Disease control tools to secure animal and public health in a densely populated world

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*DISCONTOOLS project manager
Achieving planetary health
DISCONTOOLS database

1) Disease database – 55 diseases
2) Gap analysis – diagnostics, pharmaceuticals, vaccines
3) Prioritisation model
Applications

Development of research agendas by public and private institutions

Development and evaluation of research proposals

Veterinary education programmes
Priority diseases?

- Henipah viruses
- ASF
- CBPP
- PPR
- Avian Influenza
- RVF
Diagnostics

Vaccines

Therapeutics

Zoonotic  Endemic  Epidemic

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One Health

- DisconTools
Diagnostic gaps

• Harmonisation, validation and reference panels
• Active surveillance
• DIVA tests
• Going beyond detection of infection
• Exploit rapid technological advances
• Availability in resource-constrained settings
Vaccine gaps

• Vaccines already available
  – Multivalent vaccines
  – Improved delivery methods
  – Improving DIVA performance
  – Animal free models

Convenient, single-shot vaccine with long lasting immunity
Vaccine gaps

- No vaccines available
  - Overcome inhibition through maternal antibodies
  - Elicit mucosal immunity
  - Host immune and immune evasion mechanisms
  - Host-specific immunology models
Therapeutic gaps: AMR

• Bacterial pathogens
  – Antimicrobial stewardship
  – Alternatives to traditional antibiotics
  – AMR ≠ AMU
    • Human-animal AMR transmission
    • Cross-resistance
    • Resistance-limiting treatment regimes
Therapeutic gaps: APR

- Parasitic pathogens (protozoa, helminths, arthropods)
  - Integrated control
  - Vaccines, nutraceuticals
  - Deepen understanding of resistance mechanisms
    - Diagnostics and targeted use
    - Chemo-sensitisation
    - Novel anti-parasiticides
The big 5 in animal health research

1) Vaccinology
2) Antimicrobial resistance
3) Climate mitigation and adaptation
4) Digital health
5) Preparedness
Thanks to:

- > 400 experts
- Stakeholders
- Funders

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Thank you!

Further reading:
- DISCONTOOLS e-book
- DISCONTOOLS special issue TBED
- ...