

Joint HMA/EMA Meeting On Promoting Prudent And
Responsible Use of Antimicrobials In Veterinary Medicine,
19- 20 May, Marienbad, Czech Republic

National experience on collection and analysis
of data on Antimicrobial sales and use
VetStat - the Danish experience

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EU conference The 'Antimicrobial Threat' Copenhagen, 1998

Recommendation:

"EU member states should implement monitoring of antimicrobial usage in addition to resistance monitoring"

Because resistance data alone do not hold the key to well targeted intervention - resistance trends are the results of forces acting together

Governmental decisions:

- 1996: Resistance monitoring - DANMAP
- 1998: Decision to establish a drug consumption database based on "end-user-data"

Data sources and detail of information



Data sources and detail of information - Denmark

1995-2001:

Pharmaceutical companies
(sales to wholesalers and feed mills)

Collected annually by the
Danish Medicines Agency

1986-1994: Retrospectively
Danish Pharmacy Association

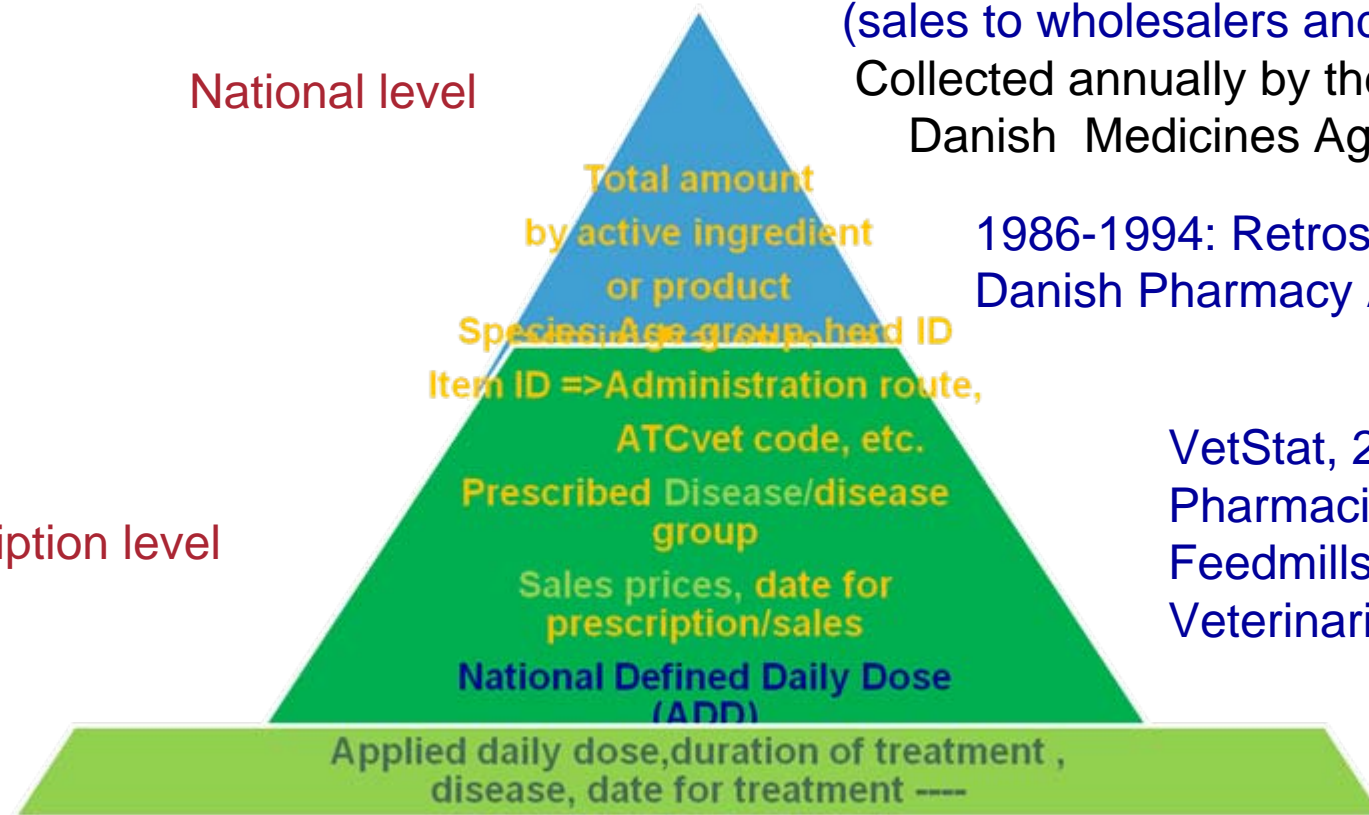
VetStat, 2001:
Pharmacies +
Feedmills +
Veterinarians

