Risiken erkennen – Gesundheit schützen

FEDERAL INSTITUTE FOR RISK ASSESSMENT

What is the issue of antimicrobial resistance in veterinary practice?

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NRL for Antimicrobial Resistance

Outline of the presentation

i. Major issues of antimicrobial resistance for vets

ii. Antimicrobial resistance (AMR) in commensal bacteria

iii. Consequences for the practitioner

Major issues of AMR for vets

1. Reduced efficacy of treatment

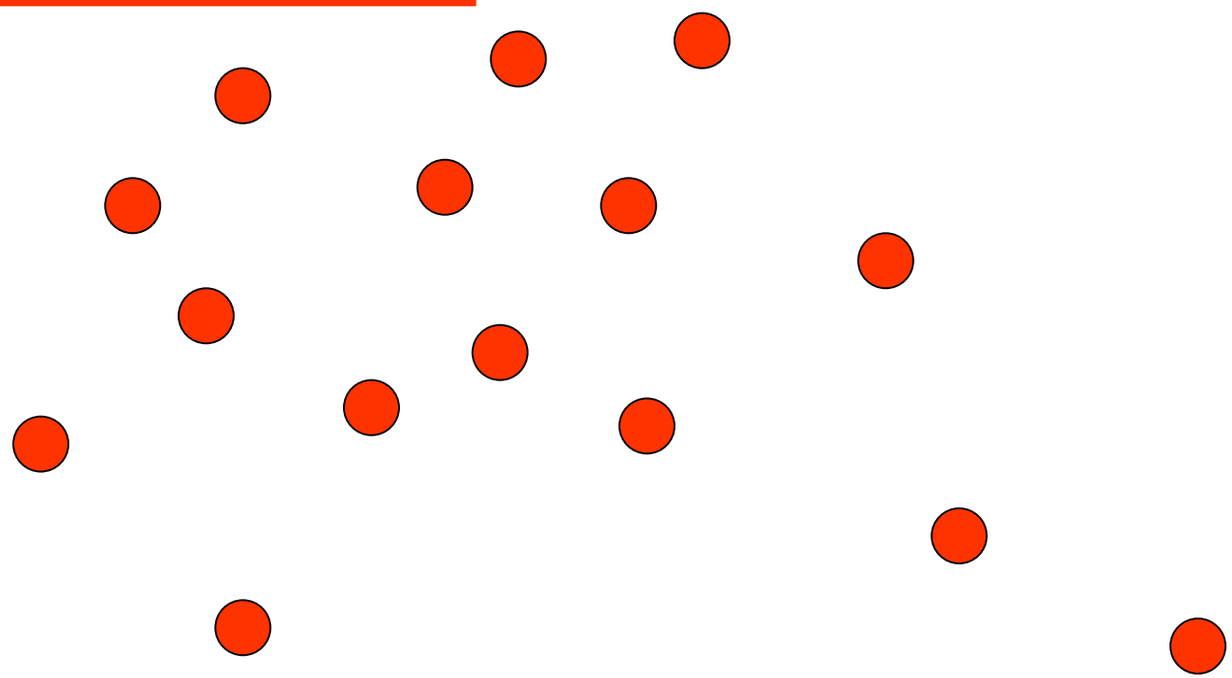
2. AMR in zoonotic bacteria
   - ✓ Consumer protection
   - ✓ Self protection from occupational disease

