



Department
for Environment
Food & Rural Affairs

Importance of biosecurity and managing farm waste and environment to limit AMR spread: a perspective from UK

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Department
for Environment
Food & Rural Affairs

Department of Health | Department for Environment Food & Rural Affairs

UK Five Year Antimicrobial Resistance Strategy 2013 to 2018

Northern Ireland Executive | Ddiwydwrth Cymru Welsh Government | The Government of Wales

GLOBAL ACTION PLAN ON ANTIMICROBIAL RESISTANCE

WHO

Review on Antimicrobial Resistance

TACKLING DRUG-RESISTANT INFECTIONS GLOBALLY: FINAL REPORT AND RECOMMENDATIONS

THE REVIEW ON ANTIMICROBIAL RESISTANCE CHAIRED BY JIM O'NEILL

WHO 2016



O'Neill review – recommendations

- Public awareness
- Hygiene, preventing infection spread
- Unnecessary use in agriculture; environment
- Surveillance in people and animals
- Rapid diagnostics
- Vaccines & alternatives
- Human capital (health, academia, commercial)
- Global Innovation Fund
- Investment in new drugs
- Global coalition



O'Neill review – On the environment in particular:

- Flags the need to reduce antibiotic environmental pollution from
 - animal waste,
 - human waste and
 - manufacturing waste
- ...and recommends establishing systematic monitoring of waste products from the antibiotic manufacturing process



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AMR Independent review – UK government commitments



Overall antibiotic reduction target

Overall target of 50 mg/kg across the animal sectors by 2018.

2014 baseline (62 mg/kg). Represents 20% reduction in 4 years.



Sector specific targets

Evidence-based goals for each individual livestock species sector agreed by 2017.



Critically Important Antibiotics

Strict oversight of the use of in animals of antibiotics critical for human health.

Supporting restrictions or even bans where necessary.



AMR Independent review – UK government commitments



Sector specific targets

Evidence-based
goals for each
individual livestock
species sector
agreed by 2017.

