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

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GLOBAL ACTION PLAN ON ANTIMICROBIAL RESISTANCE

TACKLING DRUG-RESISTANT INFECTIONS GLOBALLY: FINAL REPORT AND RECOMMENDATIONS

THE REVIEW ON ANTIMICROBIAL RESISTANCE CHaired BBy JIM O'MEILL
MAY 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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Overall target of 50 mg/kg across the animal sectors by 2018.

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

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

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

Supporting restrictions or even bans where necessary.

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<th>Sector specific targets</th>
<th>Critically Important Antibiotics</th>
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AMR Independent review – UK government commitments

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

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Guidance developed:


- 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

• **Prevention of disease**, use of vaccines, use of alternatives, biosecurity: farm hygiene, quarantine etc.