BfR
Bundesinstitut für Risikobewertung

Challenges in Research and Risk Assessment Field

Annemarie Käsbohrer

(on behalf of Bernd Appel)

National Reference Laboratory for Antimicrobial Resistance

Germany

Research and specific data needs

- A global research agenda should **complement** National and European initiatives, involving all relevant stakeholders
- More clarity on the **factors** guiding emergence and selection of resistant bacteria is needed
- **Quantitative source attribution** should be enabled to understand better the impact of different sources (e.g. animal populations) and pathways
- The impact of **human use** on animal health should be addressed (e.g. spread of carbapenemases)
- The effectiveness for the **food chain** and the relevance for public health as well as the spread into the environment should be considered

Emerging risks

- Current monitoring system covers **known risks** in major animal populations, but not each animal population is covered, and those covered can not be monitored continuously
- We have several gaps, most probably we will **miss new mechanisms**, **new risks**
- We have detected quite lately very important emerging risks, e.g. MRSA, ESBL
- **Shifts in use patterns** may trigger the emergence of new resistance types. Will we miss the spread of carbapenemase producing strains in livestock populations?
- What about food of **vegetable** origin (e.g. imported fruits)?
- What about **wildlife** (e.g. migratory birds) as vectors?
- What about **sewage plants** as source for spreading risks?

Impact of trade and travel

- Antimicrobial usage policies are **quite different** globally. Trade may have a major impact on the spread of antimicrobial resistance
- **Trade of animals** will increase the risk of introduction bugs into the livestock populations, health certificates does not cover these risks
- **Trade of goods** increases the risk of exposure of human populations, and spreading of resistant bacteria
- **Travel of humans** is very relevant, as new resistance types (e.g. NDM) have been imported into our countries
- Traceability of goods is insufficient. Transmission pathways can hardly be identified, emerging new resistance mechanisms may spread widely before the true origin has been identified