



# Combating antimicrobial resistance in Iceland

## Public Health

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# Topics

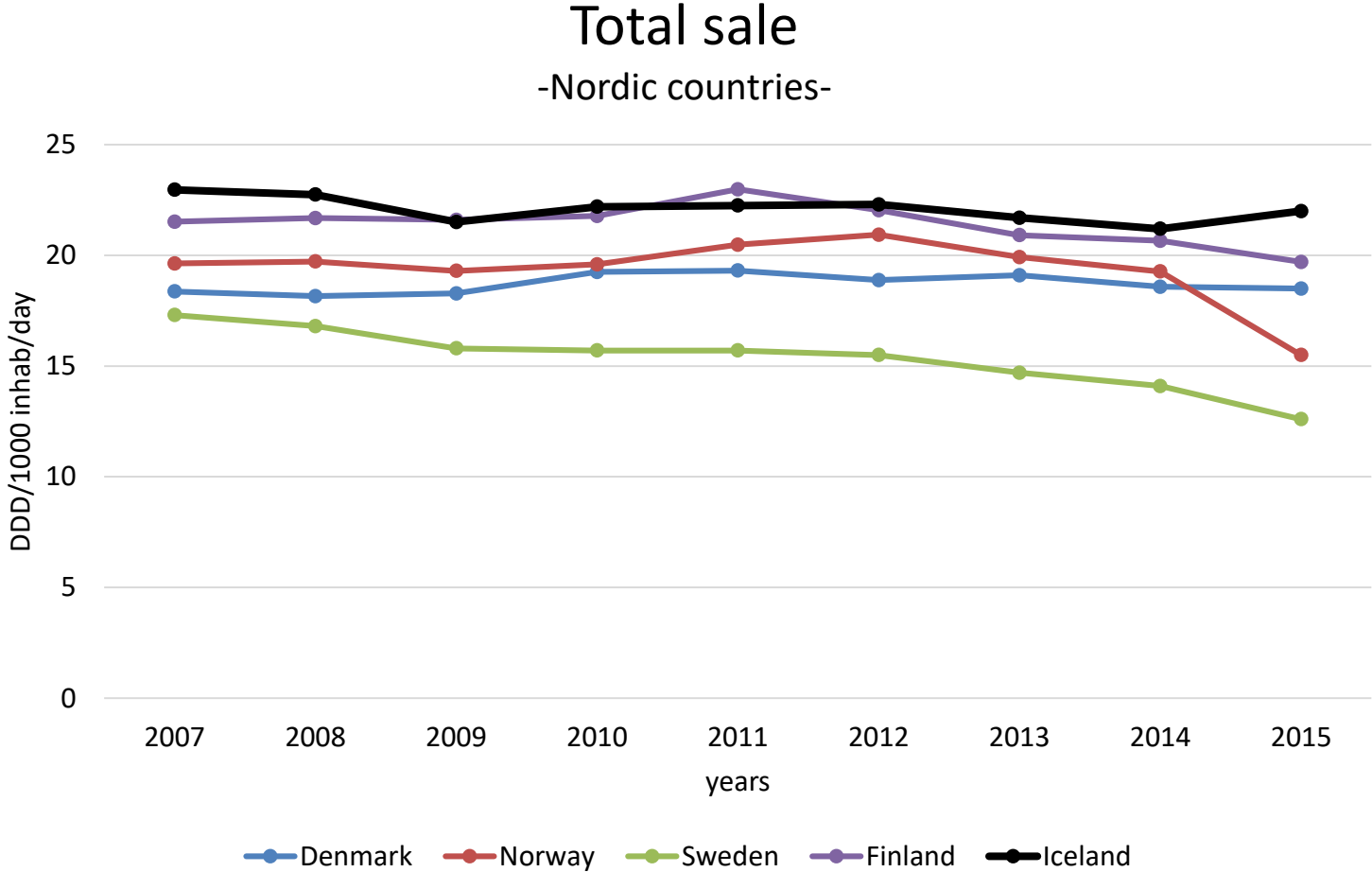
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- Antimicrobial use in Iceland (humans)
- Epidemiology of zoonotic diseases
  - Campylobacteriosis
  - Salmonellosis
- Antimicrobial resistance
- Official strategies
  - Report of a working group
  - Recommended actions