3. AMR in the microbiome / commensal bacteria

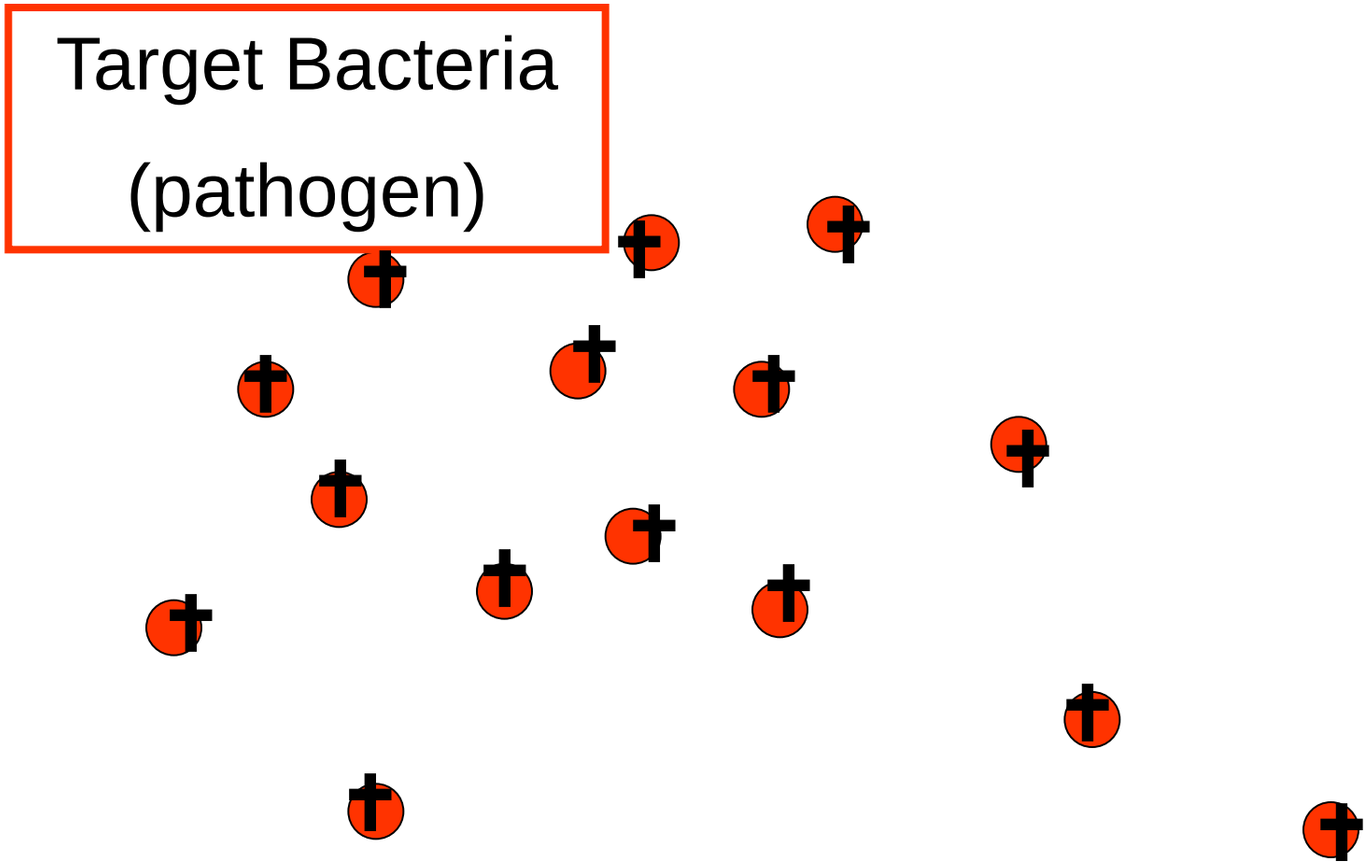
1. Reduced efficacy of treatment

Target Bacteria

(pathogen)



Selection pressure if vets do a good job….



(Hit them early, hit them hard…..)

