

Ministry of Family and Consumer Affairs
The Danish Veterinary and Food Administration

The Danish risk management strategy for veterinary antimicrobial usage

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Danish Veterinary and Food Administration

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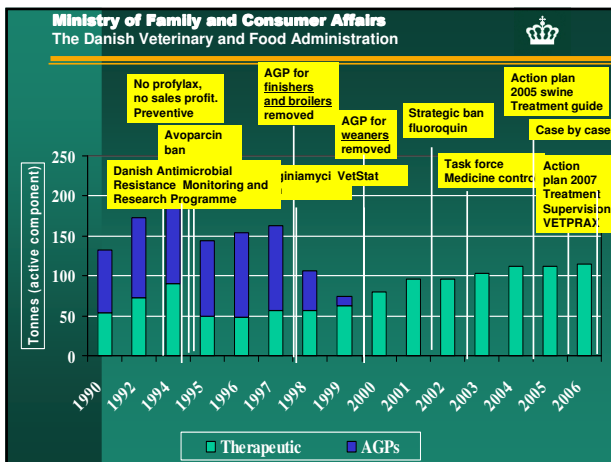
Introduction

AIM:

- Optimization of AM usage and reduction of AM resistance
- Securing food safety and future treatment possibilities for humans without jeopardizing animal health and welfare

PRESENTATION:

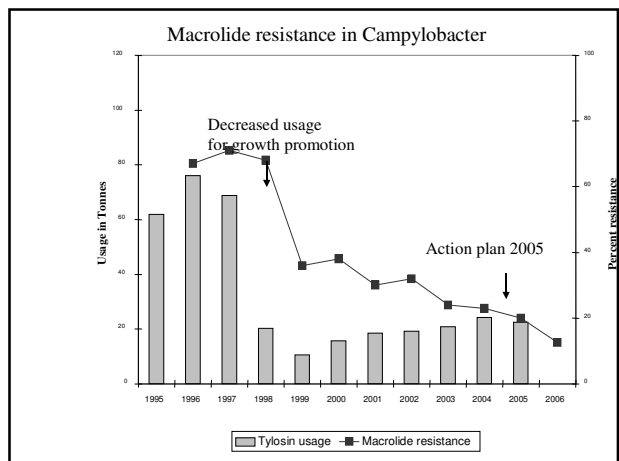
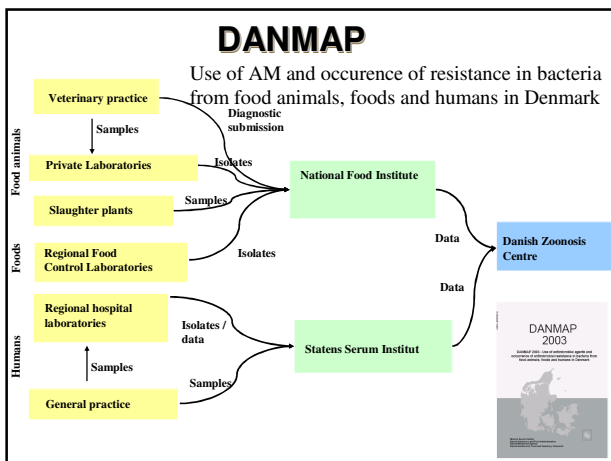
- A historical introduction
- DANMAP and VetStat – monitoring systems –results and examples
- Risk management and communication – action plans and audits of vets
- Treatment guidelines
- Case by case investigation of meat