# Antimicrobial use -humans-





# Food and waterborne/zoonotic diseases in Iceland

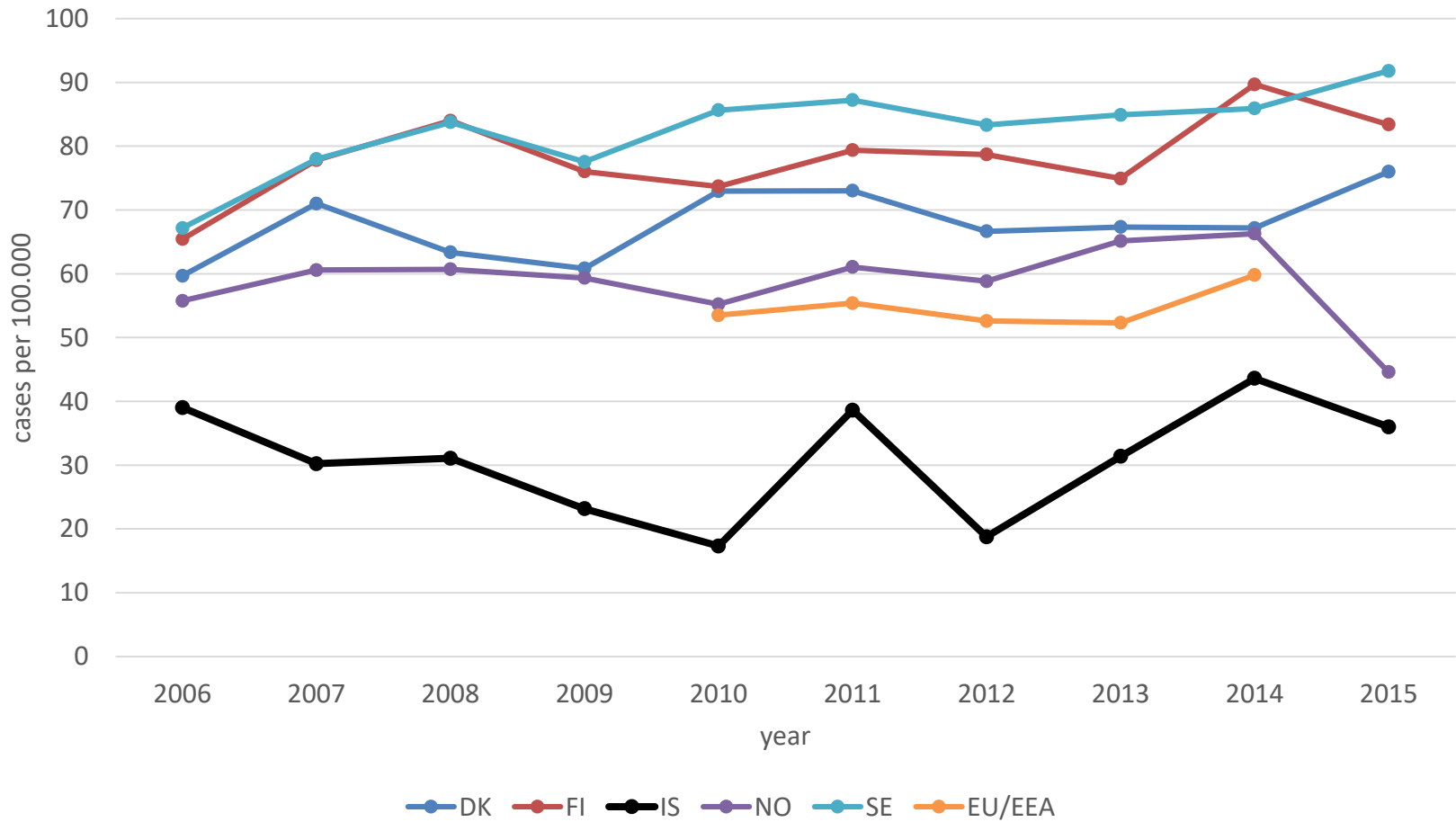
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- **Campylobacteriosis**
- **Salmonellosis**
- Shigellosis
- Giardiasis
- EHEC (enterohemorrhagic E. coli)
- Legionnaire's disease
- Cryptosporidiosis
- Toxoplasmosis
- Listeriosis
- Yersiniosis
- Anthrax
- Botulism
- Trichinosis