Major issues of AMR for vets

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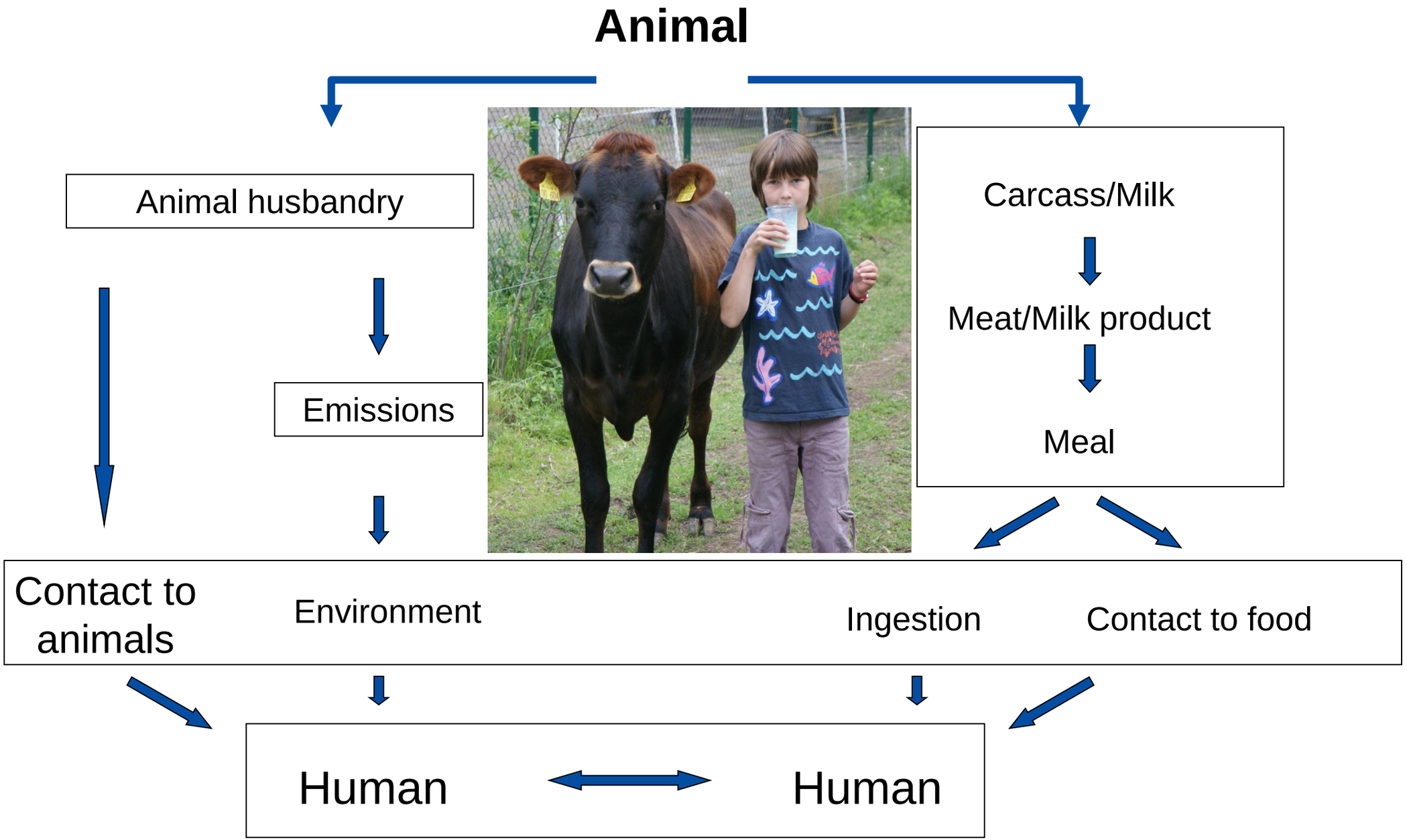
