



Animal &  
Plant Health  
Agency

# 2<sup>nd</sup> UK-Russia Round Table on AMR.

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Moscow, 20-21<sup>st</sup> February 2017.



# Veterinary Approaches and Priorities.

- Indicator organisms (commensals)
  - *E. coli*
  - enterococci
- Zoonotic organisms
  - *Salmonella*
  - *Campylobacter*
- Veterinary Pathogens

# Surveillance for Antimicrobial Resistance in Veterinary Bacteria in the UK.

- Healthy Animals at Slaughter
  - Indicator *E. coli*
  - Indicator enterococci ( *E. faecium*, *E faecalis*).
  - *Campylobacter jejuni*
  - *Campylobacter coli*
  - Specific monitoring
- Meat
  - Specific monitoring
- *Salmonella*
  - National control plans
  - Process Hygiene Criteria
  - UK national legislation (the Zoonoses Order)
- Veterinary Pathogens

# Surveillance for Antimicrobial Resistance in Veterinary Bacteria.

STATUTORY AND VOLUNTARY EU SURVEILLANCE.  
HEALTHY ANIMALS AT SLAUGHTER.

	Broilers 2016, 2018...	Turkeys 2016, 2018...	Pigs 2017, 2019...	Calves under 1 year old*
Indicator <i>E. coli</i>	X	X	X	X
<i>Campylobacter jejuni</i>	X	X		
<i>Campylobacter coli</i>	X (voluntary)		X (voluntary)	
Indicator enterococci	(voluntary)	(voluntary)	(voluntary)	(voluntary)

**\*UK veal calf production is < 10,000 tonnes per year.**

# Surveillance of Healthy Animals at Slaughter.

- Representative sampling of majority (>60%) of animal production.
- Therefore can extrapolate from results for the sample to the animal population for which the sample is representative.
- Relevant for consumers – measuring resistance at the point of entry of animals into the food chain.
- Focus includes antimicrobials of medical importance.



# EU Decision 2013/652/EU

L 303/26

EN

Official Journal of the European Union

14.11.2013

## DECISIONS

### COMMISSION IMPLEMENTING DECISION

of 12 November 2013

on the monitoring and reporting of antimicrobial resistance in zoonotic and commensal bacteria

(notified under document C(2013) 7145)

(Text with EEA relevance)

(2013/652/EU)

- Target number of isolates is 170.
- Tested by MIC determination against panels of antimicrobials set out in the EU Decision.
- Harmonised monitoring system – harmonised sampling and testing allows comparison between results from different EU Member States.
- Sample size of 170 enables you to
  - Detect a change of 15% in the situation of widespread resistance (50% proportion of resistance)
  - Detect an increase of 5% in the situation of few pre-existing resistant isolates (0.1% proportion of resistance).