# Campylobacteriosis - humans -



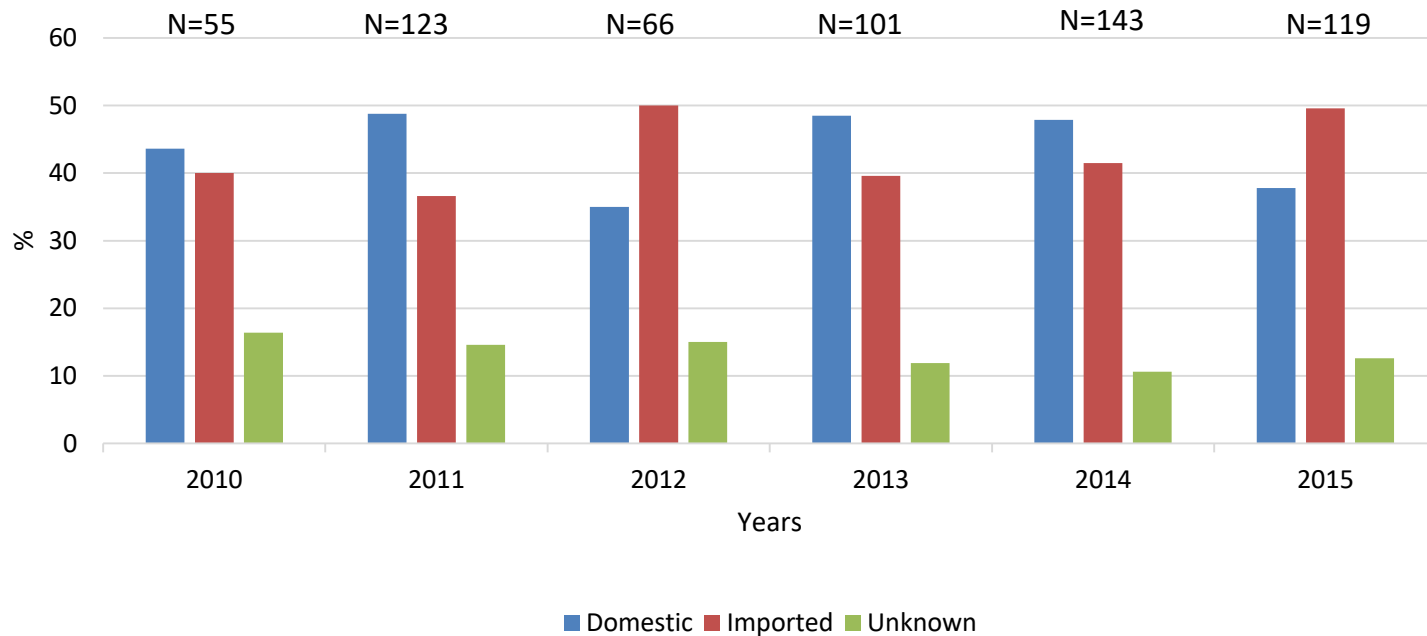
- ECDC/EFSA summary report 2017
- Antibiotic use and –resistance in Iceland Annual reports