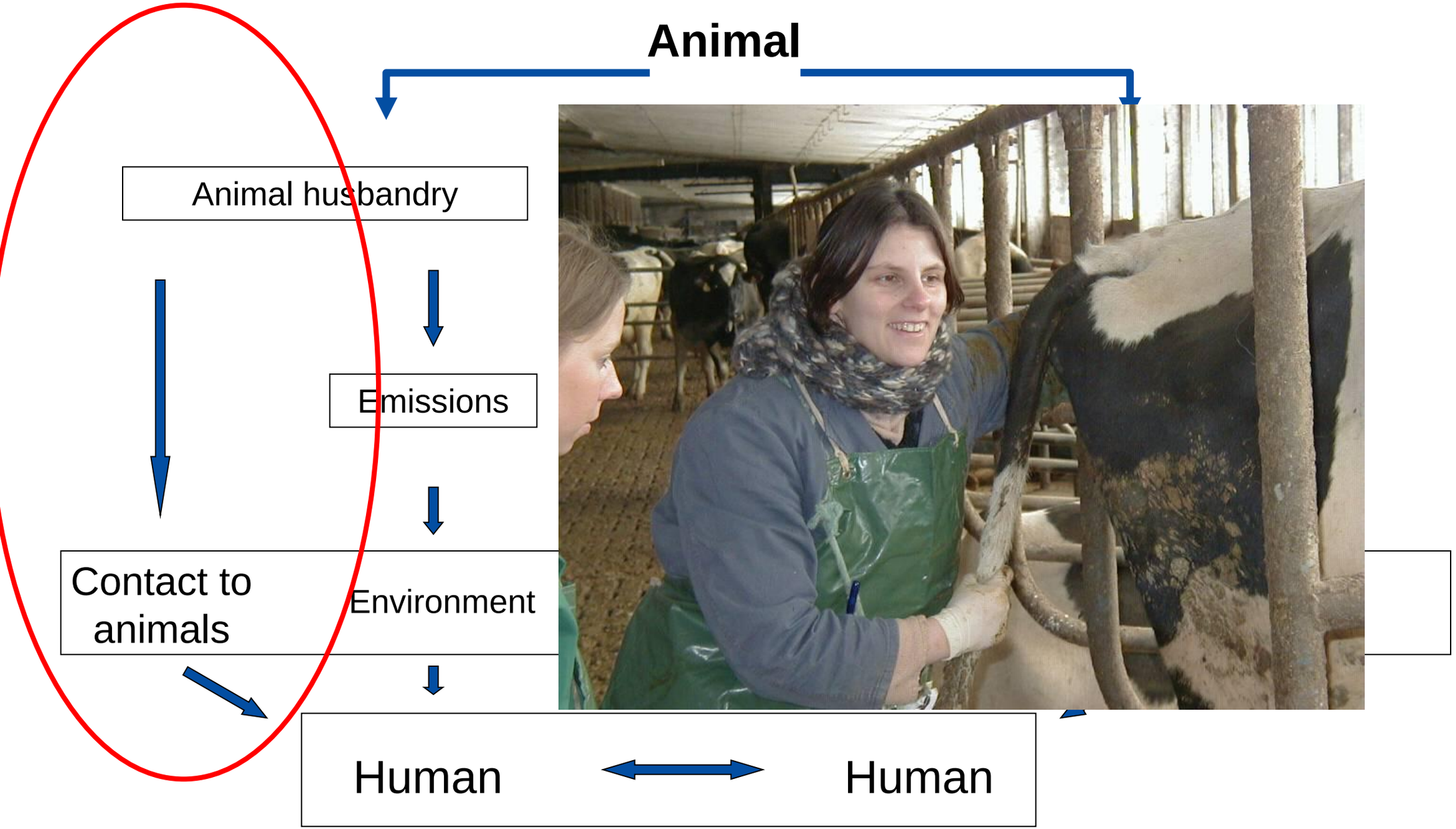
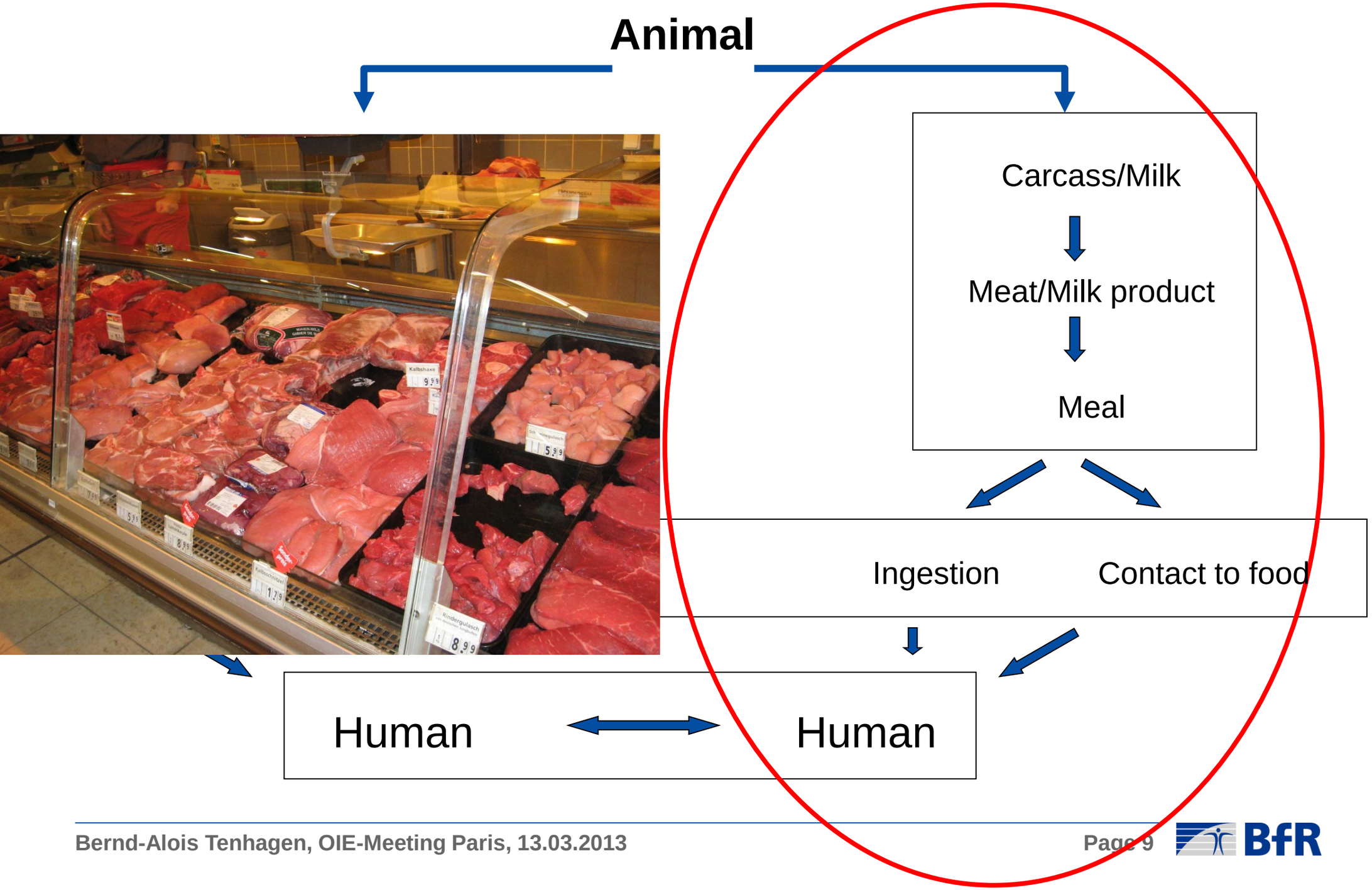
2. Resistance in zoonotic bacteria



