Developing and scaling up animal health systems to mitigate Antimicrobial Resistance

Challenges, opportunities and required political actions to strengthen animal health systems

GLG-AMR meeting, Barbados | 07-08 February 2023

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Antimicrobial Resistance: A One health Challenge

Misuse and overuse of antimicrobials can generate antimicrobial resistance. Drug-resistant pathogens can then spread between and within animals, humans, plants and through the environment.
Antimicrobial resistance: a global challenge for food and agriculture

World production meat, main items

Projected Increase in Livestock Commodity Production, 2020-2030

Source: FAOSTAT

Animal Health Systems

The organisation of people, institutions and resources that deliver healthcare services to animals and their owners.

It includes animal health practitioners (veterinarians and veterinary paraprofessionals), veterinary medicines, surveillance and diagnostics of disease as well as the legal framework and financing of health services.

Source: ACTION FOR ANIMAL HEALTH – Policy Brief, the case for investing in animal health to support for One Health
Animal Health Systems Workforce

**Public vet services**
- Regulatory role
- Surveillance
- Response to outbreaks
- Irregular vaccination campaigns

**Private vet services**
- Treat sick animals
- Vaccination & Herd health planning
- Report to public sector suspicion of outbreaks

**Informal vet services**
- "Quacks“, traders, farmers who treat sick animals with easily accessible illegal veterinary medicines
- 1-2 billion USD annual market

FARMERS
commercial farmers, smallholder farmers, pastoralists, agro-pastoralists, farmer organisations

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There is great variability in the workforce of Veterinary Services across regions.

Veterinary Services need an enabling environment where they can work to their optimal capacity and receive adequate training.

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<th>Staffing</th>
<th>Professional competencies</th>
<th>Funding</th>
<th>Veterinary Statutory Body</th>
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- 49% Veterinarians
- 56% Veterinary paraprofessionals
- 58% Veterinary paraprofessionals
- 67% Veterinary paraprofessionals
- 44% Physical resources
- 42% Operational
- 49% Emergency
- 47% Authority
- 16% Capacity

Percentage of Members with a Level of Advancement of 3 or more for each of the 9 Critical Competencies relevant to workforce capacity.

(i.e. reached or exceeded the minimal capacity for all 9 Critical Competencies related to workforce and resources)

For further information, please click here: observatory@woah.org

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Animal Health Systems Workforce

- Veterinarians
- Vet paraprofessionals (VPP)
- Tropical Livestock Units (TLU)

=> Differences in accessibility to veterinary healthcare

**ANTIMICROBIAL USE IN ANIMALS**

Very good reporting engagement with promising downward trends

The use of antimicrobials critical to human health is declining in animals

-62% Polyketide
-43% Macrolide

Still improvements to make on non veterinary medical use & transparency

Criticaly important antimicrobials are still being used as growth promoters in animals

- Antimicrobials listed as "veterinary critically important antimicrobial agents" by WOAH
  - 17%

- Antimicrobials listed as "highest priority critically important for human medicine" by the World Health Organization (WHO)
  - 17%
Veterinary Medicines

- Authorised (global sales $30 bn) vs illegal products (1-2 $bn)

- Medicine quality contributes to AMR

=> regulations, access and use of veterinary medicines, including antimicrobials, differs around the world
SUBSTANDARDS & FALSIFIED VETERINARY PRODUCTS

A project based on four pillars

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Invest to improve farm management and husbandry practices
The Good Agriculture Practice (GAP) Certification System in Thailand

**GAP farm**
- Farm conditions
- Use of feed
- Water management
- Overall husbandry
- Animal welfare
- Animal health
- Environment
- Record keeping
- Designated veterinary
- Routine vaccination programme
- Monitored drug prescription
- Farm data recording

**Drivers**
- Environment pressure
- Disease burden
- Export incentive
- Market demand of safe food products

**Government regulations & instruments**
- Regulations
  - Health Professional Act
  - Animal Feed Quality Control Act
  - Drug Act
- Government instruments
  - Good Agriculture Practice Certificate
  - Private standards
  - Guidelines for antibiotic prescription

**GAP certified farms**
- Designated veterinarians for health support
- Regulated and monitored use of antibiotics

**Outcomes**
- Knowledge of antibiotic and AMR
- Improved farm outputs
- Safer products due to reduced AMU
- Increased competition in the international market

**Perceived health benefits and economic value of GAP certification of individual farms and national scale-up**
GAP Certification System in Thailand

- Steady increase in the numbers of pigs and poultry from 2017 to 2019, with increasing proportion produced in GAP farms

