

Why and How Poultry producers should take actions

# *Antimicrobial Resistance, a One Health Concern*



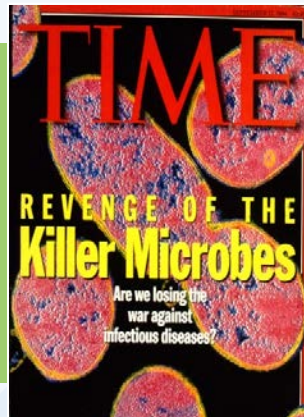
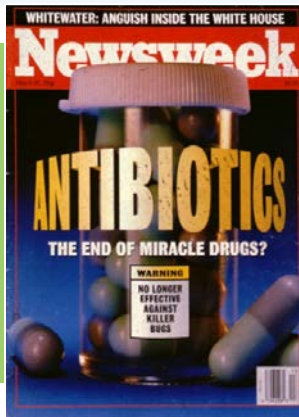
# *Health*

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Elanco and SIMV

OIE, Beirut November 2017

# ANTIMICROBIAL RESISTANCE (AMR)

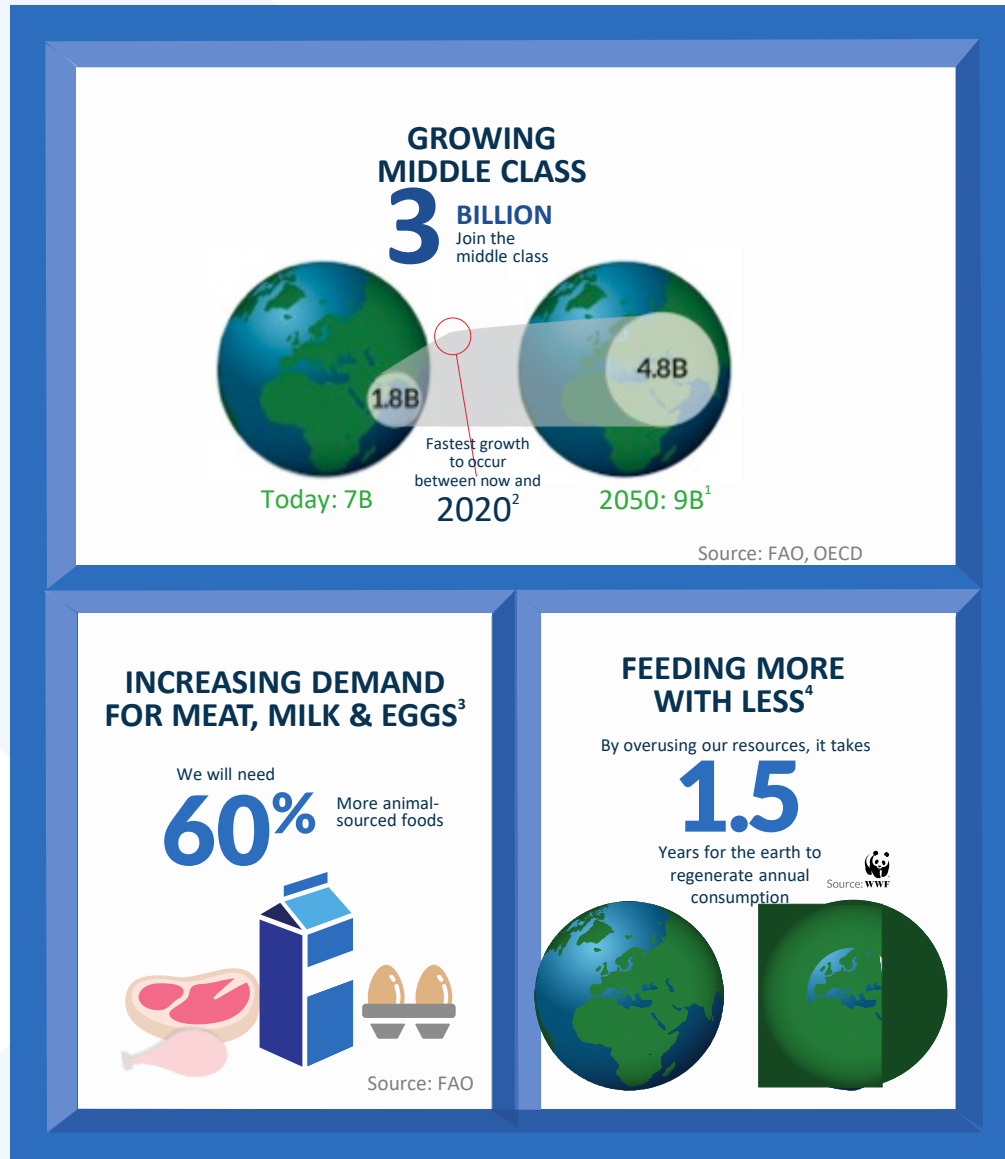
There are public concerns that people may acquire food-borne illnesses that cannot be appropriately treated with antibiotics as a result of antibiotic-resistant bacteria that are derived from food animals that have been treated with antibiotics