# Campylobacteriosis

Campylobacter infections by origin  
- Iceland -



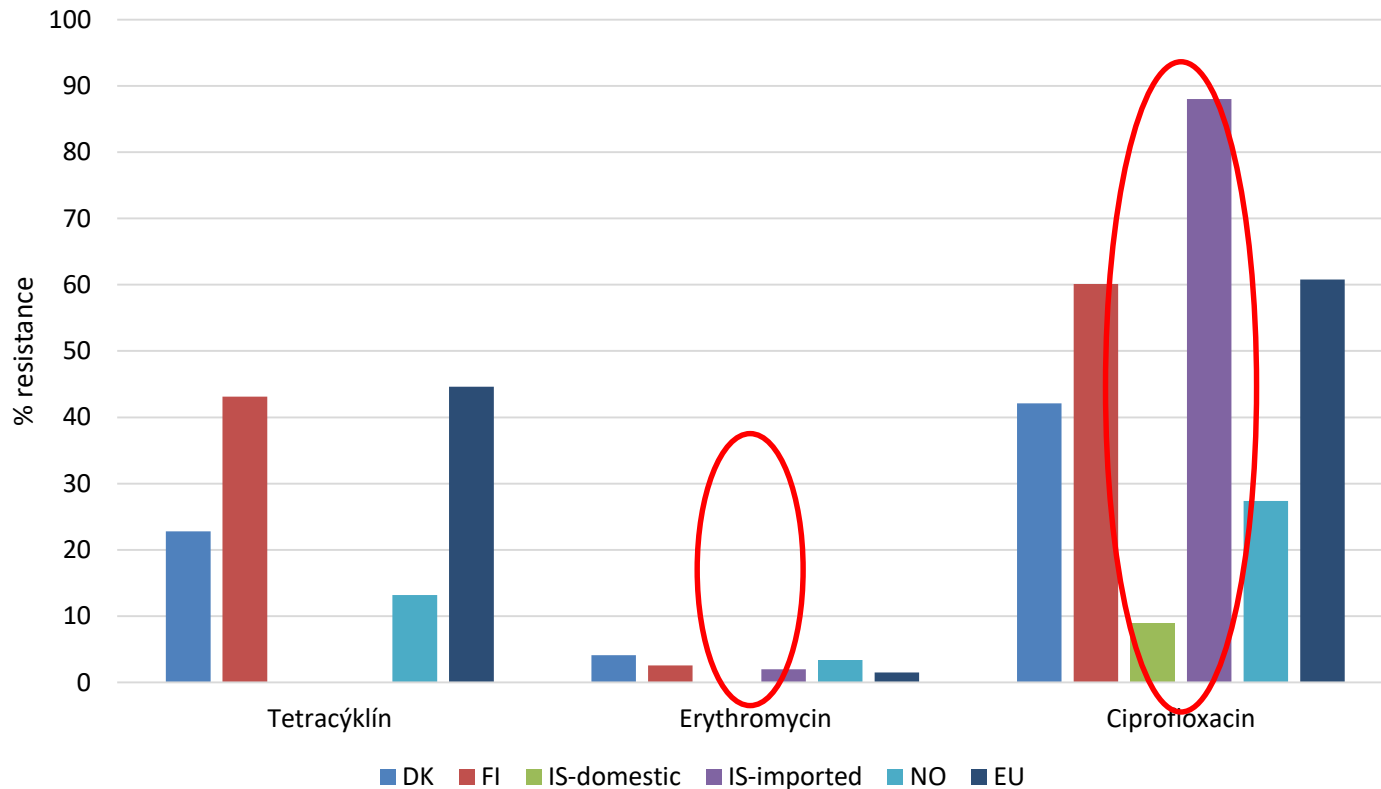
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# Campylobacteriosis

