Accessibility of antibiotics in low-income countries

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CGIAR AMR Hub mitigating agricultural associated AMR risks

Partnerships

- AMU, drivers drug supply chain
- Prevalence & Transmission
- Capacity Building
- Policy
- Interventions

National partners e.g. MAAIF in Uganda
Global Project Activities

- AMU, drivers, KAP
- AMR Prevalence & Transmission (interfaces)
- Interventions incl. economic impact
- Cap. Building (lab capability and mentorship)

Other AMR projects
- AMU and AMR in crop production
- Fate and transport in water bodies
- AMR in wildlife and bushmeat
How do farmers access antibiotics?

- Why do farmers use antibiotics?
  - Therapeutic vs. Non-therapeutic (Prophylaxis, Metaphylaxis, Growth promotion)

- Factors affecting availability of antibiotics within a country

- Who makes the diagnosis and determines treatment?
  - Veterinary surgeons
  - Veterinary para-professionals (need to be supervised by a vet. surgeon)
  - Extension officers (training and assistance to farmers)
  - Farmer’s influence and economy
  - Knowledge, attitudes and practices

- Where can farmers buy antibiotics?

- Who ultimately administers antibiotics?
Antibiotic supply chain

- Antibiotics are typically imported by a national procurement agency, private, NGOs
  - dependent on global availability
  - local import regulations (very complex -> shortcuts)

- Within country: regional differences impacts availability e.g. rural vs. urban

- Price influences availability

- Illegal entry of drugs including smuggled products
Quality of antibiotics

- WHO noted 17% of antibiotics in LMICs are substandard or counterfeit
  - Complex regulations, poor communication between governing bodies, weak enforcement, corruption → infiltration of poor quality drugs
  - Manufacturers produce lower quality products for less regulated markets
  - Insufficient capacity to assess drug quality

- Lack of proper transportation, storage and enforcement of regulation → affects drug quality, e.g. no cold storage

- Complex distribution chain → no infrastructure to do recalls

- No compensation of retailers for expired drugs
  - Continued sales
How are farms animals treated?

• Two scenarios
What happens if an animal is sick?

Danish model

- **Sick animal**
- **Farmer with a contract**
- **Farmer without a contract**

### Farmer without a contract
- Calls a vet and visits the farm
- Vet makes a diagnosis + determines treatment
- Vet administers

### Farmer with a contract
- New infection
- Calls the vet and visits the farm
- Vet makes a new diagnosis
- Vet administers
What happens if an animal is sick?

*Low and middle-income setting*

- **Sick animal**
  - Calls an agrovet
  - Self diagnose
  - Calls a friend
  - Visits the farm
  - Diagnosis + treatment
  - Phone consultation
  - Vet buys from agrovet
  - Vet/EO administers
  - Agrovet administers
  - Farmers administers
  - Farmers buys from kiosk
  - Farmers buys from agrovet
  - Farmers borrows treatment
  - Farmer visits agrovet
  - Agrovet diagnoses + treatment
  - Agrovet visits farm
  - Farmer visits farm
  - Farmers administers
  - Vet buy from agrovet
  - Vet/EO administers
  - Agrovet administers
  - Farmers administers
  - Farmers buys from kiosk
  - Farmers buys from agrovet
  - Farmers borrows treatment
  - Farm visit
Where do farmers buy their antibiotics?

• Formal sector: Regulated by policies
  • Pharmacy – typically sell human drugs
  • Drug store – typically sell vet drugs
  • Agrovet – one stop agricultural shop
  • Animal health practitioners (Vets/EO)

• Informal sector: Unregulated
  • Local kiosk/store-Human & vet drugs
  • Open markets – Human and vet drugs
  • Pharmaceutical reps visiting farms
  • Other farmers
  • Unqualified practitioners
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