# AGENDA

- Food Security and One Health Concept
- Global Government Policies
- **Medically Important Antimicrobials** and **Non Medically Important Antimicrobials**
- How to implement global policies locally

# Today's 3 Food Security Realities



1. Kharas, Homi. *OECD Development Center. Working Paper No. 285. The Emerging Middle Class in Developing Countries. Global Development Outlook. January 2010.*
2. *OECD-FAO Agricultural Outlook 2012-2021.*
3. *Food & Agriculture Organization (FAO). "World Livestock 2011: Livestock in Food Security." Rome, 2011.*
4. *World Wildlife Fund (WWF). "Living Planet Report 2012: Biodiversity, biocapacity and better choices."*

# Meeting Today's Demand

- Today **56 billion chickens** deliver **3X more meat** per person than 40 years ago to meet consumer demand.



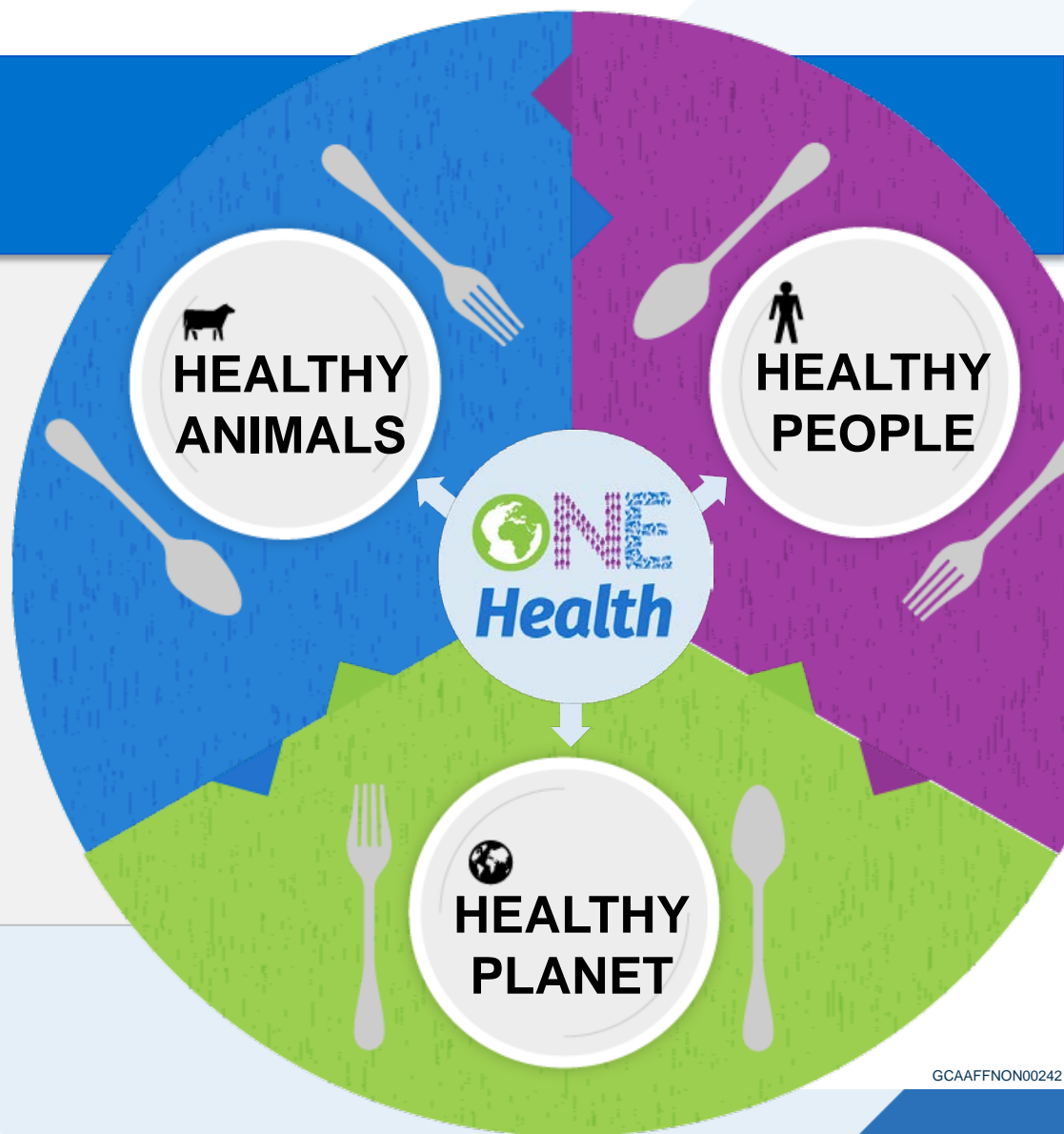
**1972:**  
73 grams  
per week



**2010:**  
243 grams  
per week

Adapted from FAO, FAOSTAT <http://faostat.fao.org>, Accessed Feb. 27, 2014

Healthy, efficient animals are critical to healthy people and a healthy planet.



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# RECENT GLOBAL INITIATIVES

- 2011 : EUROPE 1<sup>st</sup> ACTION PLAN
- 2013 : #213 US
- 2015 : WHO Global Action Plan on AMR
  - Subsequently adopted by the World Animal Health Organization (OIE) and the Food and Agriculture Organization (FAO)
- 2016/09 : United Nations Political Declaration on AMR
- 2016/11 : The OIE Strategy on Antimicrobial Resistance and the Prudent Use of Antimicrobials
- 2017 : G20, Hamburg : Leader's declaration / AMR
- 2017 : European One Health Action Plan against Antimicrobial Resistance



