Update on the epidemiology of ARM in food-producing animals and food in the EU

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‘One Health’ Network on Antimicrobial Resistance
5 February, 10:00 – 18:00
CCAB - Rue Froissart 36 – 1040 - Brussels
European Union Summary Report on AMR (annually)

- EU Member States
- Other European countries

Human cases of food-borne infection:
  - *Salmonella*
  - *Campylobacter*

**EU Summary Report on AMR**

Zoonotic bacteria:
- *Salmonella*
- *Campylobacter*

Indicator bacteria:
- *E. coli* (non-pathogenic)
- *E. faecium, E. faecalis*

Other bacteria:
- MRSA

RESISTANCE IN SALMONELLA SPP. IN FOOD PRODUCING ANIMALS

- Important resistance
- Marked variation between MSs
- Impact of the distribution of serovars
RESISTANCE TO CIA IN SALMONELLA SPP.

- Important resistance to fluoroquinolones (CIP) in Broilers and Turkeys
- Very low resistance to C3G (CTX)
- Very low to no co-resistance to CIAs
RESISTANCE IN INDICATOR E. COLI IN FOOD PRODUCING ANIMALS
RESISTANCE TO CIAS IN INDICATOR *E. COLI*

- Important resistance to fluoroquinolones (CIP) in Broilers and Turkeys
- Very low resistance to C3G (CTX)
- Very low co-resistance to CIAs: There are outliers for Broilers!
Important resistance to fluoroquinolones (CIP)

Low resistance to Macrolides (ERY)

Low combined resistance to CIAs in poultry: there are outliers for broilers!
Indicator *E. coli* from broilers

Decreasing trends in AMR observed in MSs where control programme is in place
North-South gradient
3rd-generation cephalosporin resistance

Occurrence of presumptive ESBL-/AmpC-producing Salmonella spp. 2015-2016

- Broilers (N=1,717) (2016): 0.6%
- Laying Hens (N=1,216) (2016): 0.2%
- Fattening Pigs (N=91) (2015): 0.1%
- Pigmeat (N=443) (2015): 0.5%
- Chicken (N=763) (2016): 2.1%
- Turkey meat (N=295) (2016): 0.7%
- Humans (N=8,746) (2016): 0.8%

Categories:
- ESBL
- AmpC
- ESBL + AmpC
Indicator *E. coli* 2015 - 2016

- Presumptive ESBL/AmpC producing *E. coli*

**Occurrence of presumptive ESBL-/AmpC-producing E. coli 2015-2016**

<table>
<thead>
<tr>
<th>Category</th>
<th>% Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broilers</td>
<td>1.3</td>
</tr>
<tr>
<td>Turkeys</td>
<td>2.6</td>
</tr>
<tr>
<td>Pigs</td>
<td>1.0</td>
</tr>
<tr>
<td>Veal Calves</td>
<td>1.4</td>
</tr>
</tbody>
</table>

**Legend:**
- ESBL
- AmpC
- ESBL + AmpC
ESBL-/AmpC-producing *E. coli* - 2016

**Prevalence (in %)**

<table>
<thead>
<tr>
<th></th>
<th>ESBL</th>
<th>AmpC</th>
<th>ESBL + AmpC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat from broilers (27 MSs)</td>
<td>35.9</td>
<td>26.8</td>
<td>2.0</td>
</tr>
<tr>
<td>Broilers (27 MSs)</td>
<td>35.4</td>
<td>24.4</td>
<td>2.6</td>
</tr>
<tr>
<td>Fattening turkeys (11 MSs)</td>
<td>36.6</td>
<td>7.2</td>
<td>1.7</td>
</tr>
</tbody>
</table>
ESBL PREVALENCE IN BROILERS (2016)
ESBL PREVALENCE IN MEAT FROM BROILERS (2016)
ESBL PREVALENCE IN TURKEYS (2016)
RESISTANCE TO CARBAPENEMS IN 2015

- Specific monitoring of carbapenemase-producing *E. coli*
  - Meat from pigs: 8 MSs – 1,833 samples
  - Fattening pigs: 10 MSs – 2,584 samples
  - Meat from bovines: 8 MSs - 1,818 samples
  - Bovine animals: 3 MSs – 682 samples
  - Calves: 2 MSs – 516 samples

  ➢ No positive results detected

- Other (routine) monitoring
  - 2 carbapenemase-producing *E. coli* detected
  - in the pig sector in **2 MSs** in 2015
15 carbapenemase producers from poultry and its meat in 3 MSs

Routine monitoring of resistance
- Cyprus: 1 isolate from broilers

Specific monitoring: ESBL-/ AmpC-/carbapenemase producing E. coli
- Cyprus: 8 isolates from meat from broilers
- the Netherlands: 1 isolate from meat from broilers

Voluntary specific monitoring of carbapenem-producing E. coli
- Romania: 2 isolates from broilers and 1 isolate from broiler meat,
- OXA-48-producing E. coli detect
- Cyprus: 1 isolate from broiler meat, and 1 isolate from broiler.
OVERVIEW OF AMR IN THE EU

- New legislation successfully implemented by MSs
- Enlarged scope of AMR monitoring
- Frequent resistance to Fluoroquinolones observed
- Low resistance to other Critically Important Antimicrobials
- Low occurrence of ESBL/AmpC producers
- Prevalence of ESBL/AmpC-producing *E. coli* assessed in 2016
- Carbapenemase producers detected in broiler sector in 2016

Continually evolving threat from emerging AMR: There is a need to review the data collected, interpret the findings and assess trends.
Thank you for your attention!