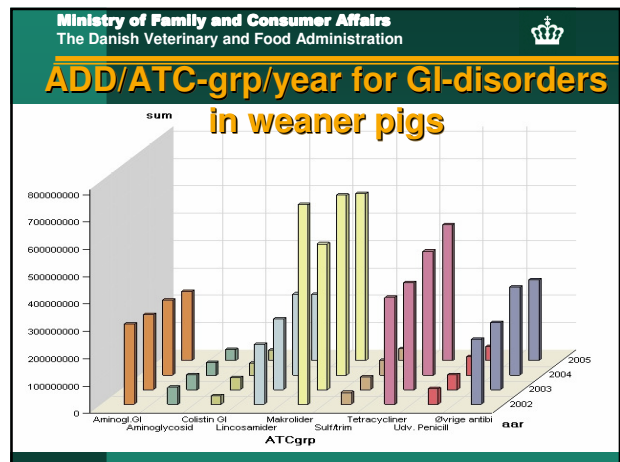
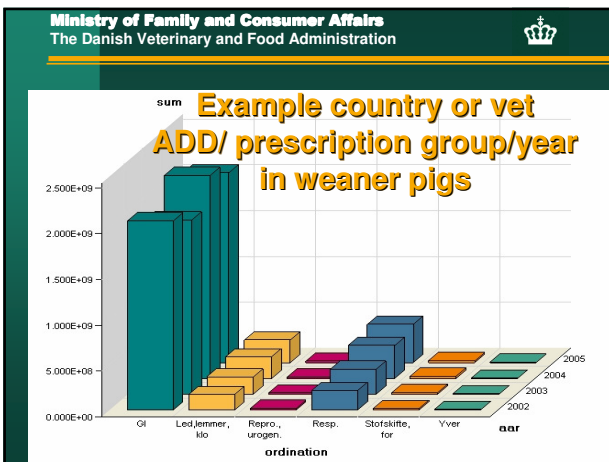
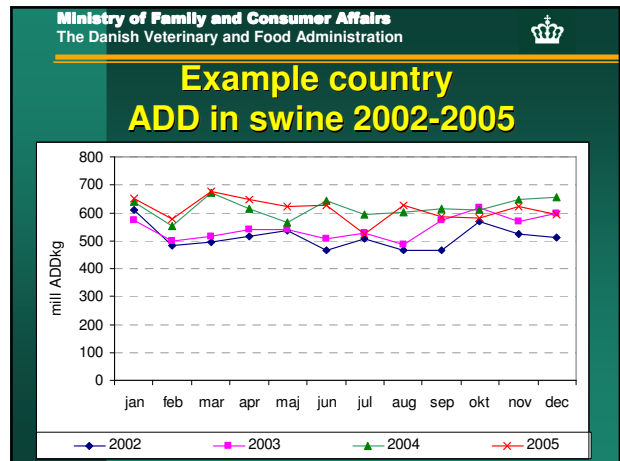
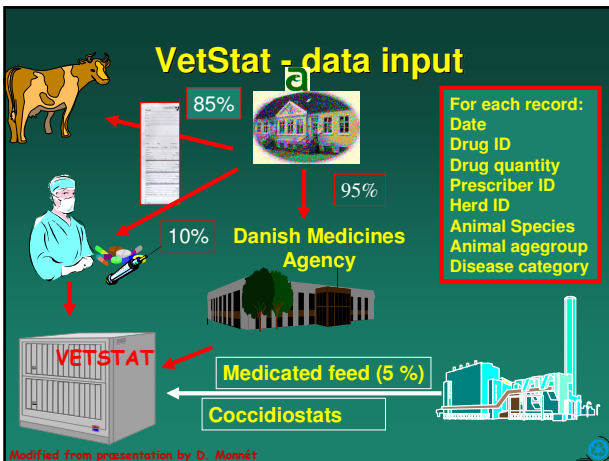


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DK experience

- Monitoring usage and resistance VetStat and DANMAP
 - Unacceptable trends spotted and dealt with
- Measure effectiveness VetStat and DANMAP
 - Trends in resistance by monitoring animals, foods and humans
 - Trends in human foodborne diseases
 - Trends in AM and CIA usage on species, vet., farm or country level
- Risk management and communication
 - Treatment guidelines – national and international criteria (OIE,WHO)
 - VetPrax – vet level compare to country level
 - Audit and supervision of vets
 - Case by Case investigation of meat
 - Food production industry (HACCP etc.)





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Risk management and communication using VetStat

Country:

- Developments over years
- Unacceptable trends spotted
- Risk based control

Action plan 2005 swine and 2007 all food animals

Vets:

- Comparison of usage by ADD – vet /region /country
- Comparison of prescription patterns between vets
- Comparison of vets actual usage to guidelines
- Audits and supervision

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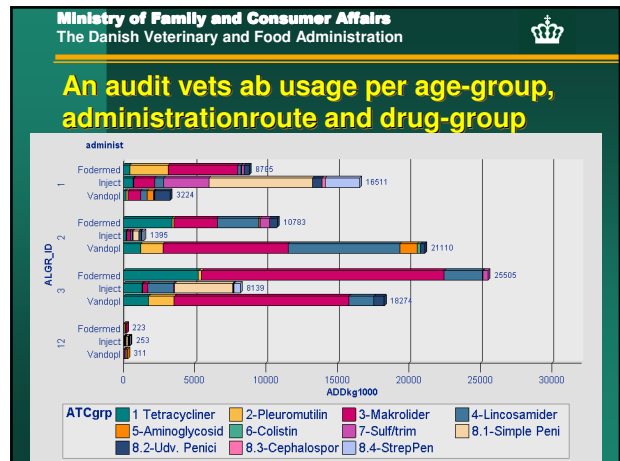
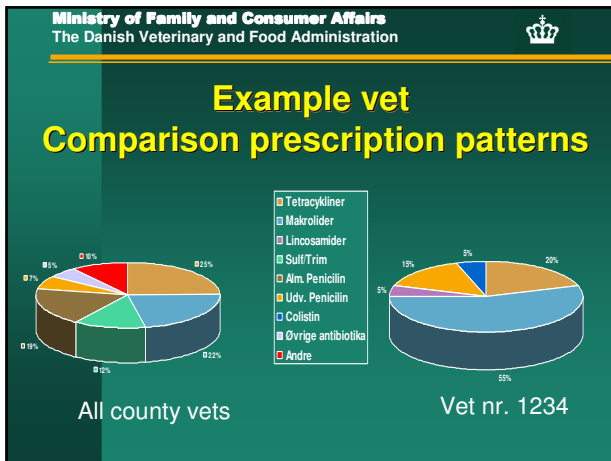
Risk communication

