Consumo y venta de antibióticos para uso en animales en Europa

Jornada sobre Transmisión de Resistencia entre Humanos y Animales
Plan Nacional frente a la Resistencia a los Antibióticos (PRAN)
Fundación Ramón Areces

Presentado por Jordi Torren, Madrid, 5 de junio de 2018
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More and more bacteria are becoming resistant to antibiotics.

Existing antibiotics may become ineffective, and there are few new antibiotics entering the market, posing a serious risk to public health.
Cost of AMR

• 25,000 patients die annually in the EU alone as a result of infections caused by resistant bacteria.

• Globally this number could be as high as 700,000.

• 10 million deaths per year are projected between 2015 and 2050
WE WORK TOGETHER
TO FIGHT ANTIBIOTIC RESISTANCE
KEEPING EUROPEANS HEALTHY

European Medicines Agency (EMA)

European Centre for Disease Prevention and Control (ECDC)

European Food Safety Authority (EFSA)

European Environment Agency (EEA)

Together we keep Europeans healthy by ensuring antibiotics remain effective.
The fight against AMR

- “One health approach”; veterinarians, environment and human sectors
- Close cooperation with EC and sister Agencies, ECDC and EFSA, on the AMR strategy
- Cooperation with international partners, e.g. Transatlantic Taskforce on Antimicrobial Resistance, WHO, OIE, FAO, Codex Alimentarius
The global fight against AMR

The EU is not alone in recognising the threat of AMR and in addressing this issue at the highest political level. Many countries outside of the EU, as well as international organisations, are tackling this issue. International cooperation is a key element of the AMR action plan.
Current challenges and policy options

• To tackle AMR we need a sustainable pipeline of antimicrobials and alternatives.
• R&D scientifically challenging with low success rate.
• New Antibiotics are not profitable.
• New antibiotics will be kept in reserve.
• More infection control, prudent use and surveillance happening/expected.
Current challenges and policy options (2)

• New business models for antibiotics necessary to reward innovation.
• Alternatives to antibiotics to be explored, e.g. phages, vaccines.
• Key role of rapid-diagnostic tests to foster rational use.
Antimicrobials in the veterinary sector

• No truly new antimicrobial classes have been introduced in recent years.

• Responsible use of antimicrobials is regarded a cornerstone to contain resistance for benefit of both animal and human health.

• Improved livestock management, including biosecurity.

• Reduction of antimicrobial use in animals is a target.

• EU: no growth promoters since 2006.

• Need for effective antimicrobial treatment of animals.
Sales of all antimicrobials for food-producing animals, in mg/kg animal biomass, for 30 countries, for 2015
Overall reduction of use of antimicrobials in animals in the EU

- Overall reduction of antimicrobials used in animals in the EU (ESVAC)
- Some countries massive reduction (France, Netherlands, Germany...)
- Setting targets works
### Indicators