2. Occupational disease



2. Food safety



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ii. AMR in the microbiome / commensal bacteria

Why should that be an issue?

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Target Bacteria

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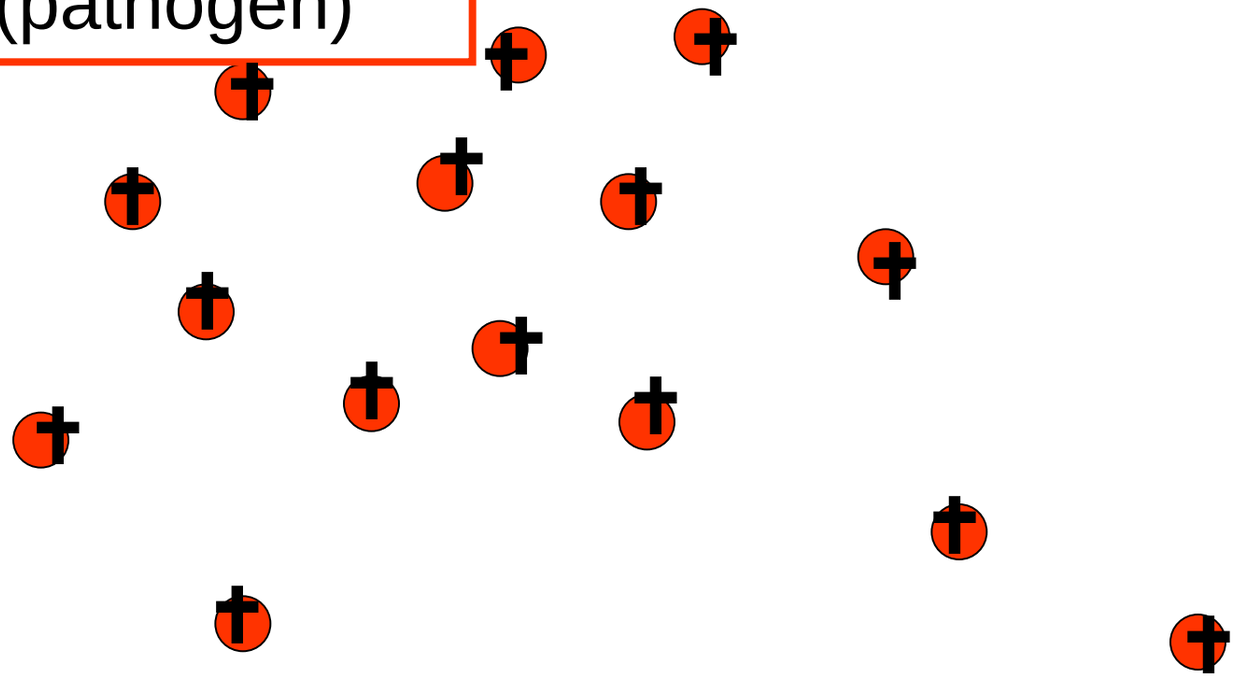

