



Institute for Experimental Pathology, University of Iceland
Keldur, Reykjavík



Activity Report: Iceland

9th EURL-AR Workshop, 23-24 April 2015

*Thorunn Rafnar Thorsteinsdottir
Institute for Experimental Pathology, University
of Iceland, Keldur*

Iceland

- 103.000 km²
- 327.000 inhabitants
- Livestock in 2013
 - Broilers: 730.00
 - Sheep: 476.000
 - Horses: 77.000
 - Cattle: 71.000
 - Pigs: 29.000



Institute for Experimental Pathology, University of Iceland, Keldur

- Founded in 1948
- Applied veterinary research
- Diagnostic services and expert advice on animal diseases.
 - Monitoring of:
 - Zoonotic pathogens
 - Animal pathogens



Institute for Experimental Pathology, University of Iceland, Keldur

- NRL in 6 fields (appointed 2013)
 - Campylobacter
 - Parasites
 - TSE
 - Mollusc, crustacean and fish diseases

- NRL-AR?
 - 2015?



Antimicrobial usage in animals in Iceland

- Use as growth promoters never allowed
- Low overall usage in animals
 - 0.7 tonnes in 2012 (ESVAC data)
 - 5.9 mg/PCU
- None or very little usage in broiler production
 - Last used in 2009 to treat *E. coli* infections



Activities on AMR monitoring

- Before 2013
 - PhD study on AMR in animals in Iceland
- 2013
 - Susceptibility testing of *Campylobacter*
- 2014
 - Susceptibility testing of *Campylobacter* and *Salmonella*
 - ESBL/AmpC screening in broilers
 - MRSA screening in pigs at slaughter
- 2015 –
 - Following EU decision 2013/652/EU



Zoonosis in Iceland

- Salmonella prevalence
 - Broilers at slaughter: 0.3%
 - Broiler flocks: 2%
 - Pigs: 1%
- Campylobacter prevalence
 - Broilers at slaughter: 1.9%
 - Broiler flocks: 1.4%

➔ Only a few isolates available for AMR testing



Salmonella 2014

- 43 isolates (pigs and broilers)
- 16 resistant isolates (37%)
 - 15 resistant to sulfonamides (SMX)
 - 1 resistant to ciprofloxacin and nalidixic acid
- In 2001-2005
 - 12,8% resistance (21/163)
 - *S. Typhimurium* DT104



Campylobacter 2014

- 34 isolates (broilers and turkeys)
 - *C. jejuni*
- 1 resistant isolate (3%)
 - Resistance to ciprofloxacin and nalidixic acid
- In 2001-2005
 - *C. jejuni* (349) and *C. coli* (13)
 - 6,9% resistance (25/362)



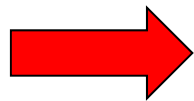
ESBL/AmpC 2014

- 96 samples from broilers
 - 48 cecal
 - 48 meat
- Seven AmpC detected (*bla*_{CMY-2})
- All from the same producer



MRSA 2014

- Samples collected from 16 farms
 - Farms slaughtering >200 pigs/year
 - 4 pooled samples from each farm
 - 5 swabs in each pooled sample
- Samples collected November 2014 – January 2015
- EFSA technical specifications on harmonised monitoring and reporting of MRSA



No MRSA detected



AST Diagnostic Submissions

- Method
 - Disc diffusion

- ~200 diagnostic submissions per year
 - Sheep
 - Dogs
 - Mink
 - Horses

- ~50 susceptibility tests per year
 - Dogs (ears)
 - Sheep and horses



AST Diagnostic Submissions

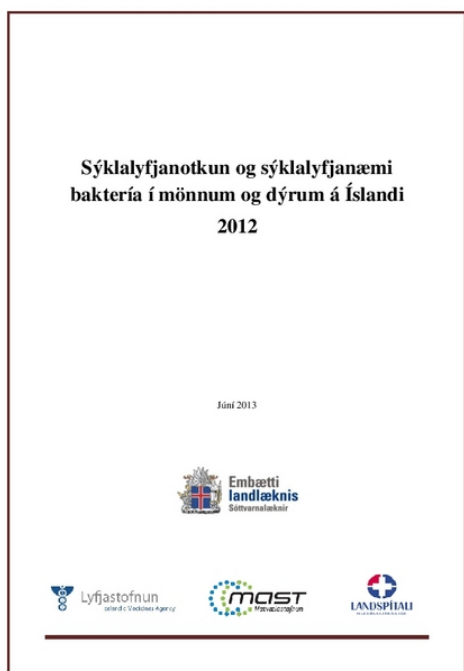
- Bacteria
 - *Staphylococcus* (*Staph. intermedius*, *Staph. aureus*)
 - *E. coli*
 - *Streptococcus* (*S. canis*, *S. suis*, *S. zooepidemicus*)
 - *Pseudomonas aeruginosa*

- Susceptibility
 - *Staph. intermedius*
 - Tetracycline, fusidic acid and ampicillin resistance
 - *Pseudomonas aeruginosa*
 - Fully susceptible to the tested antimicrobials



Report on antimicrobial usage and resistance

- Annual reports on antimicrobial usage in humans since 2005
- Since 2012 Report on antimicrobial usage and resistance in humans and animals in Iceland



Data on:

- Antimicrobial usage in humans
 - Wholesale data
 - Prescription
- Antimicrobial usage in animals
 - ESVAC data
- Antimicrobial resistant bacteria in humans
 - Clinical isolates
- Antimicrobial resistant bacteria in animals
 - *Salmonella* and *Campylobacter*



Outlook

- 2015
 - Salmonella susceptibility
 - ESBL/AmpC
 - Slaughter pigs
 - Pig meat
 - Cattle meat
 - E. coli indicator commensals
 - Slaughter pigs

- Improve monitoring
- Improve reporting



Thank you for your attention

From the AMR „team“ and the staff at the Department of Bacteriology