National level

Prescription level

End-user
level

Farmer



Collection of veterinary usage data on prescription level - background

- All therapeutic drugs are prescription-only medicines (POM)
- (except for feedadditives as coccidiostats)
- Vets and farmers can get POMs only through pharmacies (except for POM medicated feed – from the feed mills)
- Since mid-90's pharmacies have reported individual sales to the Danish Medicines Agency (DMA)

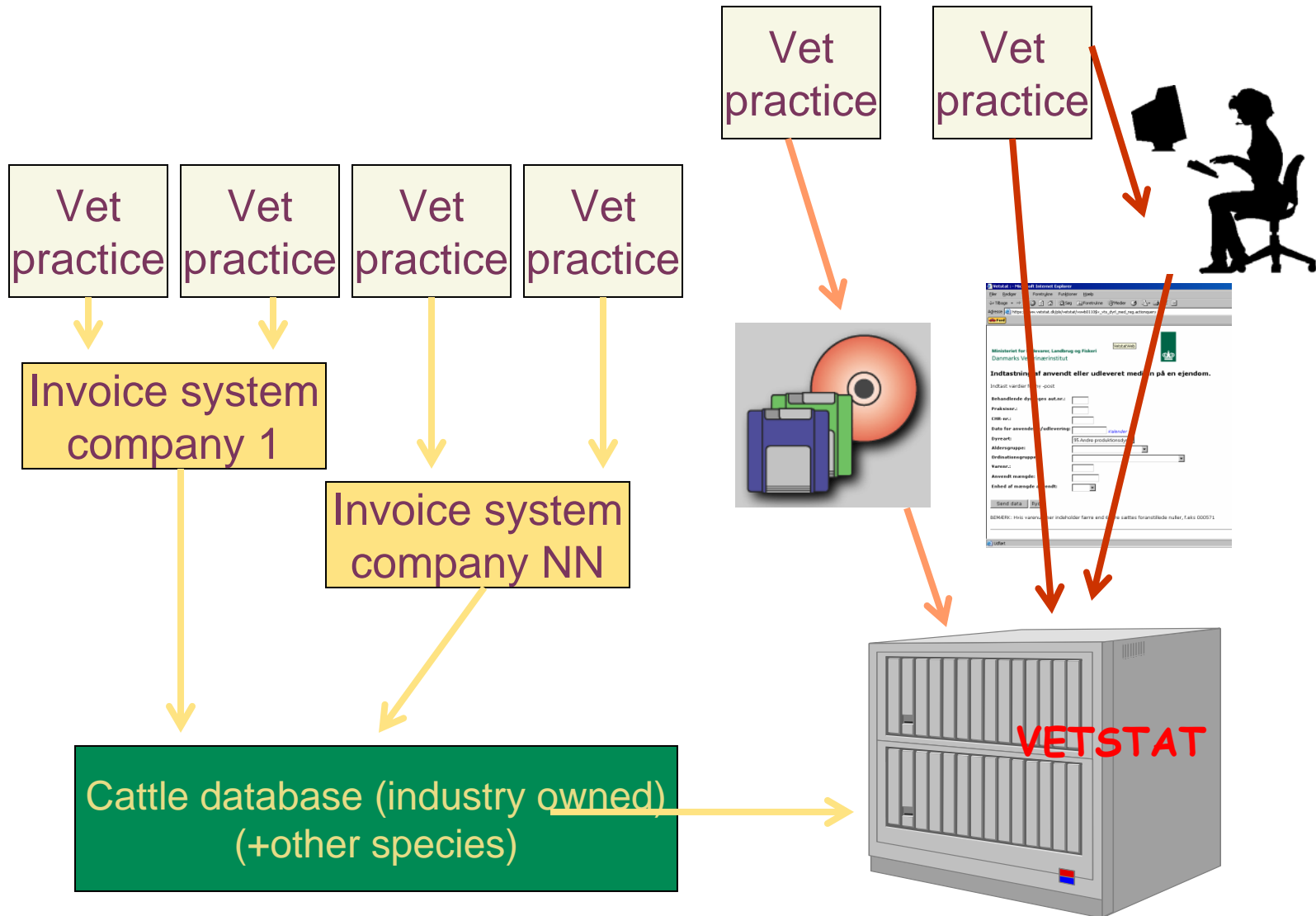
Principles for the foundation of VetStat:

- Mandatory reporting
- "End user data" – in practice: prescription level data
- Using existing electronic data system – as far as possible!
- **All** therapeutic drugs

National Food Institute

Data transfer from veterinarians

Technical University of Denmark



Data quality - pharmacies

- extracted auto-matically when the prescription is pro- cessed
 - Logical validation of drug code
 - Data used for billing => amounts correct
 - 99,9 % of sales is recorded (billing) –
 - Appr 1 % is missing farm ID, animal species etc. (2008) (2003: 5-7%)
- Future electronic prescriptions => extensive validation at entry

Data quality - feed mills

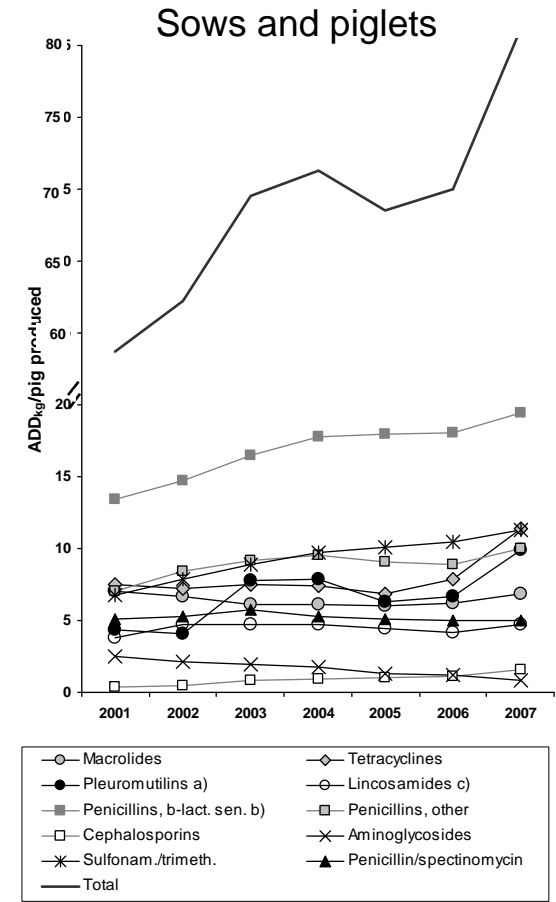
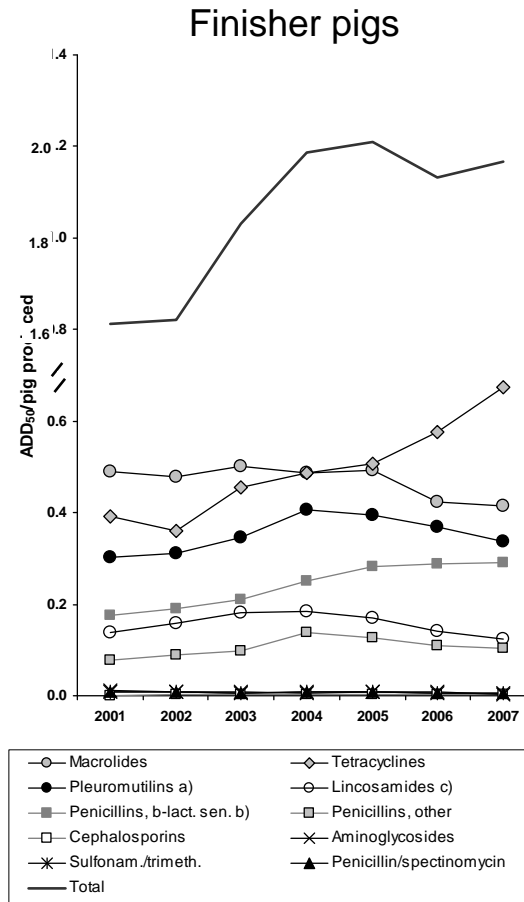
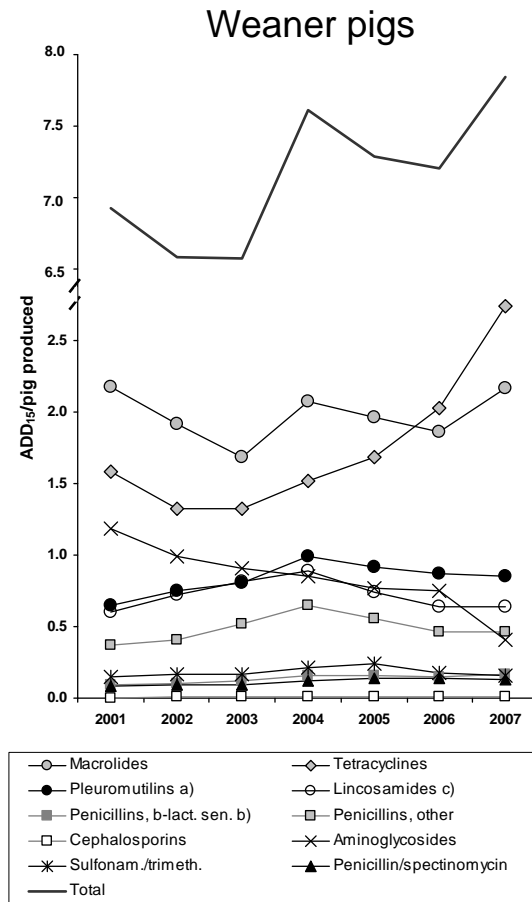
- Logical validation at data entry for medicated feed
- Farm-ID, Species etc. are valid for all records
- Some feedmills have been missing – historically.

Veterinarians

- Technical problem (private companies):
 - Multiplication errors in amount for individual veterinarians,

