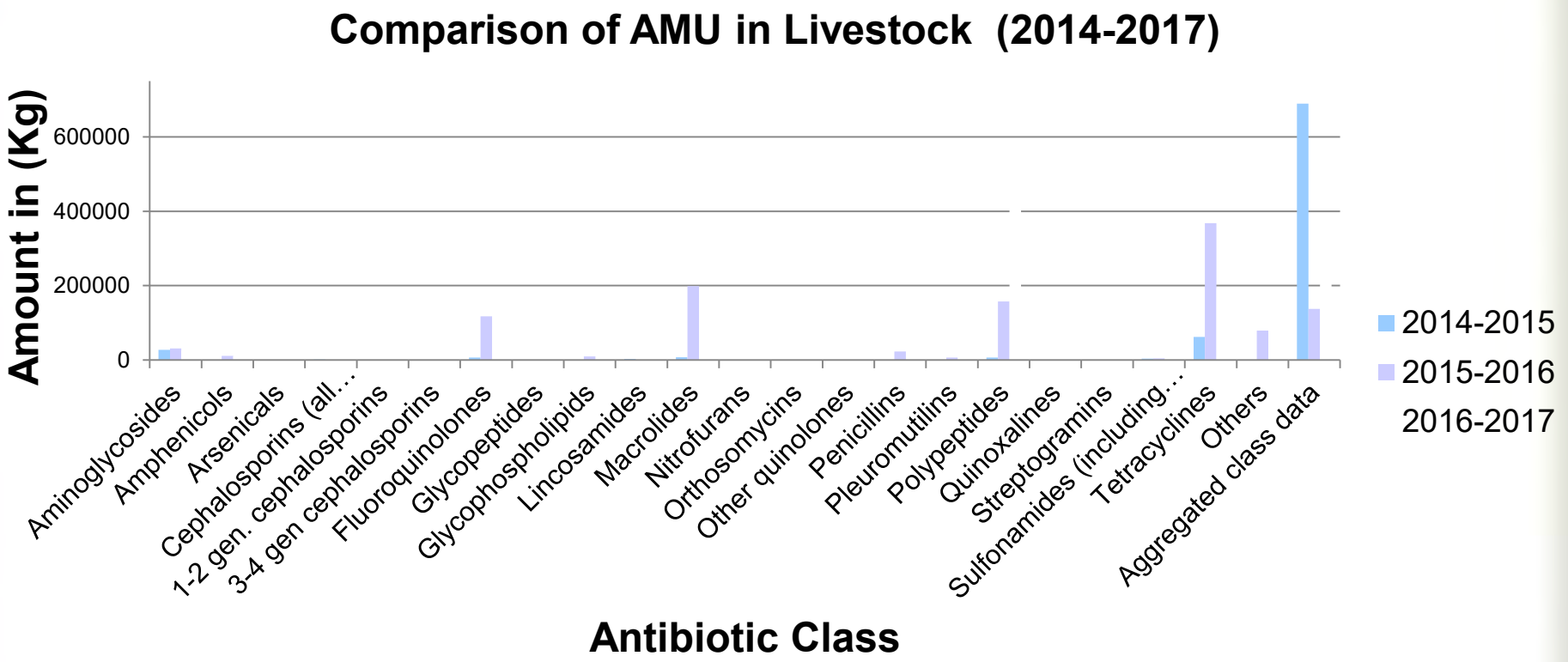
Retail shop

Supermarket

3. Education and Awareness to Veterinary drug and feed shops

World Antibiotic Awareness Activities

4. Antimicrobial Usage Baseline-Data Collection in Livestock Sector

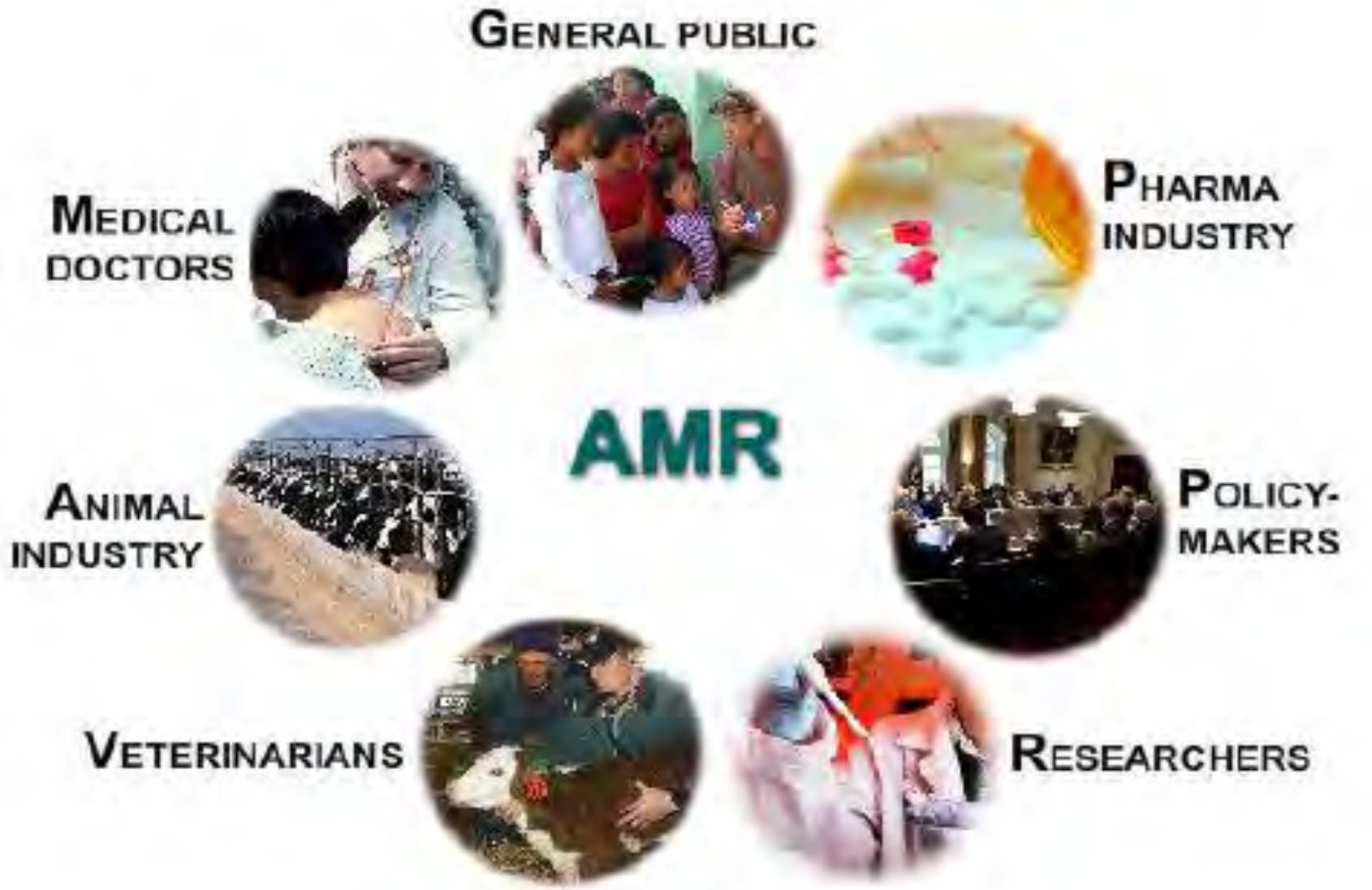


5. Development of GAHP and promotion of GAHP

Challenges on AMR control

- AMR/Food safety ကိစ္စတွင် Multi-agency control process များရှိခြင်း
- Limited capacity on Collection and Analysis of AMU data (species basic)
- အစာနှင့်ဆေးများနှင့်ပတ်သက်၍ ထိန်းချုပ်သည့် စနစ်အားနည်းခြင်း (Weak Regulatory control on registration, prescription, distribution, selling, usage of Veterinary drugs in animal sector)
- Post marketing surveillance စနစ် အားနည်းခြင်း
- ဥပဒေ/အမိန့်ညွှန်ကြားချက်များလိုအပ်ခြင်း (Needs sound regulatory framework)
- Needs stakeholder participation

Mitigating AMR with One health Approach



On Health Myanmar Development

"One Health Strategy Workshop" 9-10 March, Nay Pyi Taw

Representatives and participants from MLFRD, MOH, MOECAF, USAID Regional Asia, USAID MM, FAO RAP, FAO MM, FAO-ECTAD Bangladesh, FAO-ECTAD MM, WHO SEA, WHO MM, OIE SEA, P&R Thailand, PREDICT MM and MVA

Participating in AMR National Action Plan, Myanmar

Thank you for attention