- Thailand has reduced the consumption of antibiotics by animals since the implementation of the NAP 2017-2022, and there is a shift to use more CIAs and non-CIAs than HP-CIAs
Invest in people to drive change in the use of antimicrobials in the animal sector
Bangladesh AMR Response Alliance (BARA)

- Community of Practice of and for **animal health** (livestock and aquaculture) and **human health professionals** committed to responsible AMU

- Membership is granted after successfully pass an exam:
  
  **618 Members** (vet-310, human doctor-308)

  + **6 colleagues** from Cambodia, Indonesia and Nepal

- Developed **BARA AMU guidelines** for poultry (“Murgi”), for human health (“Manush”) and for finfish disease management and treatment (“MAACH”)

- **Mobile phone app** for veterinarians and human doctors to guide prescriptions
**BARA Initiatives**

- **Keep It Simple Stewardship (KISS)** operation in Chittagong Medical College Hospital

- **BARA approach for aquaculture (Upazila-to-Community, U2C)**
  Farmers’ perspective => participatory Disease Surveillance => FAO-WOAH joint support for capacity building on sample collection and analysis for laboratory professionals and field officers => guidelines for prevention, control and treatment

- **Social motivation and advocacy to regulatory authorities** by FAO, WHO and BARA community => **ban of colistin in livestock** at the 253rd Drug Control Committee meeting on 20 March 2022
**FAO Virtual Learning Centres initiative**

- Online hubs established to develop and improve One Health capacities in all FAO regions and subregions

- Provide trainees with access to **inclusive, engaging and high-quality training** (online tutored courses, blended learning, technical webinars and mobile learning)

⇒ Training on AMR surveillance in bacteria from healthy food-producing animals: 74 trainees (Asia and Pacific), July-Aug 2022

⇒ Training of the Trainers for Farm Field Schools in Africa

⇒ Knowledge Nexus / AMR Laboratory Community of Practice

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**WOAH Platform for the training of the Veterinary Services**

- Competency-based Training System
- One competency package dedicated to AMR
- 5 eLearning modules available by end of 2023 in 4 languages

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<tr>
<th>Education levels</th>
<th>Terrestrial animals</th>
<th>Aquatic animals</th>
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<tr>
<td>Day 1 and VPP level e-modules</td>
<td>General introduction to AMR, with WOAH’s lens</td>
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<td>Stewardships on AMR under One Health approach</td>
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<tr>
<td>Day 2 level e-modules</td>
<td>Stewardships on AMR in terrestrial animals</td>
<td>Stewardships on AMR in aquatic animals</td>
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<tr>
<td>Expert level e-modules</td>
<td>Building a national AMR Action Plan focused on the terrestrial and aquatic animal health sector</td>
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The importance of generating, analysing and using data for action within and across sectors
Surveillance information is **essential to inform and monitor** interventions to tackle AMR in animal health and public health.

- **Strong sector specific surveillance systems** are a prerequisite for integrated cross-sectoral surveillance.
- Reporting to sector-specific global systems GLASS, ANIMUSE and InFARM is essential to support the Quadripartite GISSA.
- Demonstrating **usefulness of data** and **rewarding** countries that share data with extended **capacity-building support** are main drivers for participation.
Integrated AMR and AMU Surveillance to inform and monitor interventions

Example 1 - Analysis of antimicrobial consumption and resistance ('JIACRA' reports) ECDC/EFSA/EMA

The case of fluoroquinolones:

- Fluoroquinolones are highest-priority critically important antimicrobials and their use should be restricted in animals.

- There are significant AMU-AMR relationships within and between animals and humans.

- These results from integrated surveillance provide valuable insights for policy-makers across the EU.

- The risk to public health resulting from veterinary use needs to be mitigated by specific restrictions.

- In EU fluoroquinolones are now in the “Restrict” category (only to be used for clinical treatment in animals when there are no antibiotics in lower categories).

- Public-private partnership and collaboration is essential for reaching consensus (e.g. US ban in 2005, ongoing discussion in some EU countries and beyond).
Colistin was widely used as an animal feed additive

In 2015 first mobile colistin resistance gene, mcr-1, was identified in isolates from animals and humans in China. Now mcr- genes are expanding globally

2016, WHO classify colistin as High Priority Critically Important Antimicrobial

Many countries approved withdrawal of colistin as a feed additive in animals => AMU colistin has decreased globally

Still widely used in poultry and pigs in other countries for treatment and prevention

Prevalence of AMR – Colistin resistant E.coli in pigs and chicken

2015-16 → 2017-18
Look at the context to create and implement effective interventions
Alternative control measures to reduce AMU and AMR in Zimbabwe

Prior 2016
- Theileriosis (January Disease, East Cost Fever - ECF) “Uncontrollable”
- High Tick Resistance to Dips
- Antimicrobials (Tetracyclines) sold over the counter
  - Farmers called this use “VACCINATION”

![Diagram showing government policy decisions and AMR NAP development process]

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Vaccine developed and launched

Farm Field Schools to be used to communicate difference between Vaccination and AMU

Government enforcing alternative control measure for Theileriosis

24 January 2023

To: ALL PROVINCIAL VETERINARY DIRECTORS

NATIONAL DECLARATION OF WAR AGAINST JANUARY DISEASE: 2023

The rain season is always associated with increased tick activity and an upsurge in tick-borne diseases.