# EU Summary Report on AMR – Broilers 2014.

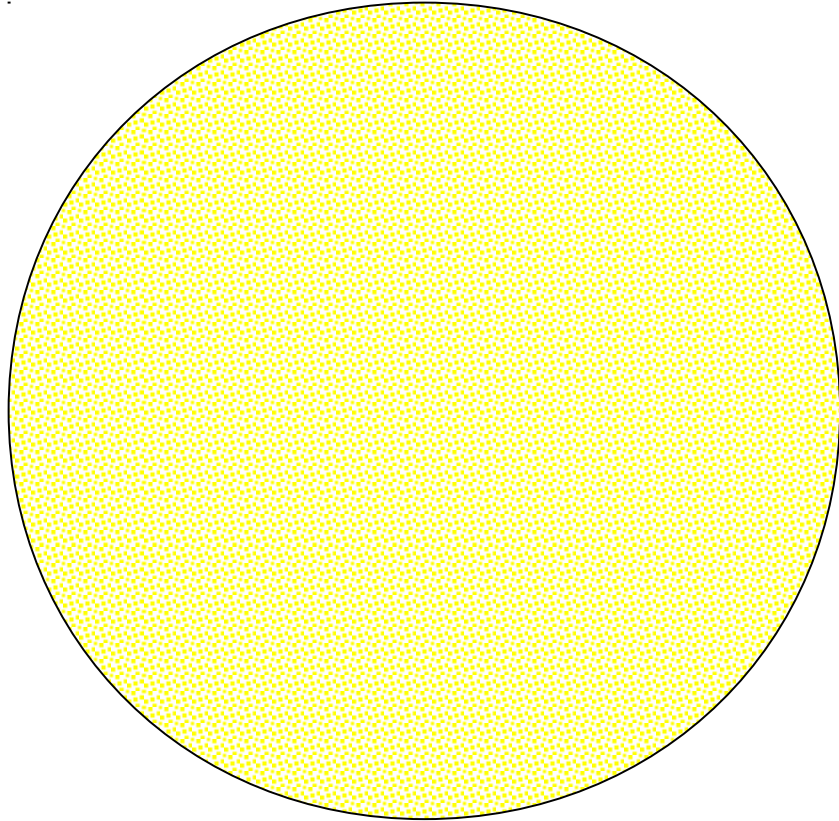
Country	Ciprofloxacin		Erythromycin		Gentamicin		Nalidixic acid	
	N	%	N	%	N	%	N	%
<i>Campylobacter jejuni</i>								
Austria	193	75.1	193	0	193	0	193	67.9
Belgium	92	60.9	92	1.1	92	0	92	60.9
Bulgaria	110	87.3	110	39.1	110	4.5	110	85.5
Croatia	65	26.2	65	0	65	4.6	65	26.2
Cyprus	69	72.5	69	11.6	69	2.9	69	71.0
Czech Republic	47	78.7	47	4.3	47	0	47	61.7
Denmark	165	17.6	165	0.6	165	0	165	17.6
Finland	88	25.0	88	0	88	0	88	25.0
France	175	61.1	175	0	175	0	175	59.4
Germany	195	66.7	195	3.6	195	0	195	55.9
Greece	80	91.3	80	0	80	0	80	77.5
Hungary	150	93.3	150	0	150	0	150	91.3
Ireland	99	27.3	99	1.0	99	0	99	27.3
Italy	261	90.0	261	3.1	261	0.8	261	75.5
Latvia	92	100	92	1.1	92	3.3	92	100
Lithuania	37	89.2	37	2.7	37	0	37	89.2
Netherlands	98	64.3	98	0	98	0	98	61.2
Poland	179	94.4	179	0.6	179	0.6	179	83.8
Portugal	240	95.4	240	11.7	240	0	240	96.3
Romania	447	76.5	447	20.4	447	3.4	447	71.6
Slovakia	11	72.7	11	18.2	11	0	11	63.6
Slovenia	77	81.8	77	0	77	0	77	77.9
Spain	80	95.0	80	0	80	0	80	78.8
Sweden	102	3.9	102	0	102	0	102	7.8
United Kingdom	165	43.6	165	0	165	0	165	44.2
<b>Total (MSs 25)</b>	<b>3,317</b>	<b>69.8</b>	<b>3,317</b>	<b>5.9</b>	<b>3,317</b>	<b>0.9</b>	<b>3,317</b>	<b>65.1</b>
Iceland	28	3.6	28	0	28	0	28	3.6

## Indicator organisms.

- Selected to represent Gram-negative commensal bacterial intestinal flora (*E. coli*) and Gram-positive intestinal flora (enterococci).
  - Ubiquitous (present in almost all animals).
  - Gram-positive and Gram-negative representatives so that both Gram-positive and Gram-negative spectrum antimicrobials can be investigated.
  - Useful for investigating the relationship between antimicrobial use and antimicrobial resistance.
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# Specific monitoring... Meat, Animals



- Caecal contents from healthy animals, collected after slaughter.
  - Meat at retail.
  - Pre-enrichment (buffered peptone water).
  - Culture using selective media – MacConkey agar plus 1mg/l cefotaxime
  - 300 samples.
  - **Detection of ESBL/ AmpC/ carbapenemase-producing *E. coli***
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# Salmonella Surveillance.

TYPE OF <i>SALMONELLA</i> SURVEILLANCE	DETAILS
<i>Salmonella</i> National Control Plans	Broilers, Turkeys, Laying hens.
Process hygiene criteria	Carcase sampling for <i>Salmonella</i> after slaughter.
Zoonoses Order	UK national legislation. <i>Salmonella</i> is a reportable disease in the UK.