## Campylobacter antimicrobial resistance -2015-

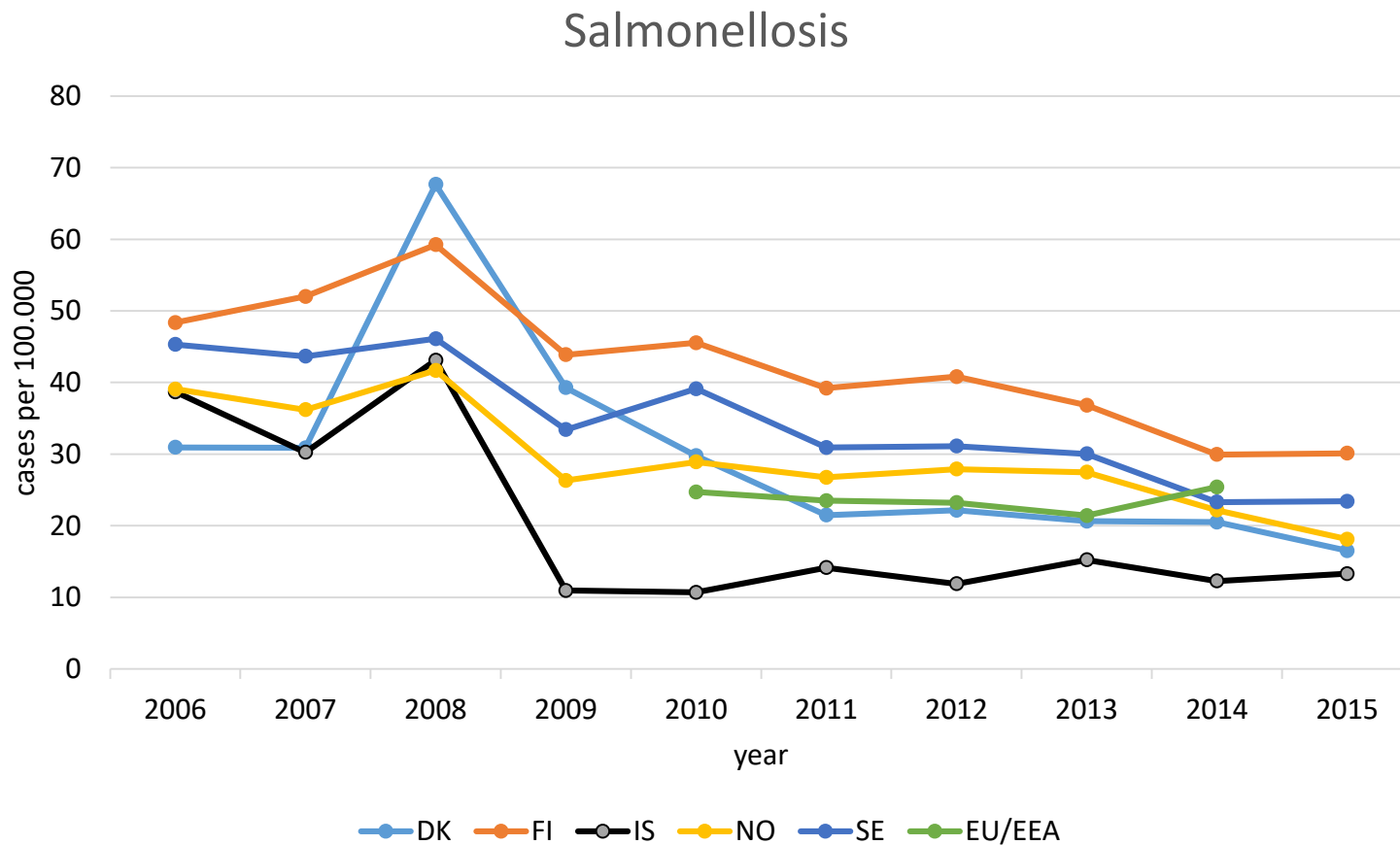


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# Salmonellosis - humans -



- ECDC/EFSA summary report 2017
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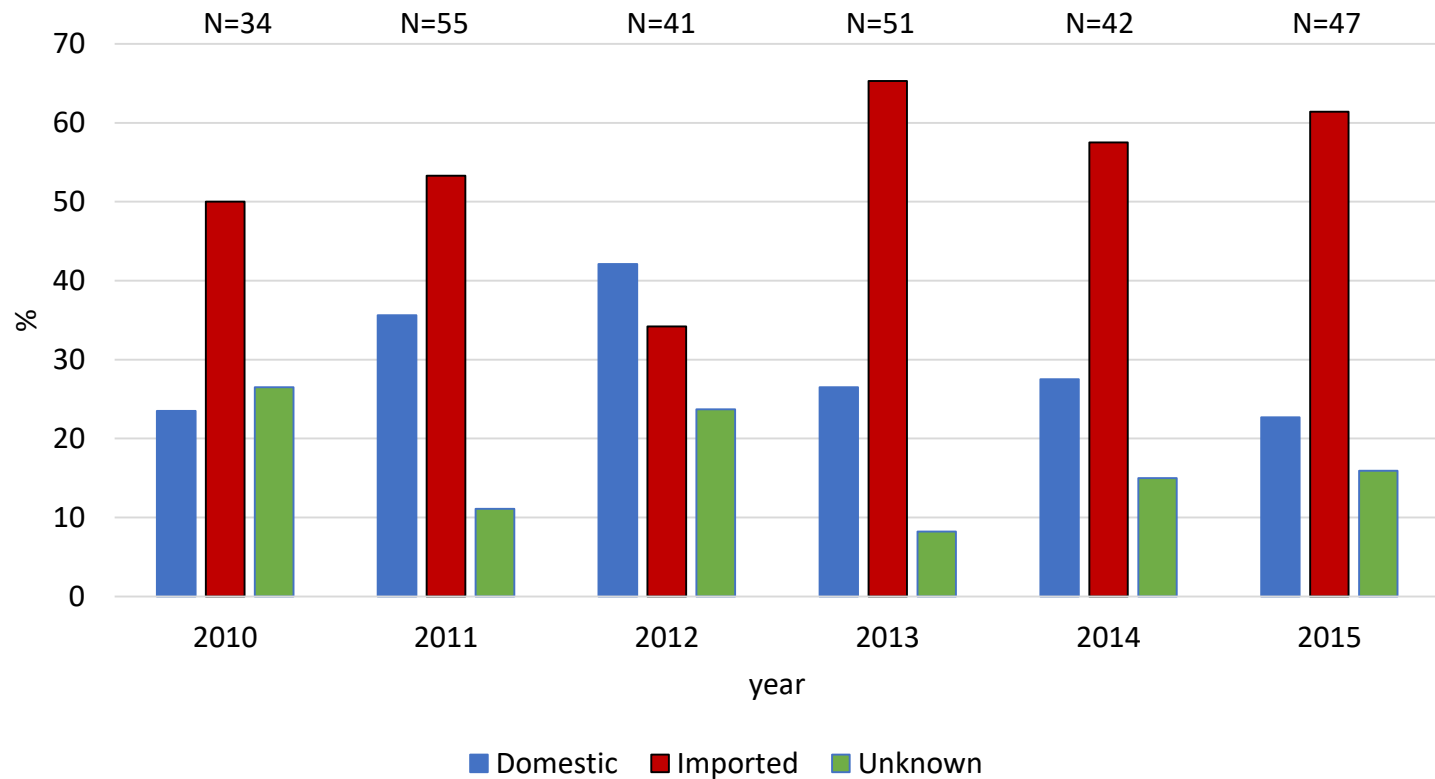