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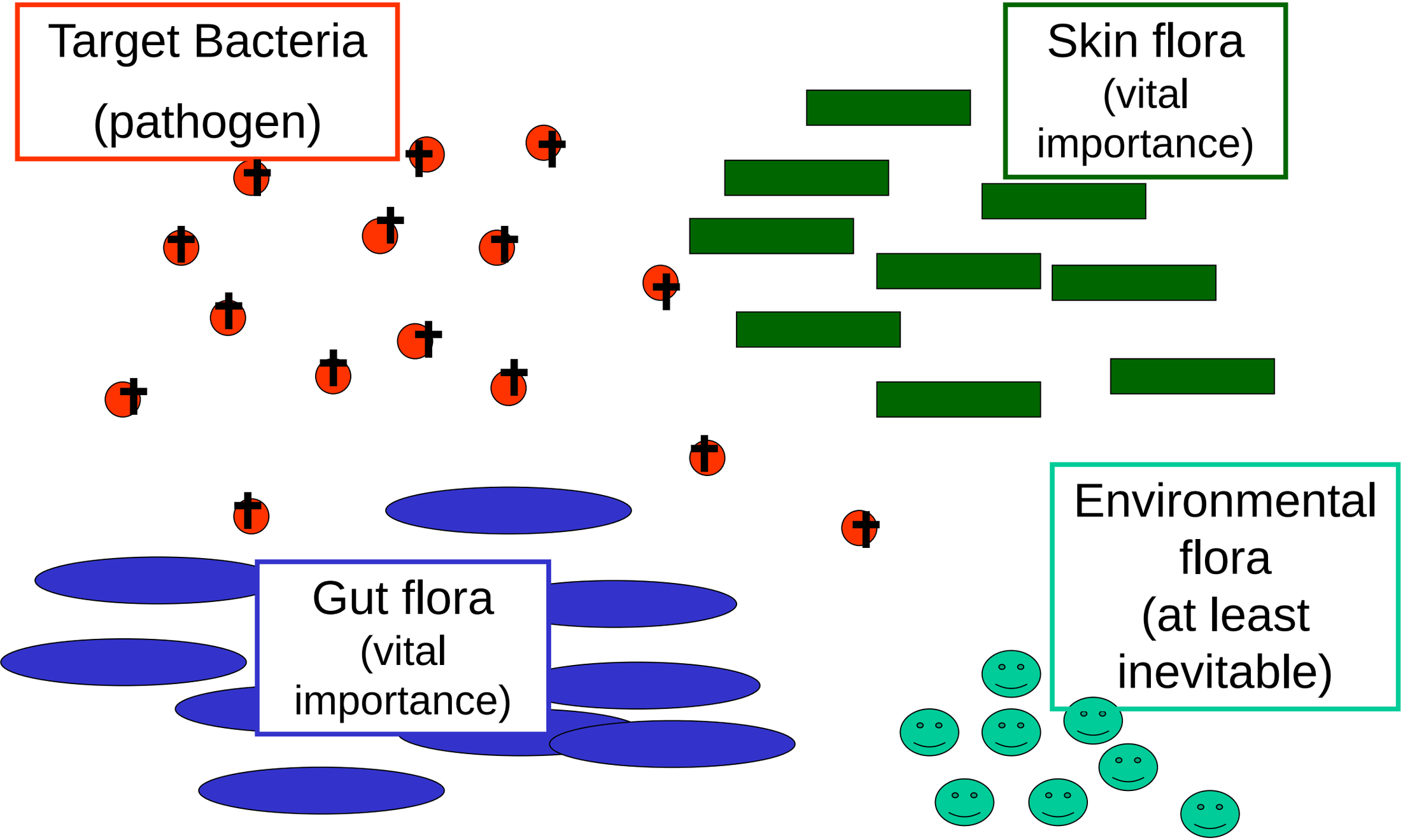


Why should that be an issue?

- Commensal flora is omnipresent
- Selection pressure by every antimicrobial treatment
- Reservoir for resistance determinants
- Vehicle for resistance determinants
- Horizontal gene transfer to and from commensals

