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Food safety controls across the agri-food chain

Dr Hein Imberechts

Science at the service of safe food production and animal health

EU-China expert seminar
Brussels, October 27th 2016

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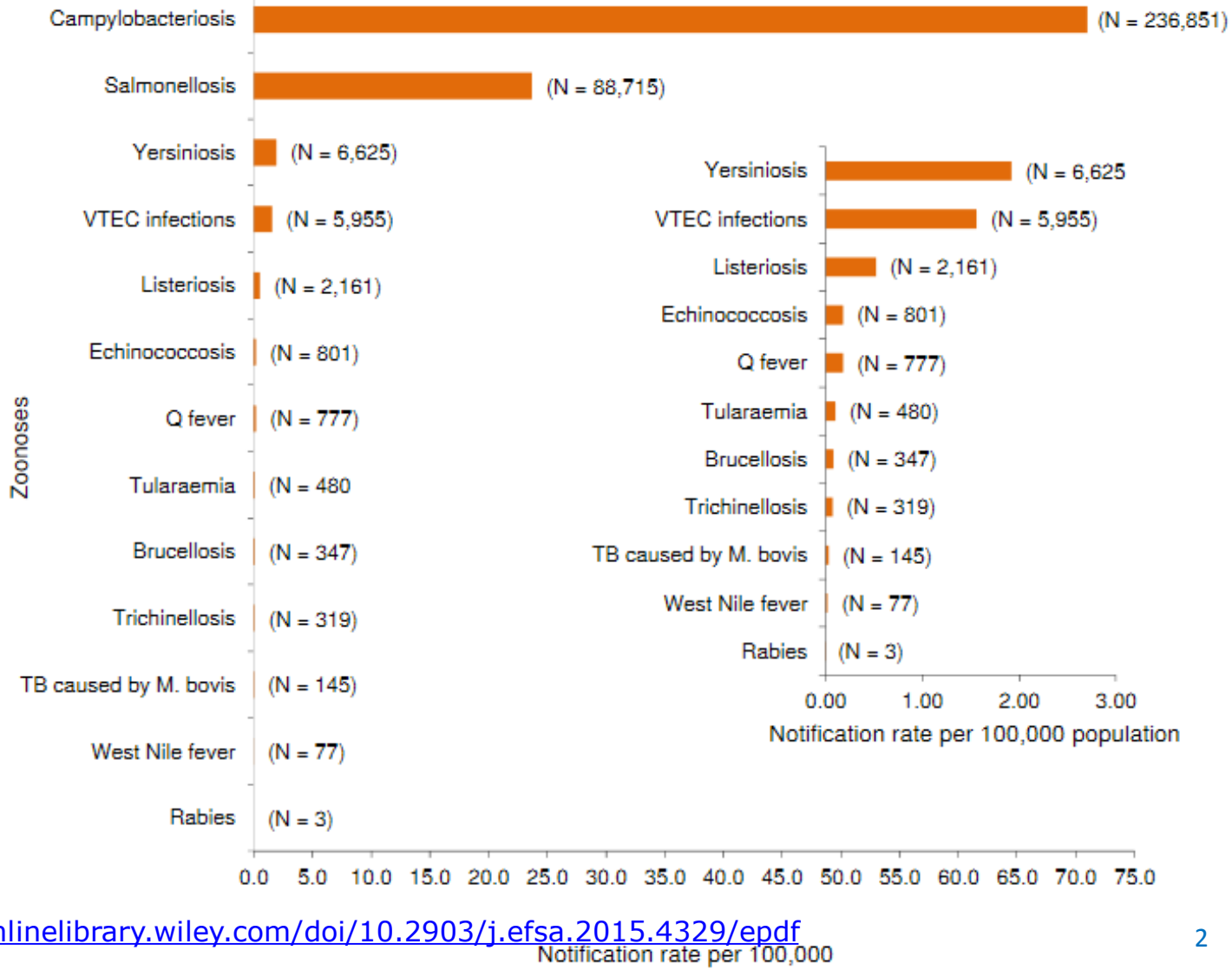
EFSA Trends & Sources, data 2014

- Notification of human confirmed cases of zoonoses



 http://onlinelibrary.wiley.com/doi/10.2903/j.efsa.2015.4329/epdf

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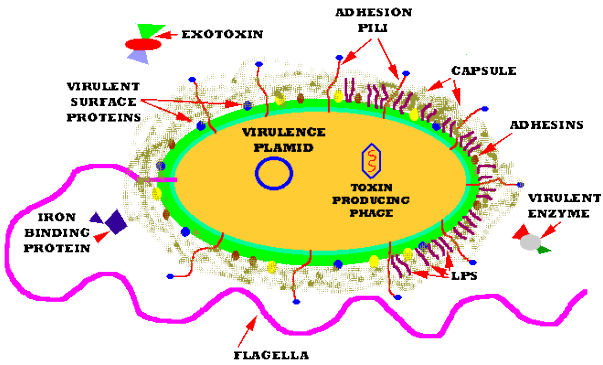
Challenge: obtain acurate figures

- Analytical methods
  - Comparable methods, quality control ? Need for harmonization & validation
  - Emerging, unknown threats ?
  - Through direct or indirect tests ?
    - The case of *Salmonella*
- Host-microbe interaction
  - Genes involved > virulence factors
  - Are all virulent ? How to determine ?
    - Strain virulence ? Link with disease ?
    - Eg: isolate needed to identify VTEC / AMR
- Epidemiology
  - Harmonized surveillance programmes, if at all !
  - Various reporting systems
  - Laboratory habits, health insurance systems, …