<table>
<thead>
<tr>
<th>Country</th>
<th>Overall sales</th>
<th>3-4 gen. cephalosporins</th>
<th>Polymyxins</th>
<th>All Quinolones (fluoroquinolones + other quinolones)</th>
<th>Fluoroquinolones vs all quinolones</th>
<th>Proportion %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>50.7</td>
<td>0.2</td>
<td>1.6</td>
<td>0.5</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>150.1</td>
<td>0.4</td>
<td>2.7</td>
<td>2.3</td>
<td>45%</td>
<td></td>
</tr>
<tr>
<td>Bulgaria</td>
<td>121.9</td>
<td>0.2</td>
<td>3.6</td>
<td>5.7</td>
<td>94%</td>
<td></td>
</tr>
<tr>
<td>Croatia</td>
<td>100.0</td>
<td>0.2</td>
<td>2.5</td>
<td>4.2</td>
<td>82%</td>
<td></td>
</tr>
<tr>
<td>Cyprus</td>
<td>434.2</td>
<td>0.3</td>
<td>12.3</td>
<td>4.2</td>
<td>74%</td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td>68.1</td>
<td>0.4</td>
<td>&lt; 1 mg/PCU</td>
<td>1.7</td>
<td>97%</td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>42.2</td>
<td>0.0</td>
<td>&lt; 1 mg/PCU</td>
<td>0.4</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>65.2</td>
<td>0.6</td>
<td>1.3</td>
<td>1.8</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>20.4</td>
<td>0.0</td>
<td>0</td>
<td>0.1</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>70.2</td>
<td>0.2</td>
<td>4</td>
<td>0.7</td>
<td>47%</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>97.9</td>
<td>0.4</td>
<td>5.1</td>
<td>1.1</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>57.2</td>
<td>0.1</td>
<td>3.3</td>
<td>4.3</td>
<td>39%</td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>211.4</td>
<td>0.4</td>
<td>5.6</td>
<td>9.7</td>
<td>97%</td>
<td></td>
</tr>
<tr>
<td>Iceland</td>
<td>5.0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>51.0</td>
<td>0.1</td>
<td>&lt; 1 mg/PCU</td>
<td>0.4</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>322.0</td>
<td>0.4</td>
<td>26.1</td>
<td>6.2</td>
<td>47%</td>
<td></td>
</tr>
<tr>
<td>Latvia</td>
<td>37.5</td>
<td>0.4</td>
<td>&lt; 1 mg/PCU</td>
<td>1.1</td>
<td>99%</td>
<td></td>
</tr>
<tr>
<td>Lithuania</td>
<td>35.1</td>
<td>0.3</td>
<td>&lt; 1 mg/PCU</td>
<td>1.9</td>
<td>96%</td>
<td></td>
</tr>
<tr>
<td>Luxembourg</td>
<td>34.6</td>
<td>0.6</td>
<td>1.4</td>
<td>0.9</td>
<td>84%</td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>64.4</td>
<td>0.0</td>
<td>&lt; 1 mg/PCU</td>
<td>1.3</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>Norway</td>
<td>2.9</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td>138.9</td>
<td>0.1</td>
<td>5.9</td>
<td>8.6</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td>134.4</td>
<td>0.4</td>
<td>12.1</td>
<td>8.1</td>
<td>98%</td>
<td></td>
</tr>
<tr>
<td>Romania</td>
<td>100.5</td>
<td>0.0</td>
<td>7.4</td>
<td>6.3</td>
<td>97%</td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td>51.0</td>
<td>0.3</td>
<td>1.1</td>
<td>2.9</td>
<td>99%</td>
<td></td>
</tr>
<tr>
<td>Slovenia</td>
<td>26.4</td>
<td>0.2</td>
<td>&lt; 1 mg/PCU</td>
<td>3.1</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>402.0</td>
<td>0.3</td>
<td>34.9</td>
<td>9.7</td>
<td>92%</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>11.8</td>
<td>0.0</td>
<td>&lt; 1 mg/PCU</td>
<td>0.0</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td>50.6</td>
<td>0.2</td>
<td>&lt; 1 mg/PCU</td>
<td>0.5</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>56.7</td>
<td>0.2</td>
<td>&lt; 1 mg/PCU</td>
<td>0.3</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

ECDC, EFSA and EMA Joint Scientific Opinion on a list of outcome indicators as regards surveillance of antimicrobial resistance and antimicrobial consumption in humans and food-producing animals.

ECDC, EFSA Panel on Biological Hazards (BIOHAZ) and EMA Committee for Medicinal Products for Veterinary Use (CVMP)*
Sales in mg/kg PCU (Population Correction Unit) 2010-2015
Total sales vs increase/decrease of antimicrobial use
Colistin

Mcr-1 gen
Targets set on reduction of use of colistin
**ESVAC** (European Surveillance of Veterinary Antimicrobial Consumption)  
**Population Correction Unit (PCU)**

The main indicator is mg active ingredient normalised by the population correction unit (mg/PCU)

Estimated animal population data from Eurostat, TRACES and national statistics

**PCU domestic**
- Number of animals slaughtered x estimated weight at treatment
- Number of livestock x estimated weight at treatment