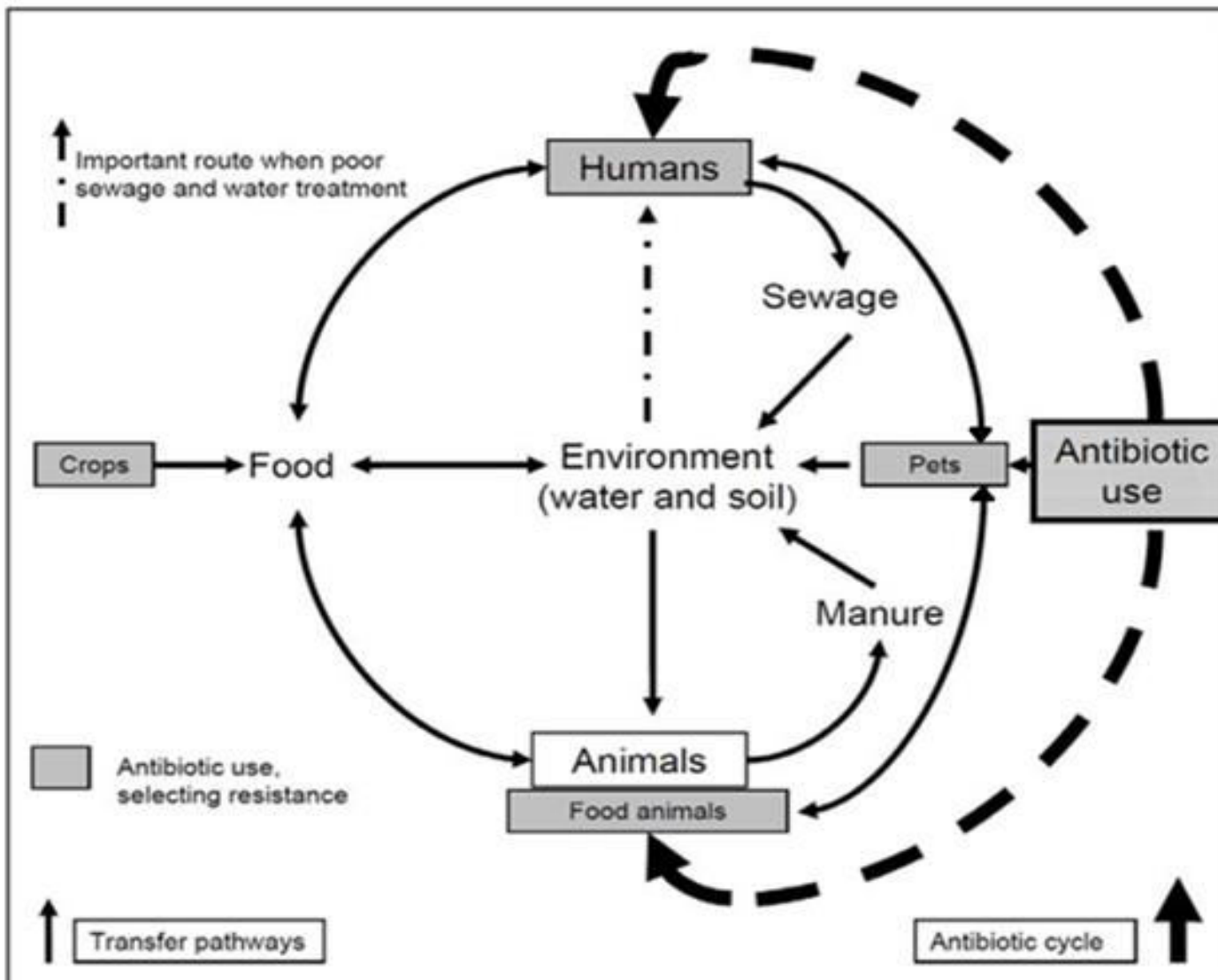


In overview:

- Antibiotic use **reduction** targets
- Antibiotic **stewardship**, including restrictions/bans on use in animals of critically important antibiotics for humans
- Improved **surveillance** – use and resistance
- **Prevention of disease**, use of vaccines, use of alternatives, biosecurity: farm hygiene, quarantine etc.



Where does farm waste fit in?





The current situation in the UK:

Issue:

- the spreading of manure provides a route for **bacteria, resistance genes, antibiotics**, to pass from livestock to the environment, food crops, other animals and people
- We have legislation and guidance on handling animal waste and spreading it on land, but it largely **based on zoonotic pathogens**.
- We have used this to inform our risk assessments and develop guidance in an AMR context.



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Volume 16, No. 2, p161–168, February 2016

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Articles

Emergence of plasmid-mediated colistin resistance mechanism MCR-1 in animals and human beings in China: a microbiological and molecular biological study

Yi-Yun Liu, BS[†], Yang Wang, PhD[†], Prof Timothy R Walsh, DSc, Ling-Xian Yi, BS, Rong Zhang, PhD, James Spencer, PhD, Yohei Doi, MD, Guobao Tian, PhD, Baolei Dong, BS, Xianhui Huang, PhD, Lin-Feng Yu, BS, Danxia Gu, PhD, Hongwei Ren, BS, Xiaojie Chen, MS, Luchao Lv, MS, Dandan He, MS, Hongwei Zhou, PhD, Prof Zisen Liang, MS, Prof Jian-Hua Liu, PhD  , Prof Jianzhong Shen, PhD  

[†] Contributed equally

Published: 18 November 2015

 1,708

DOI: [http://dx.doi.org/10.1016/S1473-3099\(15\)00424-7](http://dx.doi.org/10.1016/S1473-3099(15)00424-7) |  CrossMark