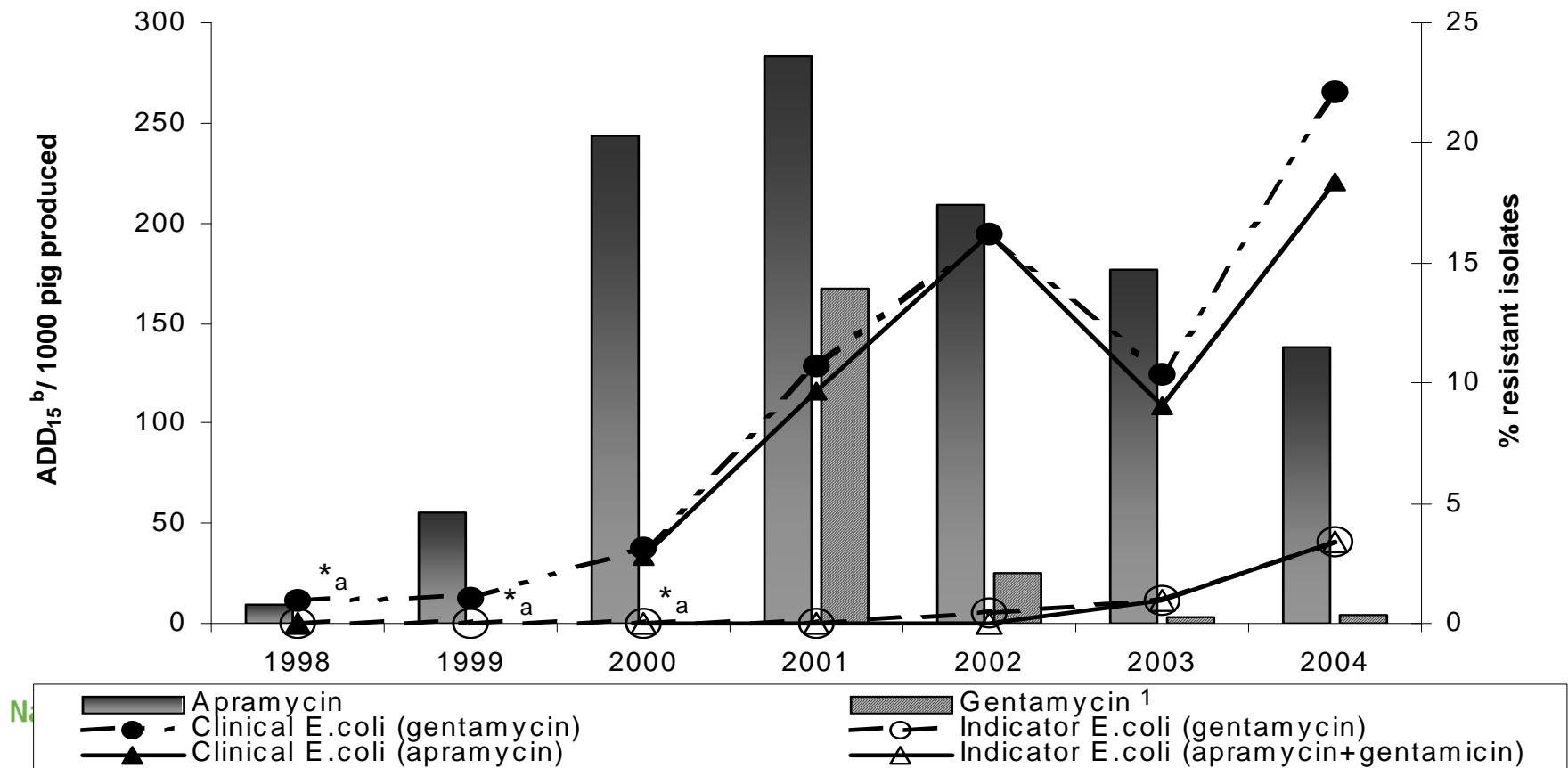
National Food Inspection Data loss during transmission from vets to CDB