# WHO Global Action Plan on AMR

- Improve awareness and understanding of AMR through communication, education and training
- Strengthen knowledge and evidence base through surveillance and research
- Reduce the incidence of infections through sanitation, hygiene and infection prevention measures
- Optimize use of antimicrobials in human and animal health
- Develop economic case for investment and increase investment in innovation.

[http://www.wpro.who.int/entity/drug\\_resistance/resources/global\\_action\\_plan\\_eng.pdf](http://www.wpro.who.int/entity/drug_resistance/resources/global_action_plan_eng.pdf)

Published 2015



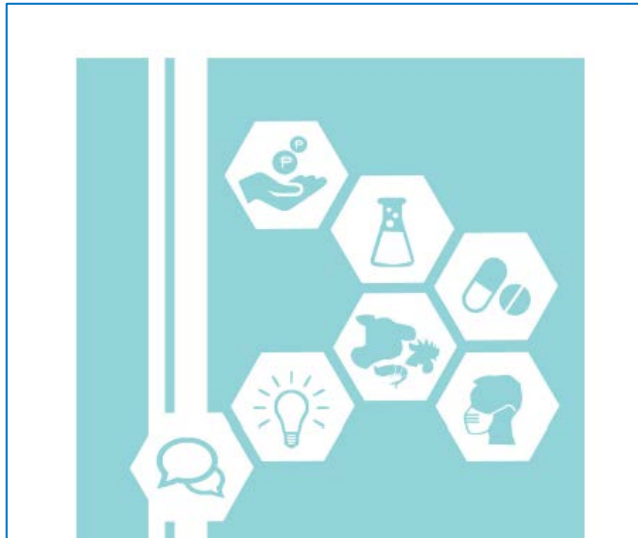
**NATIONAL ACTION PLANS**

# National Action Plan – Summary

- Formulation of national Responsible Use Guidelines
- Establishment of a harmonised resistance monitoring program
- Establishment of a harmonised antibiotic usage monitoring program
- Risk Assessment based regulatory Control



# National Action Plans - Report



- National Action plans in progress
- Delivered to WHO on 25<sup>th</sup> May 2017 by almost all countries globally

**Combatting Antimicrobial Resistance (AMR):** AMR represents a growing threat to public health and economic growth. To tackle the spread of AMR in humans, animals and the environment, we **aim** to have implementation of our National Action Plans, based on a One-Health approach, **well under way by the end of 2018**. We will promote

# KEY MESSAGE

- Global guidelines and actions plan coming from WHO and OIE
- Some Regional initiatives : EU
- National Action Plan :
  - Implementation
  - Adaptation to the geography and local reality
  - Will not be perfect in one day...