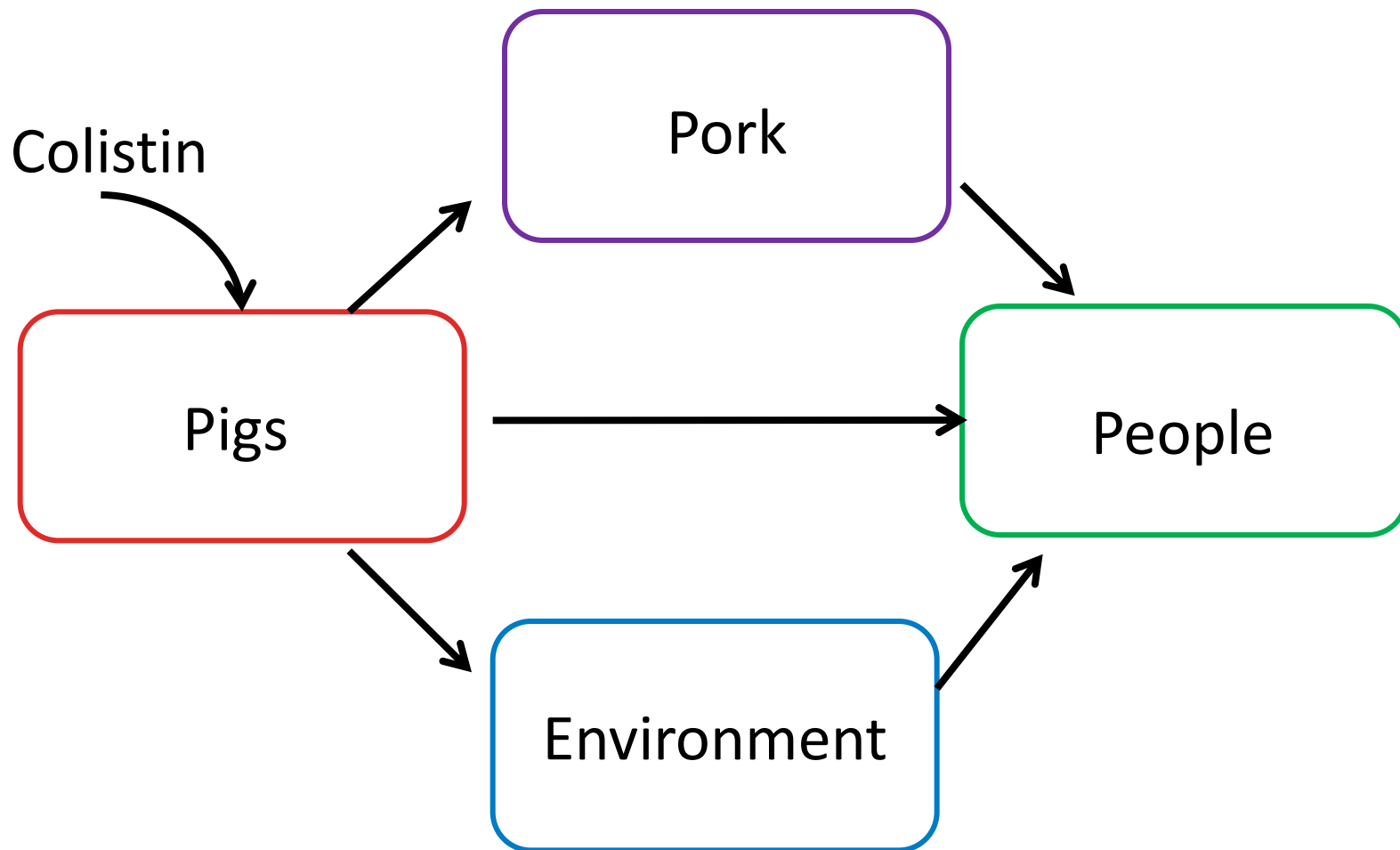


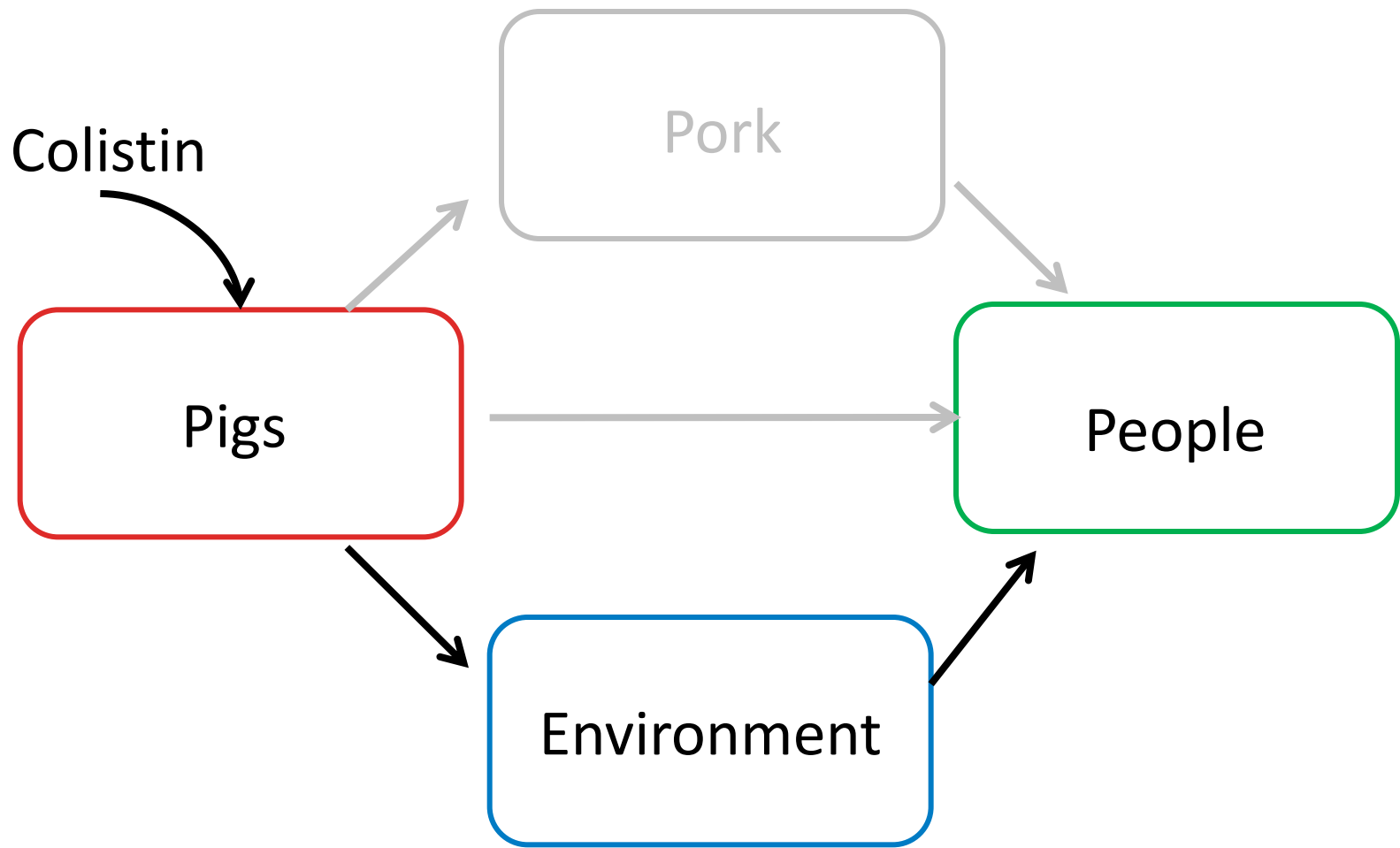
 Article Info

This article can be found in the following collections: [Anti-infective therapy](#); [Healthcare-associated infections](#); [Infectious diseases-other](#)



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Guidance developed:

- <https://www.gov.uk/guidance/handling-of-manure-and-slurry-to-reduce-antibiotic-resistance>
- This guidance provides information on methods of disposal of farm animal waste which will help to reduce the survival and spread of (resistant) bacteria in the environment.