January disease (TD) has been a problem resulting in thousands of cattle succumbing to the disease in recent years particularly as from 2017 to date. With the huge support from Treasury, we have been able to bring down 30 cases and deaths, year on year, by 47% and 31% in 2021 and 2022 respectively. However, we have seen an upsurge in January disease cases and deaths from the beginning of 2023. It is against this background that the Ministry is declaring a National War Against January Disease in 2023. This War Against January Disease is starting with immediate effect and will last for a month.

This memo serves to inform all Province, Districts and Animal Health Management Centres that the following activities will be done:

1. Each Veterinary Extension Officer (VEO) shall have meetings at each dip tank under their jurisdiction. Meetings all farmers will be engaged for a month. In particular, farmers will receive information on the
   a. January Disease and its epidemiology
   b. Importance of understanding symptomatology
   c. Importance of controlling disease affecting farm infrastructure, livestock, and hygiene
   d. Correct use of dip tank chemicals
   e. Correct use of dip tank equipment
   f. Correct use of dip tank chemicals
   g. Correct use of dip tank chemicals
   h. Correct use of dip tank chemicals
   i. Correct use of dip tank chemicals
   j. Correct use of dip tank chemicals
   k. Correct use of dip tank chemicals

2. A report of all the farmers that will have received war against TD campaign must be submitted weekly.
Summary and way forward
In a nutshell

• Strengthening **prevention** is key to curb AMR (animal husbandry, biosecurity, hygiene...)

• **Responsible use** is a must (diagnostics, alternatives to antimicrobials, including vaccination...)

• Implementation of international standards in collaboration **across sectors** (One Health approach) are critical

• **Investments** must fit with the situation (adequately & balanced across sectors)

• Data monitoring and **integrated surveillance** are key to adapt and control this pandemic situation

*Knowing is not enough; we must apply. Willing is not enough; we must do.*  - Johann Wolfgang von Goethe (1749-1832)
Challenges and Opportunities

- Not adequate supply of animal healthcare services everywhere: 1. improve access to animal healthcare services, especially in rural areas => increase training and retain veterinarians, VPP and CAHW, 2. Improve regulation and enforcement for animal health services (e.g. VSBs need to register VPPs (and CAHWs)

- Need to improve decision-making and stewardship: invest in behavioural change interventions and scaling up what works, improve access to laboratory services (reduced cost/free-of-charge) and invest in the development of new diagnostics to reduce time for results and more rapidly guide treatment

- Scarcity of AMR and AMU data from animal health sectors: improve laboratory and epidemiology capacities for data generation and analysis, and provide incentives to foster data use and sharing within and across sectors at local and global scale

- Poor Knowledge and engagement at farm level: invest in farmers and preventive animal healthcare measures to sustain changes through their active participation together with government regulations
REDUCE THE NEED FOR ANTIMICROBIALS ON FARMS Initiative (RENOFARM)

- Innovation, technologies, and hand-in-hand partnerships
- 10-year initiative
- AMU reduction especially for high priority antimicrobials
- Focus on producer level in the agrifood systems
- Bottom-up approach
**AMR Multi-Stakeholder Partnership Platform**

- **Part of the AMR Global Governance structures**
- **Supported by the Quadripartite & hosted by FAO**
- **Brings together relevant stakeholders across One Health**
- **Work plan with short (1-2) to medium (3-5) and long-term (10+) priorities**

- Build and promote a shared vision for AMR through the One Health approach;
- Global, inclusive, voluntary and collaborative mechanism to drive collective response across sectors, disciplines and countries;
- A venue for information-sharing, networking and building of common understanding of the AMR challenges and opportunities;
- Build and sustain global momentum for AMR through collective advocacy, awareness raising and engagement;
- Aims to attract over 200 stakeholders and establish up to five Action Groups in the first year of activity;
- Aims to support countries and stakeholders in turning the Muscat Manifesto commitments into tangible actions.
Thank you
Mercí
Gracias
Спасибо
شكرًا لك
谢谢你

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