Trends in use of AM therapeutics for pigs, Denmark 2001-2007

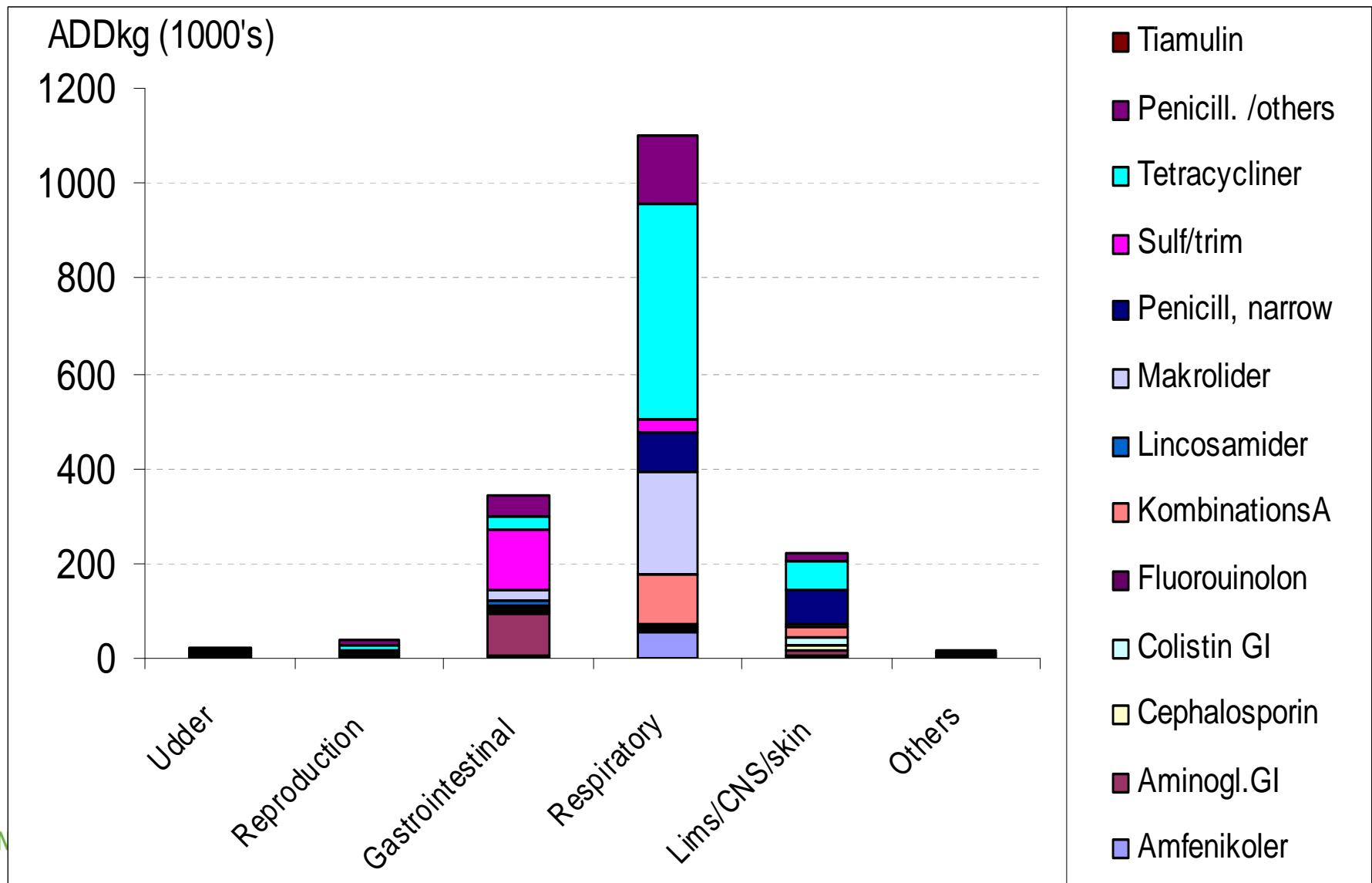


Apramycin and gentamycin use and resistance in pigs (Jensen et al, JAC 2005)

| | |
|-------------|--------------------------|
| Consumption | OR=1.6/50units, $p<0.01$ |
| Time (year) | OR=1.9/year, $p<0.01$ |