Audits and supervision Action plan 2005-07

Objective:

- Discuss and clarify the vets prescription and treatment patterns – graphs from VetPrax
- ⇒ vets self-recognition
- ⇒ reduce antibacterial consumption
- ⇒ motivate prudent usage

- Discuss treatment strategies and laboratory testing in diagnostic work
- Compare the vets prescription patterns to the treatment guidelines



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- ### Objectives treatment guidelines
- WHY TAKE A RISK IF NOT NEEDED
AND THE RISK HAS NO BENEFIT
- Optimize AM consumption – a counselling tool for vets
 - Reduce risk of development of resistance
 - Secure future treatment possibilities for humans - without jeopardizing animal health and welfare
 - Voluntary approach instead of bans of AM - bans may compromise new developments of veterinary AM's and animal welfare
 - Regulations on CIA secure treatment possibilities for both humans and animals e.i. fluoroquinolones

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Draft 2007 Action plan

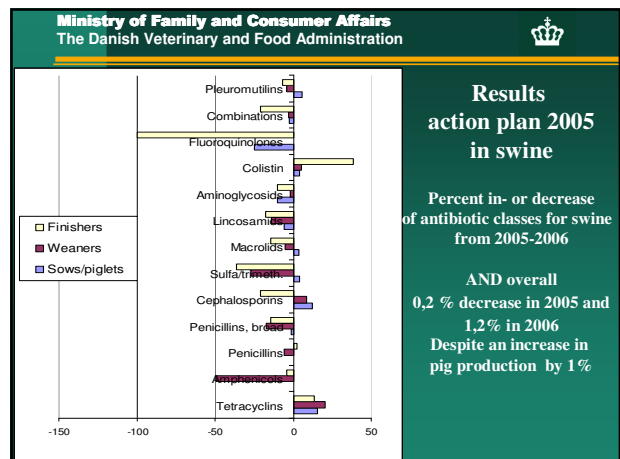
New treatment guidelines all food animals

Criteria for categorizing drugs

| | | |
|--|---------|----------|
| Efficacy: | | |
| SPC documented effect in clinical trials | | + |
| AND recognised effect in clinical practice | | ++ |
| AND SPC spec. for the indication and peer-reviewed | | +++ |
| Resistance national vet. pathogen: | | |
| Susceptibility <30% | | + |
| 30-60% | | ++ |
| >60% | | +++ |
| Human importance (national categorization): | | |
| Drug of choice for treatment of serious human infections and/or direct transmission from animals to humans is detected and/or treatment failure is detected. Ought not be used in animals | | + |
| Important in human treatment and indirect transmission is likely or is important in human treatment and direct transmission is likely | | ++ |
| Not used for human treatment or only very limited or the drug is not important or less important for human treatment and indirect transmission is not likely | | +++ |
| International categorization: | | |
| WHO: CIA + | CIA* + | HIA ++ |
| OIE: VIA + | VHIA ++ | VCIA +++ |