# Salmonellosis

## Salmonella infections by origin - Iceland -



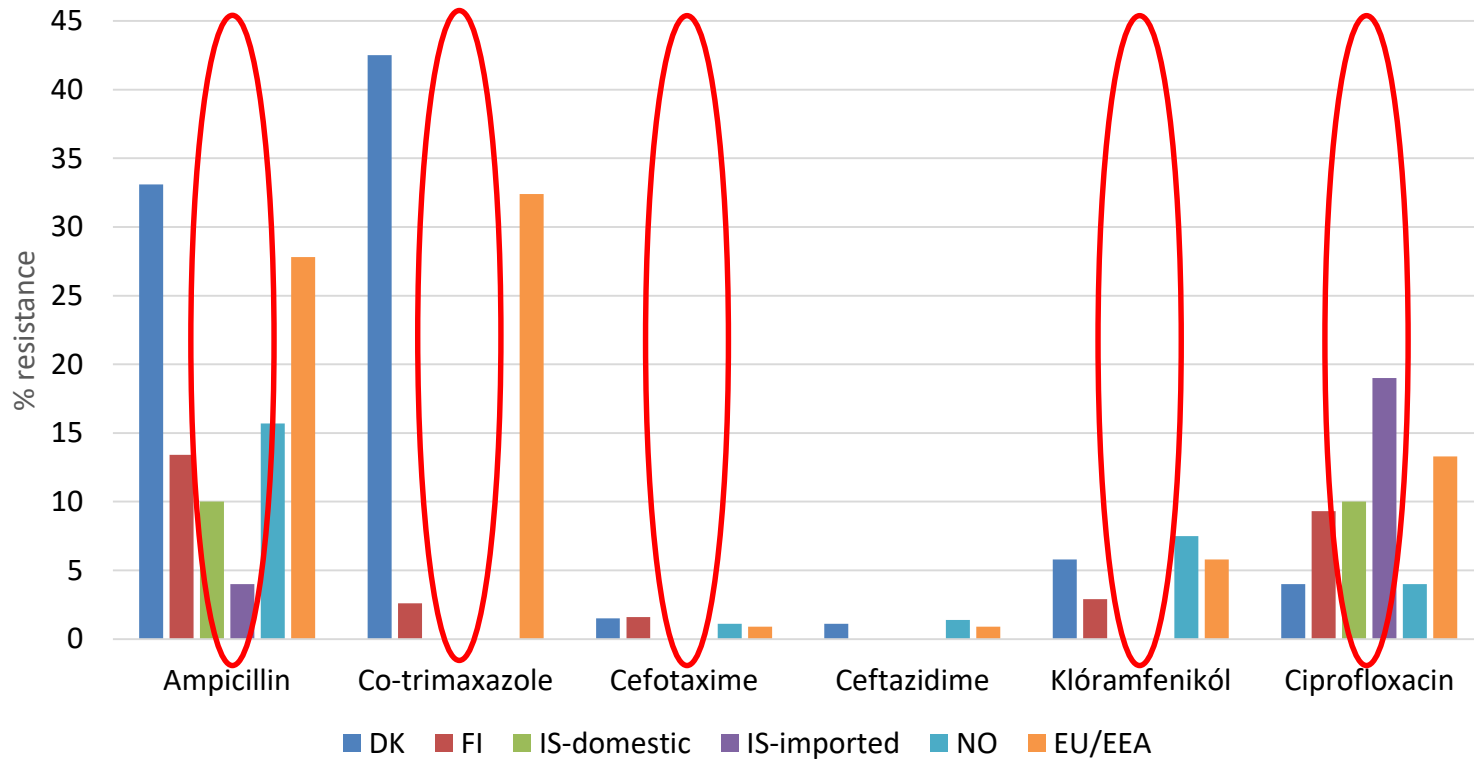
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# Salmonellosis -humans-