Recommendations:

- Stacking and storage of manure
- Composting of manure
- Storage of slurry
- Anaerobic digestion of slurry and/or manure
- Spreading manure/slurry on land
- Transport requirements

- Food Standards Agency requirements for ready to eat crops



Biosecurity guidance:

- In the UK, guidance is available online from government and agriculture industry sources.
- Northern Ireland definition of biosecurity:
 - “Biosecurity is the prevention of disease-causing agents entering or leaving any place where they can pose a risk to farm animals, other animals, humans, or the safety and quality of a food product.”



Recommendations:

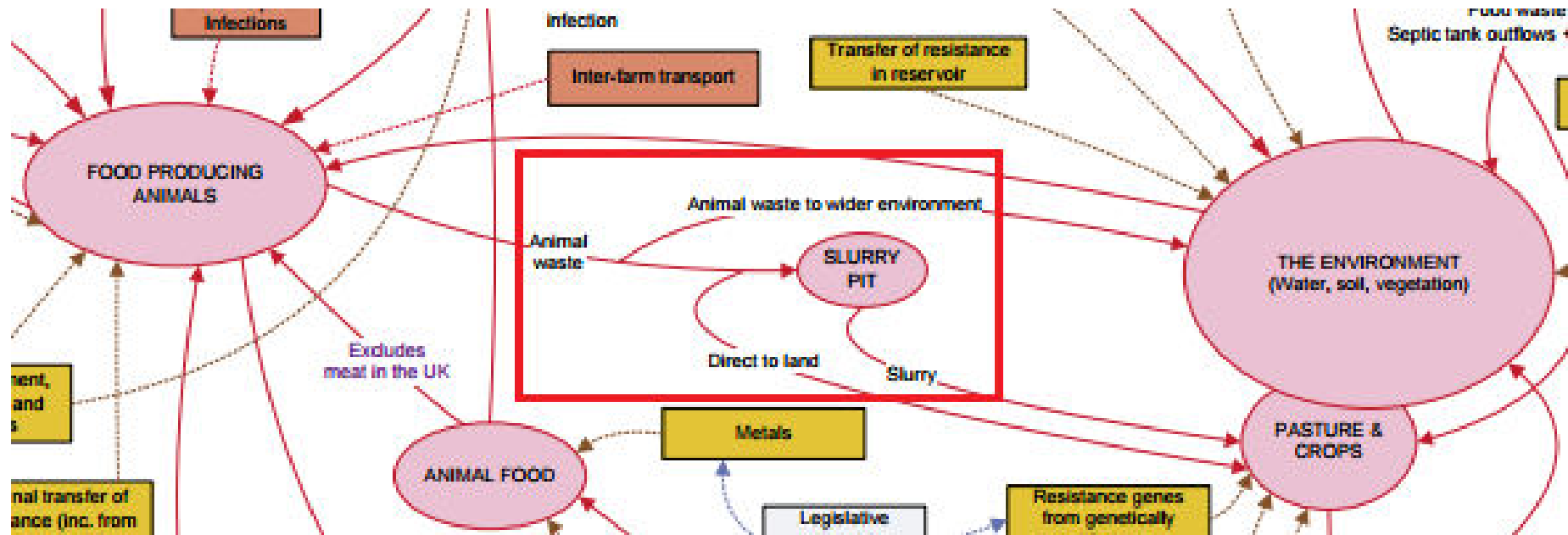
- Planning to avoid disease: the Health Plan
- Reducing risks
- Vehicles
- Buildings and equipment
- People
- Animal Medicines
- Slurry and manure
- Records and traceability
- Wildlife
- Feed and water
- Dogs and cats