| Disease | Pathogen | Antimicrobial drug | Efficacy | Resist. | Human | WHO | OIE |
|--------------------|-------------------|------------------------------|----------|---------|-------|------|------|
| Calves Diarrhea | E. coli FS (ETEC) | Colistin sulfat | +++ | +++ | +++ | HA | VHIA |
| | | Neomycinsulfat | +++ | +++ | +++ | HA | VCIA |
| | | Florfenicol | ++ | +++ | +++ | IA | VCIA |
| | | Sulfadiazin + TMP | +++ | ++ | ++ | HA | VCIA |
| | | Sulfadoxin + TMP | +++ | ++ | ++ | HA | VCIA |
| | | Amoxicillin + Kaliumclavunat | +++ | +++ | ++ | CIA* | VCIA |
| | | Amoxicillin | ++ | + | ++ | CIA* | VCIA |
| | | Benzyipen. Prok + DiS | ++ | + | +++ | CIA | VCIA |
| | | Dihydrostreptomycin sulfat | ++ | + | +++ | HA | VCIA |
| | | Oxytetracycline | ++ | + | +++ | HA | VCIA |
| | | Enrofloxacin* | +++ | +++ | + | CIA | VCIA |
| | | Agromycin | +++ | +++ | ++ | CIA | VCIA |
| | | Colistin sulfat | +++ | +++ | +++ | HA | VHIA |
| | | Neomycinsulfat | +++ | +++ | +++ | HA | VCIA |
| Salmonella spp. | | Sulfadiazin + TMP | +++ | +++ | ++ | HA | VCIA |
| | | Sulfadoxin + TMP | +++ | +++ | ++ | HA | VCIA |
| | | Amoxicillin | ++ | +++ | ++ | CIA* | VCIA |
| | | Amoxicillin + Kaliumclavunat | ++ | +++ | ++ | CIA* | VCIA |
| | | Florfenicol | ++ | +++ | +++ | IA | VCIA |
| | | Dihydrostreptomycin sulfat | ++ | ++ | +++ | HA | VCIA |
| | | Enrofloxacin* | +++ | +++ | + | CIA | VCIA |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Example Guidelines sorted in recommended and not recommended drugs





Conclusion I

- Monitoring system for both resistance and AM use
 - determine trends and associations – AND
 - develop risk management strategies
- Treatment guidelines for all food animals in process
- The veterinary practitioners choice is based on:
 - Efficacy
 - National resistance patterns
 - National human health concerns
 - International categorization (WHO, OIE)
- A procedure for audit/supervision of veterinarians



Conclusions (II)

- Restricting the veterinarians profit on sale of AM - a 44% reduction in usage
- The ban of AGP's - a major reduction in the occurrence of resistance
- Strategic ban on fluoroquinolones
 - from 94 kg in 2001 to 2,6 kg in 2006
- These risk management options could be done in countries with only scarce monitoring – taking advantage of the DK and EU experiences



Conclusions -IV

- Combining treatment guidelines, with monitoring and control at primary production and retail/wholesale and strategic banning and legislation can change both drug usage and patterns and resistance for the benefit of human health without compromising animal health and welfare

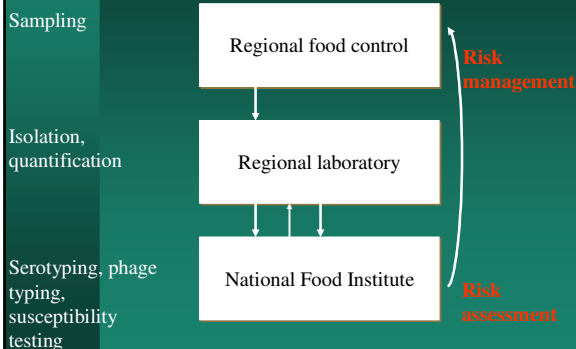


Case by Case

1. Principle based on Article 14 in Regulation (EC) 178/2002
2. Food shall not be marketed if unsafe
3. "Unsafe" determination based on risk assessment
4. "Unsafe" determination on case by case basis



Case-by-Case – Who does what?



Case by case Evaluation of Salmonella

Serotypes

- Types with increased risk of septicemia.
- E.g. S. Dublin og S. Cholerasuis

Antimicrobial resistance

- Increased morbidity and mortality
- CIA: fluoroquinolones and cephalosporins
- Multi-resistance



Case by case Risk management

If the regional food control following the risk assessment considers that the batch confer an increased risk for human health the batch will be with drawn, a notice send to the media and a rapid alert send to EU.



Case by case Conclusion

- Most food safety problems are imported
- A case-by-case surveillance enforcing risk management at the retail/ wholesale level has been implemented
- A case-by-case management of high-risk product including information on antimicrobial resistance, prevalence and serotype has been developed
- Resistance to CIA included in assessment
- Improved food safety for consumers
- Achieved by low level of Salmonella in food in Denmark



Thank you for your attention

If you are interested in our paper on AMR risk management please contact me at acln@fvst.dk



Results salmonellosis in humans

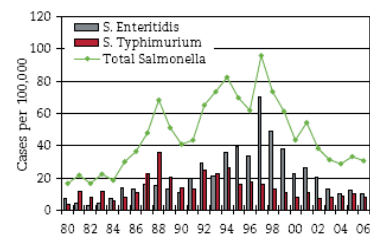


Figure 3. Incidence per 100,000 of human salmonellosis in Denmark, 1980-2006.

Source: SSI

Annual Report on Zoonoses in Denmark 2006