# Global Emergence and Dissemination of MDR *Salmonella*.

- Multi-drug resistant *Salmonella* Rissen.
    - Emerging global serovar
    - Pigs important reservoir of MDR *S.* Rissen in some countries,
  - *Salmonella* Kentucky with high-level fluoroquinolone resistance
    - Spread in North Africa and Middle East.
    - Fluoroquinolones normally one of the first-line options for treatment of invasive salmonellosis.
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# Veterinary Pathogens.

- UK-Veterinary Antibiotic Resistance and Sales Surveillance Report (UK-VARSS).

  
Veterinary  
Medicines  
Directorate

2015



**UK-VARSS**

UK Veterinary Antibiotic Resistance and Sales Surveillance Report

- Antibiotic sales.
- Antibiotic resistance surveillance.
- Covers a wide range of veterinary pathogens.
- Summarises results of scanning surveillance performed at a network of veterinary laboratories in the UK.

# Veterinary Pathogens.

- Harmonised European scheme for testing the susceptibility of veterinary pathogens.
  - MIC determination against set panels of antimicrobials.
  - Core set of veterinary pathogens selected for inclusion:
    - *Actinobacillus pleuropneumoniae*, *Bordetella bronchiseptica*, *E. coli*, *Mannheimia haemolytica*, *Ornithobacterium rhinotracheale*, *Pasteurella multocida*
    - *Staphylococcus aureus*, *Streptococcus dysgalactiae*, *S. suis*, *S. uberis*.
  - Will provide harmonised European surveillance of the susceptibility of veterinary pathogens.
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# Joint Inter-Agency Antimicrobial Consumption and Resistance Analysis Report:



EFSA Journal 2015;13(1):4006

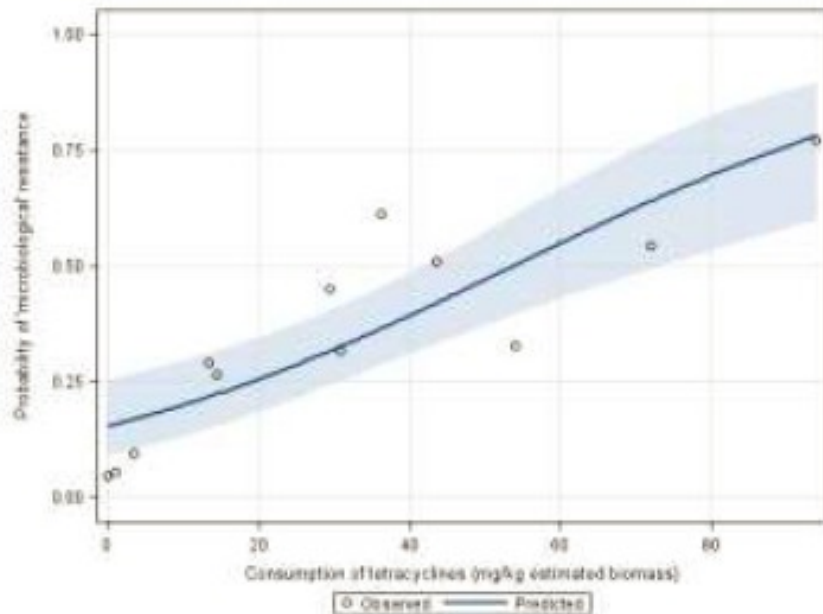
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## SCIENTIFIC REPORT OF ECDC, EFSA AND EMA

**ECDC/EFSA/EMA first joint report on the integrated analysis of the consumption of antimicrobial agents and occurrence of antimicrobial resistance in bacteria from humans and food-producing animals<sup>1</sup>**

# Investigating the relationship between consumption and resistance at the EU MS level

a. indicator *E. coli* isolates



- Regression curves.
- Plot measure of resistance against amount of antimicrobial usage.

## Countries included:

AT, BE, CH, DE, DK, ES, FI, FR, NL, NO, PL, SE

p-value < 0.05; OR = 1.032; 95 % PL CI: [1.019, 1.047]

Note: the association remains significantly positive after ignoring the point displayed on the graph upper right corner:  
p-value < 0.05; OR = 1.033; 95 % PL CI: [1.014, 1.052]

**Thank you for listening...**

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