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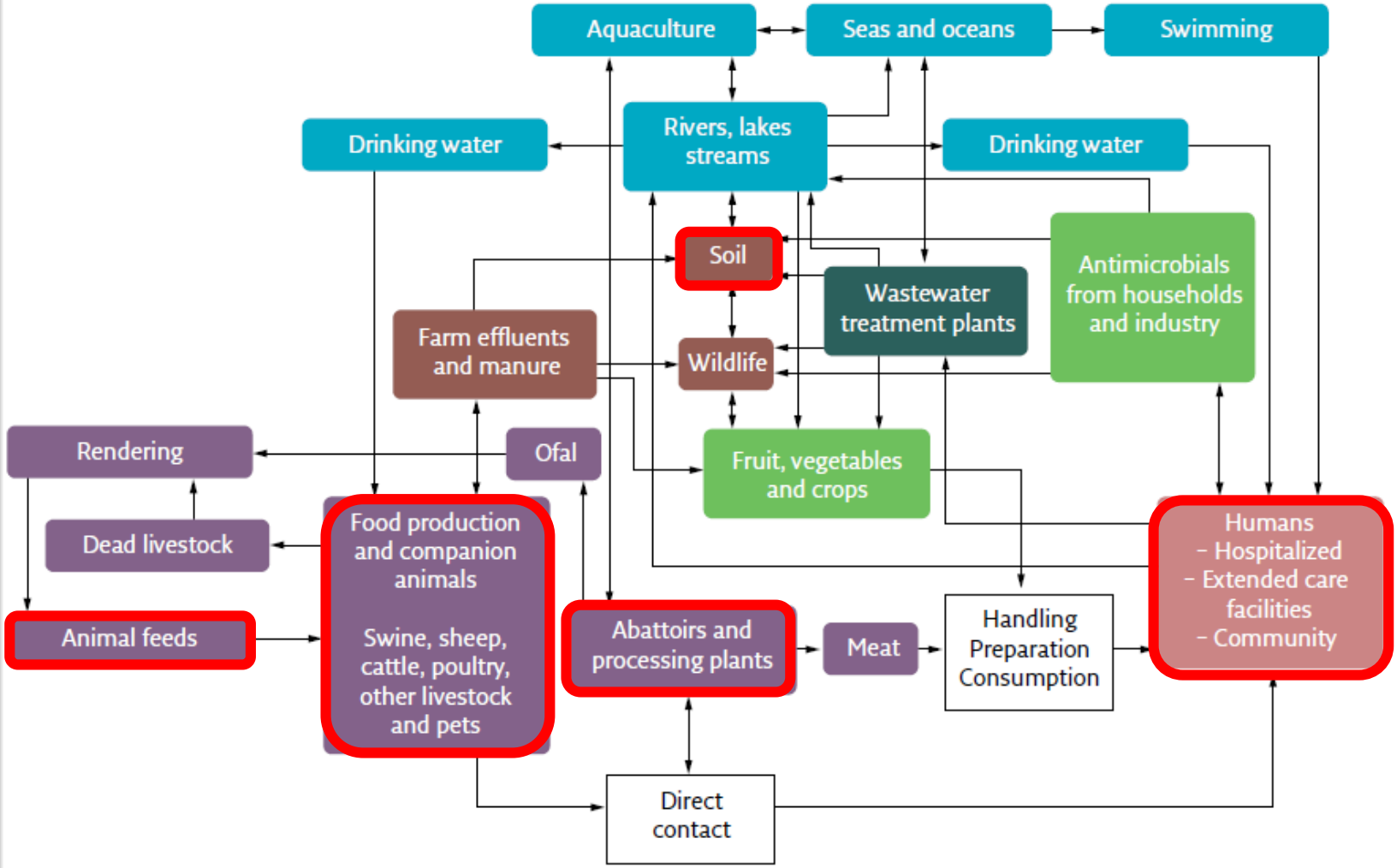
One Health, ex: AMR



JPIAMR, SRA, December 2013

Figure 2 The complex interplay between different sectors in the spread of AMR. Adapted from Davies & Davies, 2010. Microbiol. Mol. Biol. Rev. 74:417-433, reproduced and modified with permission.

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Challenges for improvement

- Analytical methods, detection methods
  - Fast, good quality, cheap & on site!
  - Multivalent
  - Detection of pathogen
    - Isolation: Link to disease, risk ?
    - DNA: living or not ?
  - Host reaction: serological tests
    - Sensitivity & specificity, antigen
- Pathogenesis
  - Both applied and fundamental research needed
  - Identification of specific antigens/genes
  - Identification of reservoirs, routes of infection, …

Challenges for improvement

- Epidemiology
  - Appropriate accurate surveillance systems, alert & early warning
  - Modelling of infection routes and source attribution
  - Drivers identification and description
  - Cost-benefit analysis

- Intervention & prevention
  - Good management practices: primary production (vets, biosecurity, …), laboratory, abattoir, cutting plants, distribution, kitchen
  - Compliance
  - Scenario building
  - Data quality, data sharing, experience sharing
  - Vaccine development

Risk analysis

- Consumer protection is important and should be based on scientific risk analysis (<> urgency, precautionary principle)
  - Alternative: standards (norms) or international directives
- Expertise is required
  - For instance EFSA's Scientific Committee and Panels
  - Also available in various / all member states
- Risk Analysis, *Codex Alimentarius*
  - Risk assessment
    - Identification and characterization of the hazard, estimation of exposure and risk characterization
  - Risk management
  - Risk communication

- Indications of where to sample, frequency, number of samples, …