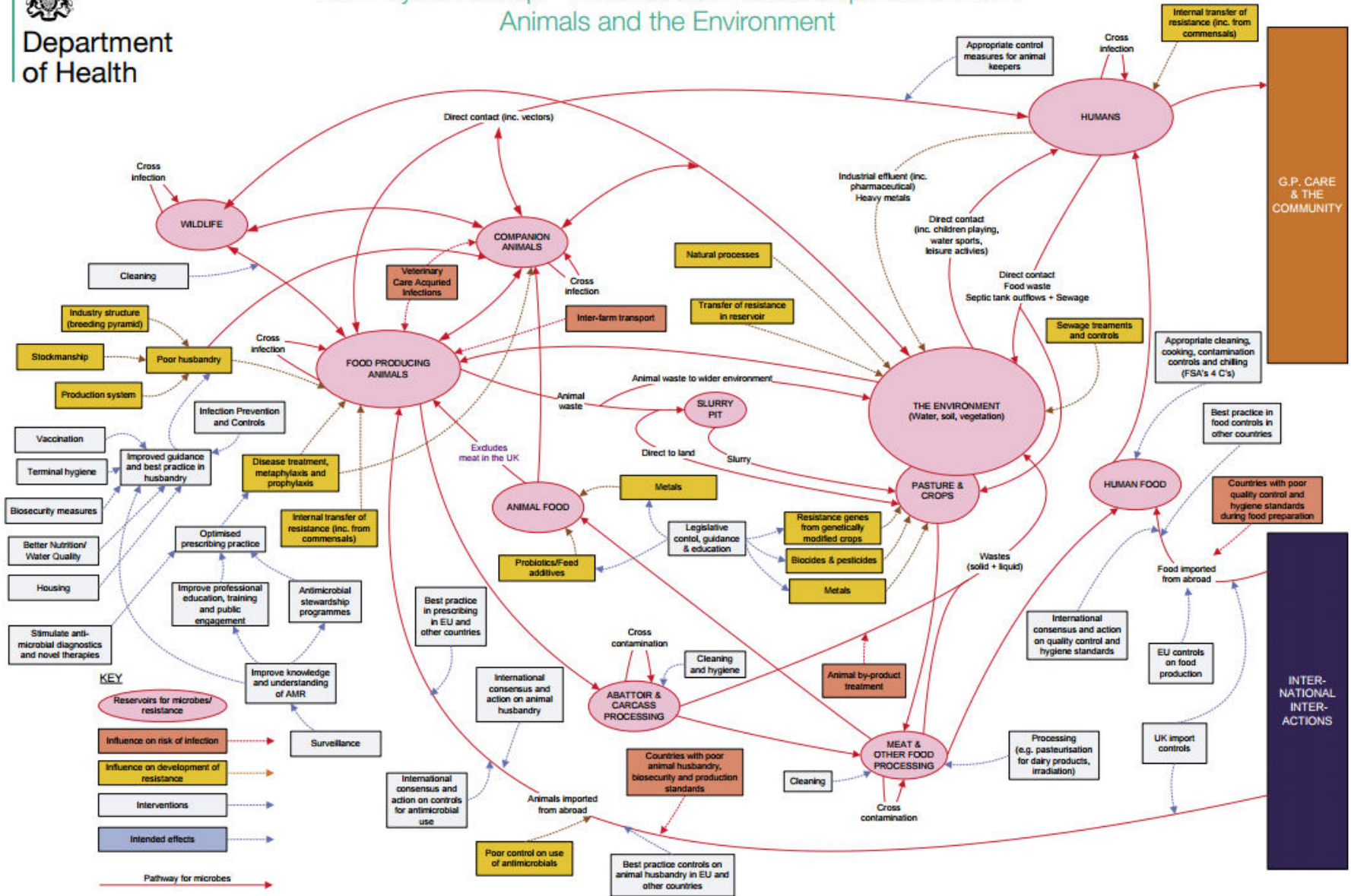
Recap:

- Antibiotic use **reduction** targets
- Antibiotic **stewardship**, including restrictions/bans on use in animals of critically important antibiotics for humans
- Improved **surveillance** – use and resistance
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AMR Systems Map – Influences on the development of AMR Animals and the Environment



G.P. CARE & THE COMMUNITY

INTERNATIONAL INTER-ACTIONS