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# Critically Important Antimicrobials for Human Medicine

5<sup>th</sup> Revision 2016

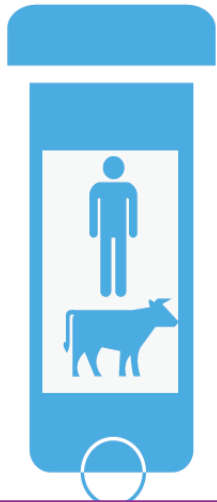
Ranking of antimicrobial agents for risk  
management of antimicrobial resistance  
due to non-human use



# Categories Of Antimicrobials

## The Types

Antibiotics can be grouped into three categories based on how they can be used.



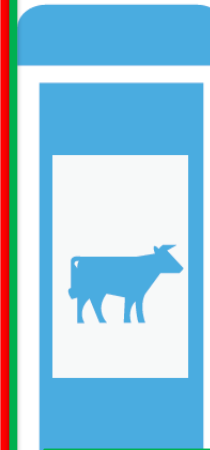
### Human & Animal Antibiotics:

Some antibiotics help humans and animals. These should only be used for therapeutic needs in animals and only with veterinarian oversight.



### Human-only antibiotics:

These are antibiotics that are not approved for use in animals.



### Animal-only antibiotics:

Animals are susceptible to different diseases and have different health requirements than humans. These antibiotics have been developed to treat

Shared Class

**MEDICALLY IMPORTANT ANTIMICROBIALS**

**NON MEDICALLY  
IMPORTANT  
ANTIMICROBIALS**

# WHO : Medically Important Antimicrobials

WHO listing (5 <sup>th</sup> revision, 2016) of critically important antimicrobials for human medicine		
Critically Important	Highly Important	Important
Aminoglycosides	Amphenicols	Aminocyclitols
Ansamycins	Cephalosporins (1 <sup>st</sup> and 2 <sup>nd</sup> generation)	Cyclic polypeptides
Carbapenems and other penems	Glycosamides	Nitrofurantoin
<b>Cephalosporins (3<sup>rd</sup> and 4<sup>th</sup> generation)</b>	Penicillins (anti-s)	
<b>Fluoroquinolone and other quinolones</b>		
<b>Glycopeptides</b>	Rimofezines	
Glycylcylines	Steroid anti	
Lipopeptides	Gramin	
<b>Macrolides and ketolides</b>	amides	
Monobactams	Sulfone	
Oxazolidinones	Tetracycl	
Penicillins (natural aminopenicillins and antipseudomonal)		
Phosphonic acid derivatives		
<b>Polymyxins (colistine)</b>		
<b>Tuberculosis and other mycobacterial drugs</b>		

**Highest Priority**

**High Priority**

**Criterion 1 (C1):** The antimicrobial class is the sole, or one of limited available therapies, to treat serious bacterial infections in people.

**Criterion 2 (C2):** The antimicrobial class is used to treat infections in people caused by either: (1) bacteria that may be transmitted to humans from non-human sources, or (2) bacteria that may acquire resistance genes from non-human sources.

**Critically important:** Antimicrobial classes which meet both C1 and C2 are termed *critically important* for human medicine.

**Highly important:** Antimicrobial classes which meet either C1 or C2 are termed *highly important* for human medicine.

**Important:** Antimicrobial classes used in humans which meet neither C1 nor C2 are termed *important* for human medicine.

(WHO 2017)



## Annex 2

### Antimicrobial classes currently not used in humans<sup>1</sup>

Antimicrobial Class	Example of drug products used in food animals
Aminocoumarins	novobiocin
Orthosomycins	avilamycin <sup>2</sup>
Phosphoglycolipids	bambermycin (=flavomycin)
Polyethers/Ionophores	lasalocid, monensin, narasin, salinomycin
Quinoxalines	carbadox, olaquinox

**Ionophores** are animal only antimicrobials that are not used in human medicine.

Ionophores are antiparasitics and are used to control coccidiosis.

Ionophores are part of solution to fight antibiotic resistance in animal and human health because they help to reduce the use of medically important antibiotics.

**Avilamycin** is an animal only antibiotic and is unrelated to any antibiotic used in human medicine.

Avilamycin helps to deliver intestinal integrity by controlling *Clostridium perfringens*.

Avilamycin is part of the solution to fight antibiotic resistance in animal and human health because it helps to reduce the use of medically important antibiotics.

1. These drug classes are currently not approved for use in human medicine for systemic use and as such are not categorized in the WHO “Critically Important” antimicrobials for human use list. Not all these drug products are used as antibacterial agents e.g. polyethers and ionophores, but they all have antibacterial activity.