AMR in commensal bacteria

Food chain approach



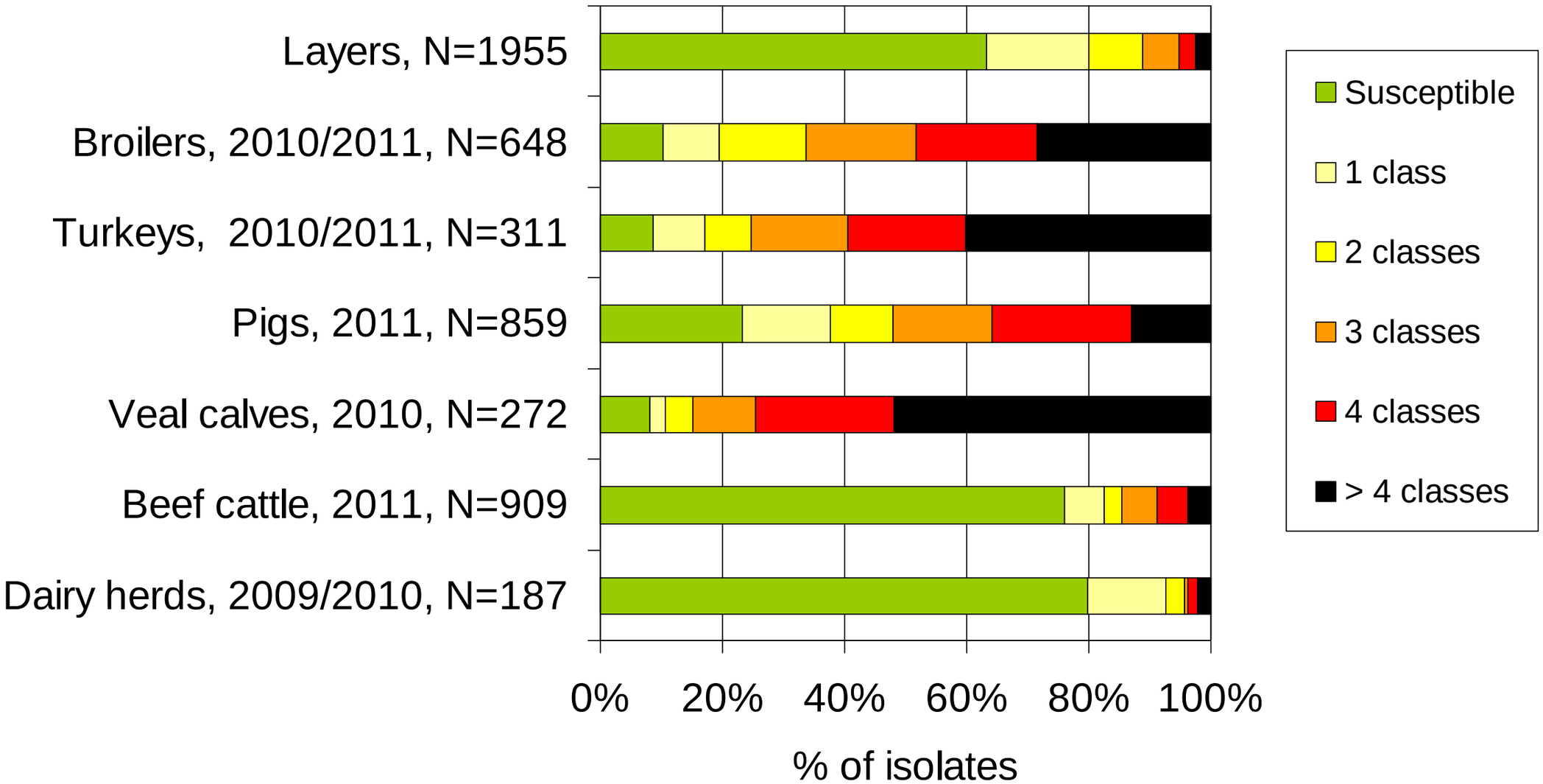
Poultry	**Pigs**	**Cattle**
- Laying hens - Table eggs		- Dairy cows - Milk
- Broiler - Broiler meat	- Fattening pigs - Pork	- Veal calf - Veal
- Turkey - Turkey meat		- Beef cattle - Beef

What do we have at BfR?

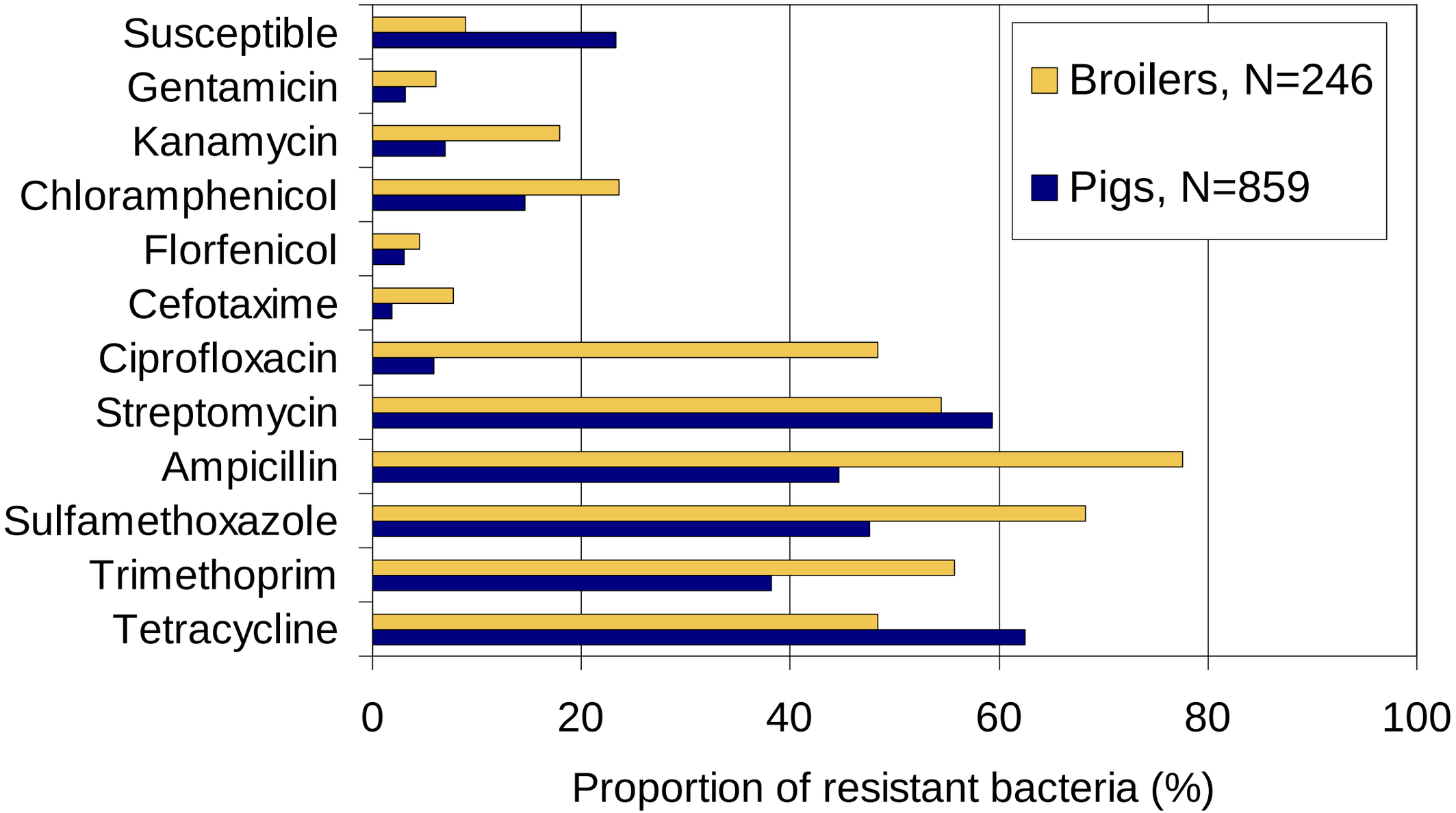
- Results of testing *E. coli* from **3 years** (2009-2011)
- Broth Microdilution according to CLSI guidelines
- **7196 isolates** from animals and food
- 14 antimicrobials
- Harmonised evaluation:

  Epidemiological cut offs (EUCAST)

Resistance in *E. coli* from farm animals, 2009-2011



Resistance in *E. coli* from pigs and broilers 2011



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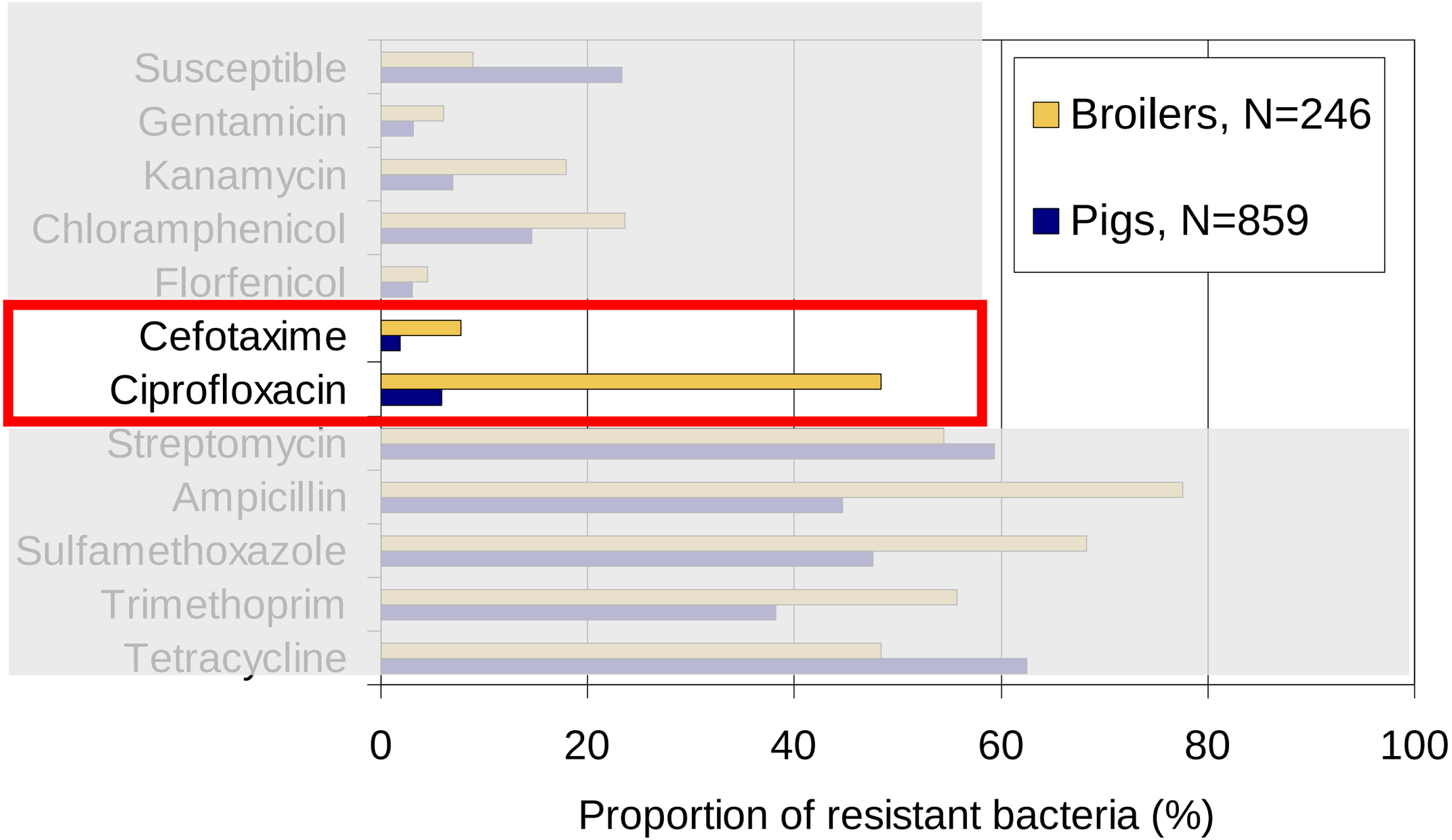
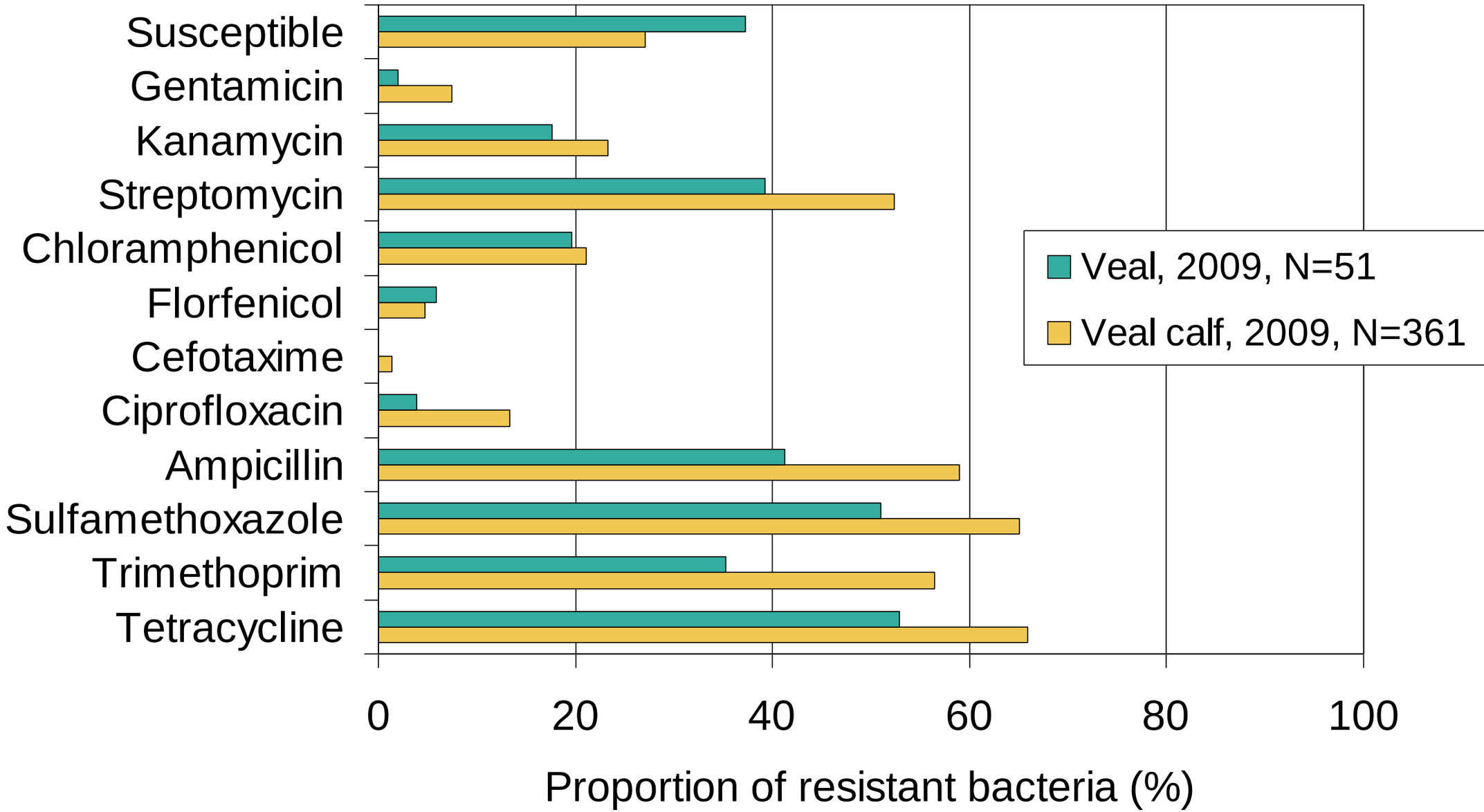


Resistance in *E. coli* from animals and meat



Summary: Resistance Monitoring

- Differences between production types
- Differences between animal species
- Higher resistance levels in meat production
- Resistant bacteria on meat

iii. Consequences for the practitioner

Any treatment selects for resistance

$\Rightarrow$ Disease prevention is vital !!

If disease occurs:

$\Rightarrow$ Follow prudent use guidelines….

It’s easier said than done….

Acute infection:
timely and consequent treatment

Prudent use:
lab diagnosis and targeted therapy

Treatment based on presumptive diagnosis

Diagnosis needs laboratory confirmation

What can the vet do?

- Animal **health** management
- Focus on prevention of frequent diseases
- Clinical diagnosis, animal side tests
- Lab diagnosis
- Monitor pathogens, resistance and treatment success

What will the vet need from us?

Communication of up to date knowledge:

- Animal Health Management
- Diagnostic opportunities
- Current treatment concepts

➢ CONTINUING EDUCATION!!!!

- Advanced animal side tests
- Easy access to fast diagnostic facilities

Conclusion

- Antimicrobial use needs to be minimized
- Disease prevention is the key
- Prudent use requires excellent diagnostic facilities
- Health data need to be used

Thank you for your attention

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