## Salmonella antimicrobial resistance - 2015 -



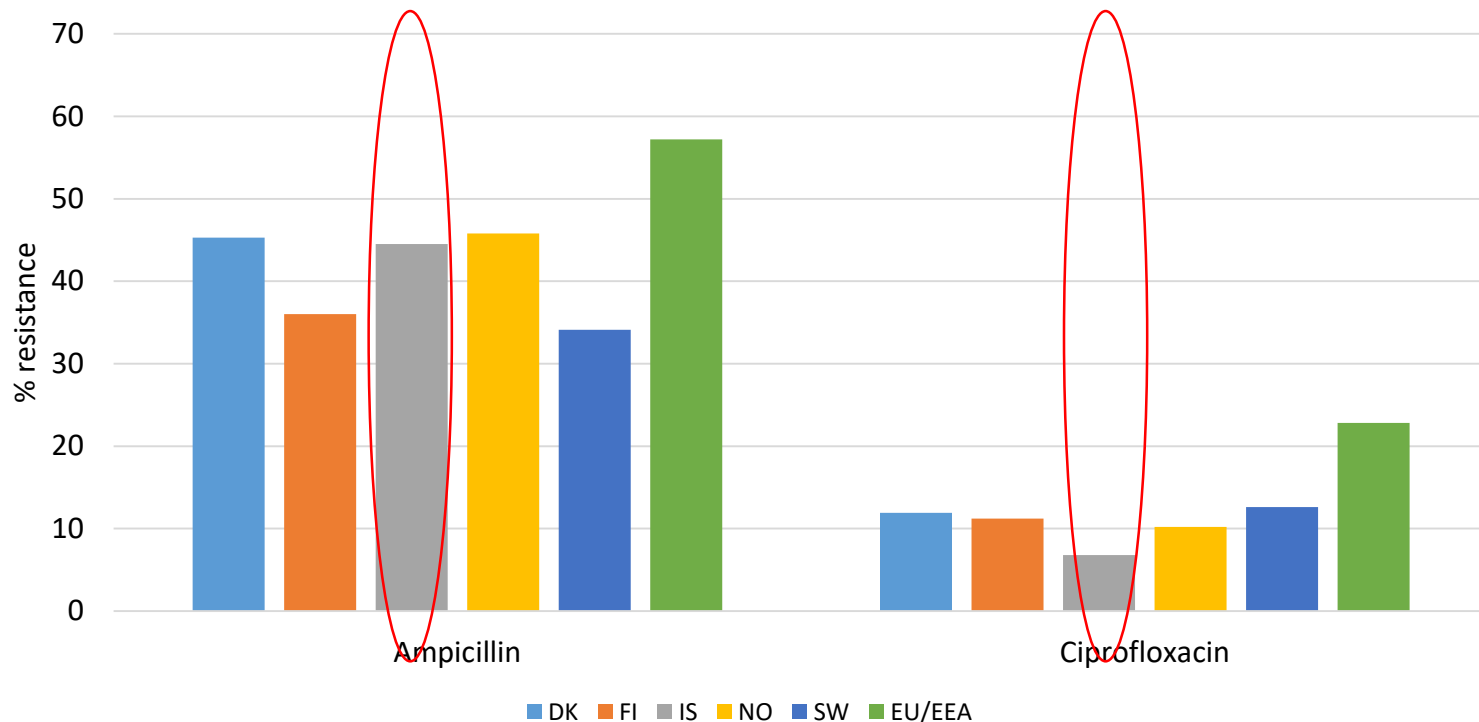
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# Invasive E. coli -humans-