2 Some of these antibiotic classes have been used in people previously or have been considered for use in people. As examples, two structurally unique ribosomal antibiotics belonging to the orthosomycin family, avilamycin (growth promoter and therapeutic use in animals) and evernimicin (previously considered for use in human medicine), possess activity against enterococci, staphylococci, and streptococci, and other Gram-positive bacteria (*Clostridium difficile* and others). With increasing emergence of multi-drug resistance among Gram-positive organisms to multiple potent antimicrobials, the need for new antibiotics is more urgent than ever before.

# EMA CATEGORIZATION of AB




Category	Antimicrobial class	Recommandations
<b>Category 1 (low risk)</b>	<b>Macrolides</b> Tétracyclines Pénicillines à spectre étroit : G, V et M (intramammaires)**. Rifampicine (usage restreint)	Responsible use. AVOID : - Unnecessary usages (or long duration trt), - Mass medication
<b>Category 2 (high risk for public health)</b>	<b>Fluoroquinolones</b> <b>C3G/C4G</b> <b>Polymyxines (colistine)</b> Aminosides* Aminopénicillines*...	More restrictive : - If no other AB is efficient - Sensitivity test required * UNDER REVIEW
<b>Category 3 (human antibiotics, no market authorization for animal health)</b>	Carbapénèmes, carboxy et uréidopénicillines, monobactames, glycopeptides, oxazolidones, fosfomycine (esters cycliques), glycylicyclines, lipopeptides, riminofénazines, sulfones...	To be kept at absolute minimum. Might be ban soon. Not to be use in food animal if no MRL

# France – Quinolones, Cephalosporins (C3, C4)

**Art. 1<sup>er</sup>.** – Les substances antibiotiques d'importance critique mentionnées aux articles R. 5141-117-1 et R. 5141-117-2 du code de la santé publique susvisés sont les suivantes :

FAMILLE D'APPARTENANCE DE LA SUBSTANCE	NOM DE LA SUBSTANCE

## FRANCE NAP OUTCOME :

- Plan 2011-2016 :  -36%
- CIA : 2013-2016
  - Quinolones :  - 71%
  - Cephalosporins :  - 81%

Pradofloxacin

# KEY MESSAGE

- Categorization of antimicrobials is key to prioritize effort
- The categorization can be different depending of local assessment of benefit-risk :
  - Macrolides : WHO consider them as “CIA”
  - Colistin : WHO and EMA treats them as “CIA”, not France

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# RESPONSIBLE USE of ANTIBIOTICS in POULTRY SECTOR

- Disease control and Biosecurity : Keep Animal Healthy
- Education of Farmers and Veterinarians
- Respect of the SPC
- Veterinary oversight and supervision
  - Vet prescription
  - Antibiotic susceptibility testing if necessary
- Rec

**This can be initiate  
“tomorrow” by poultry  
sector... and will never end!**

# OTHER ACTIONS TO MITIGATE AMR

- Resistance Monitoring
- Antibiotic Usage Monitoring Control
- Antibiotic residues Monitoring

*"If you cannot measure it,  
you cannot improve it"*

Lord Kelvin, 1824-1907

- Approval with appropriate label indications
- Research
  - New
  - Alte

**Tough, costly, never  
perfect, takes time ...a  
reason to start tomorrow!**

# KEY FOR SUCCESS

Actions against AMR cannot succeed without the sustained involvement of stakeholders, including industry, civil society, academia, and non-governmental experts but also the European Economic and Social Commission. The Commission tabled a declaration on antimicrobial resistance in 2017, which was endorsed by the pharmaceutical industry and other stakeholders. This declaration provides a roadmap for

*“you want to go fast, go alone. If you want to go far, go together”*

organisations in the global fight against AMR. In line with this initiative, regular discussions among stakeholders will encourage them to develop and share their strategies against AMR. Cooperation with industry is also crucial to promote the development of other promising alternatives to antimicrobials and to address reduced availability issues, including antimicrobial withdrawals from the market that may lead to antimicrobial shortages and inadequate replacement treatments.

[http://www.ema.europa.eu/docs/en\\_GB/document\\_library/Work\\_programme/2009/12/WC500018180.pdf](http://www.ema.europa.eu/docs/en_GB/document_library/Work_programme/2009/12/WC500018180.pdf)



# TO CONCLUDE

- One Health
- AMR is a major concern
- Global Policies to be implement locally
- Need to prioritize among Medically Important Antibiotics
- Fighting AMR require to involve every stakeholder
- Looking for perfection leads to inaction 😊