**PCU export**

**PCU import**
## Importance of the “denominator”
### ESVAC PCU and OIE animal biomass

<table>
<thead>
<tr>
<th>ESVAC PCU</th>
<th>OIE animal biomass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight at treatment</td>
<td>Weight at slaughter</td>
</tr>
<tr>
<td>Produced in the country + Import and export</td>
<td>Indigenous</td>
</tr>
<tr>
<td>Mg/PCU <strong>141</strong> (30 EU/EEA)</td>
<td>Mg/kg <strong>90</strong> (31 Europe)</td>
</tr>
</tbody>
</table>
Collection of use data by animal species

- Guidance published
- Waiting for new veterinary medicines regulation (art. 54)
- No immediate project to start collecting data by animal species
Collection of antimicrobial use by animal species in Europe

- In eleven countries data collection systems are in place for one or more species.
- In five more countries data collection system is under development.

Variation in:
- Included species/categories.
- Coverage per species.
- Initiator (e.g. government, industry).
- Data sources.
- Variables.
- Indicators.
## Targets and animal biomass

<table>
<thead>
<tr>
<th>Supply Chain</th>
<th>2016 Industry data</th>
<th>Waitrose 2016 Antibiotic usage (Mg/PCU)</th>
<th>RUMA/Industry Target 2020 (Mg/PCU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef, Veal, Venison</td>
<td>N/A</td>
<td>&lt;10</td>
<td>10</td>
</tr>
<tr>
<td>Lamb</td>
<td>N/A</td>
<td>&lt;10</td>
<td>10</td>
</tr>
<tr>
<td>Pigs</td>
<td>183</td>
<td>50-75</td>
<td>99</td>
</tr>
<tr>
<td>Dairy</td>
<td>26.2</td>
<td>15-25</td>
<td>21</td>
</tr>
<tr>
<td>Chicken</td>
<td>17</td>
<td>&lt;5</td>
<td>25</td>
</tr>
<tr>
<td>Duck</td>
<td>3</td>
<td>&lt;5</td>
<td>25</td>
</tr>
<tr>
<td>Turkey</td>
<td>86</td>
<td>10-15</td>
<td>50</td>
</tr>
<tr>
<td>Salmon</td>
<td>N/A</td>
<td>&lt;10</td>
<td>5</td>
</tr>
<tr>
<td>Trout</td>
<td>N/A</td>
<td>&lt;5</td>
<td>&lt;20</td>
</tr>
<tr>
<td>Egg *</td>
<td>0.73</td>
<td>&lt;0.5</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

*NB. No mg/PCU is available for eggs so the number of days hens are medicated are counted (%)*

### Understanding mg/PCU

\[
\frac{xx \text{ mg}}{xx \text{ kg}} = \frac{xx}{\text{mg/PCU}}
\]

1 PCU = 1 kg. For example a 50 mg/kg PCU figure for food producing animals would mean that on average, and over the course of a year, 50 mg of antibiotic active ingredient was used for every kg of bodyweight at time of treatment.

### Antibiotic use in meat revealed by UK supermarkets

Three UK supermarket chains have published figures on the amount of antibiotics used by their farm suppliers, in an effort to cut use of the medicines.
Stratification of sales data

- Project launched
- Start of pilot (Austria, Czech Republic, Denmark, France, the Netherlands and Spain)
- FDA/Health Canada
Units of measurement

- DDDvet and DCDvet produced
- 3 Long acting substances still missing
- Possible transfer to WHO Collaborating Centre for Drug Statistics Methodology
EMA/EFSA Opinion on measures to reduce the need to use antimicrobial agents in animal husbandry in the EU (RONAFA)
New Veterinary Regulation

New tools to fight AMR:
Already decreasing sales!
Conclusions and further reflections

• Overall reduction on sales of antimicrobials for use in animals.

• The action taken on specific groups of substances; colistin, fluoroquinolones, 3rd and 4th generation of cephalosporins has resulted on reductions on some countries of those substances.

• No new antimicrobials.

• The need to reduce unnecessary use of antimicrobials in all areas as part of a One Health approach is now a well defined objective in the EU, with many countries setting specific targets for antimicrobial use reduction.

• Future review of veterinary medicines -> tools to reduce AMR
Any questions?

Further information

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