Invasive E. coli antimicrobial resistance  
-2015-



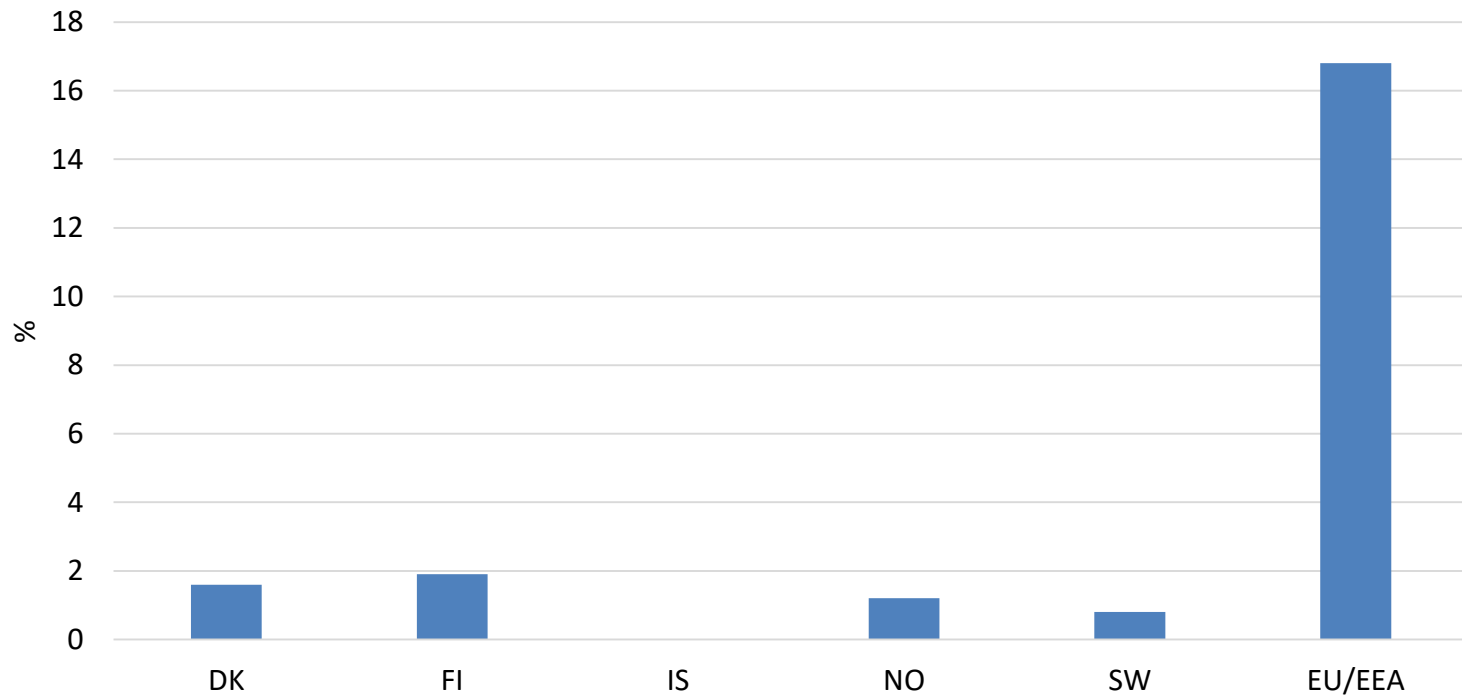
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# Invasive staphylococcus aureus -humans -

## Methicillin resistance - 2015 -



- ECDC/EFSA summary report 2017
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# Conclusions

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- Human antimicrobial consumption high
- Incidence of zoonotic diseases low
- Incidence of salmonellosis and campylobacteriosis low
- Antimicrobial resistance lower/similar than in neighbouring countries/EU
  - Especially strains of domestic origin
- Official strategy = „One Health“
  - To reduce/minimize the spread of AMR bacteria
  - (reduce/minimize the risk of zoonotic diseases)





# Official strategy

## -to control AMR-

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- Working group created in 2016 by the Ministry of Health
  - Thorolfur Gudnason Chief Epidemiologist
  - Sigurborg Dadadottir Chief Veterinary Officer
  - Vala Fridriksdottir Head Division of Bacteriology, Parasitology and Pathology, Keldur
    - Expert consultations
    - Report delivered on April 12th 2017





# Final report

## April 12th 2017

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### Greinargerð starfshóps um aðgerðir til að draga úr útbreiðslu sýklalyfjaónæmra baktería á Íslandi

Starfshópur velferðarráðuneytis

Sigurborg Daðadóttir, yfirdýralæknir  
Vala Friðriksdóttir, deildarstjóri Keldum  
Þórólfur Guðnason, sóttvarnalæknir





# Final report

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- Spread of AMR complex (many risk factors) and not fully understood
- Risk factors
  - Antimicrobial consumption (humans/animal)
  - Food chain
  - Animal-human interaction
  - Tourists/travellers
  - Environment







# Report of the working group

5 (of 10) recommendations mainly related to humans

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- Recommendations on AMR (One Health approach)
  1. National strategy/goals for the next 5-10 years
    - Prevention-surveillance-response
  2. Annual reporting of AMR and Ab consumption
    - Expanded
  3. Rational (decrease) antimicrobial use in humans
    - Strama approach
    - Antibiotic stewardship in hospitals





# Final report

5 (of 10) recommendations related to humans cont.

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- Recommendations (One Health approach)
  9. Screening for AMR in hospitals and health care institutions
    - Existing protocol at Landspítalinn University Hospital
  10. Improving sanitary facilities for tourists/travellers within Iceland





# The One Health Triad