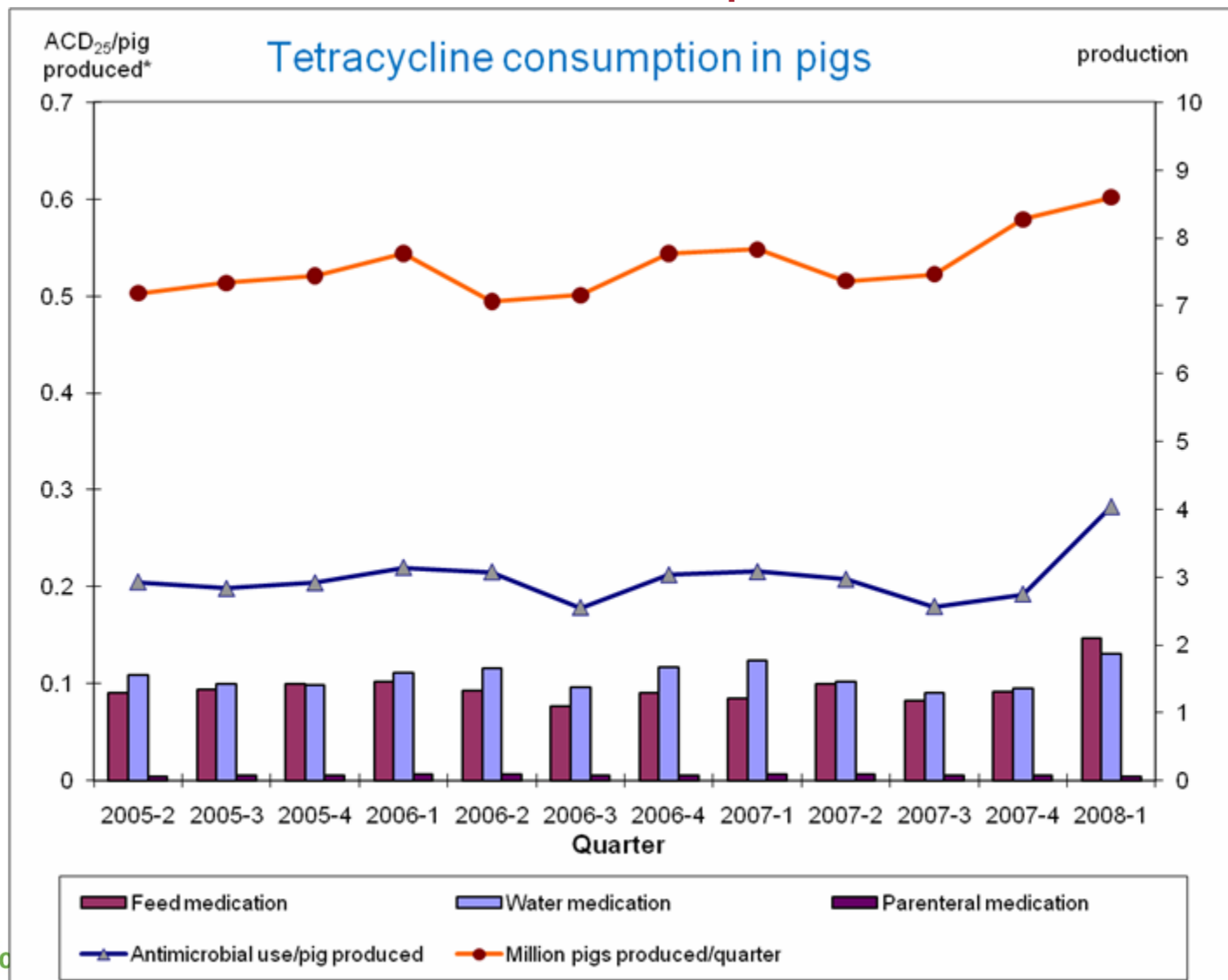


Prescription by disease groups in calves, 2005



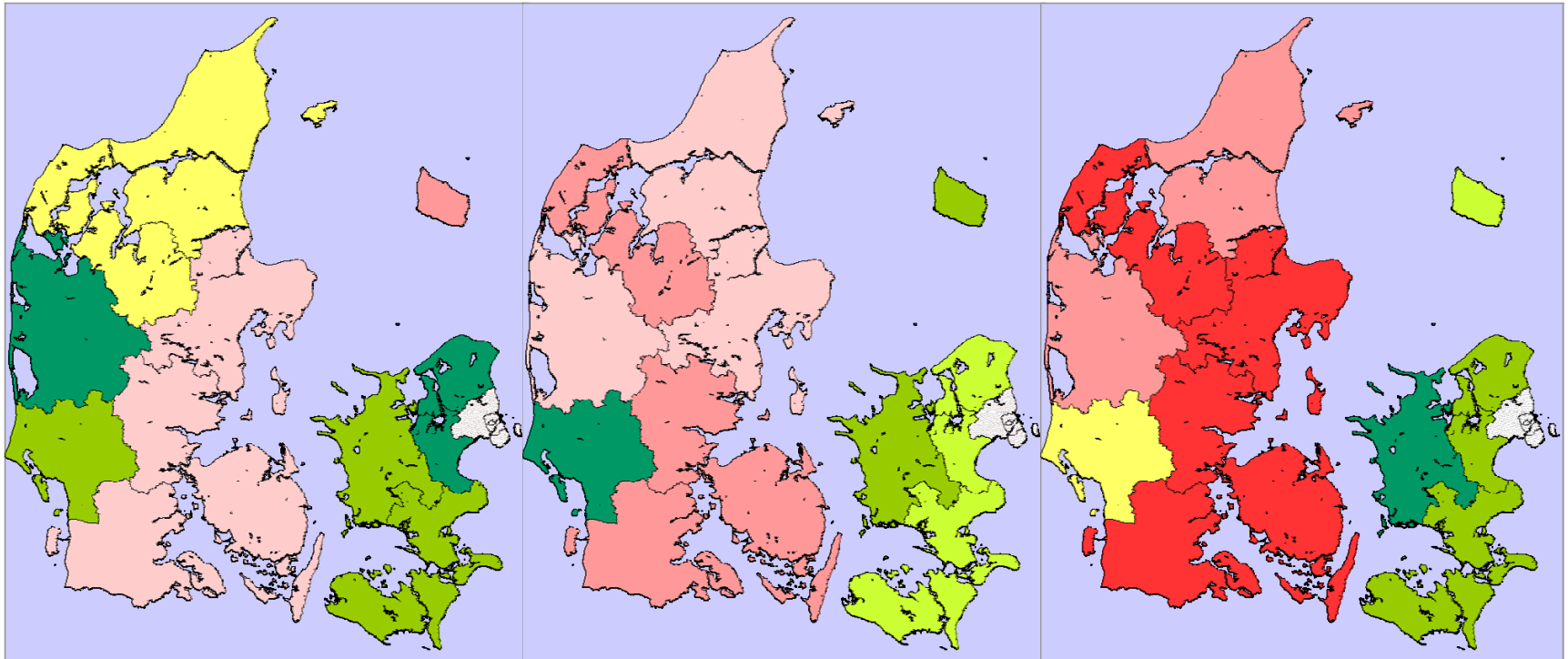
Association between price per "course dose" and consumption

18.11.2008



National Fo

Regional variation in consumption



Kilde: DANMAP 2004

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National Food Institute ADD_{kg} per (1000 "kg-live.pig-days per region)

Conclusions

The VetStat vision:

- optimisation of drug use and prudent use guide lines.
 - surveillance, research, follow National interventions
 - guidelines, control (Danish Food Agency)

VetStat has given the potential of detailed multifactorial modelling of effect of usage on resistance

- ⇒ identification of consumption patterns/high risk herds.
- ⇒ valuable information on usage patterns and factors affecting usage

The National Defined Animal Daily Dose is superior to kg active compound – both for surveillance and research

An international DDDvet will be superior for international surveillance

Conclusions, continued

- Using existing electronic data systems
 - cheap
 - potential high data quality if correlated with billing!!!

many problems solved and lessons learnt!

**THANKS FOR YOUR
ATTENTION!**