Resistance moves between sectors
The Danish Ministers – works together

The Minister of Environment and Food

The Minister of Health
One Health Strategy against AMR

- A prudent use of antibiotics to reduce the incidence of resistance
- Greater efforts to prevent infections and to facilitate antibiotic alternatives
- Enhanced knowledge to improve targeted measures
- Information and guidance on resistance and transmission
- Strong international cooperation to minimize the development of AMR
Three goals for AMU in **humans** 2017-2020

<table>
<thead>
<tr>
<th>Goal 1: The number of redeemed prescriptions for antibiotics should be reduced</th>
<th>Goal 2: There should be a change in the use of broad-spectrum to narrow-spectrum antibiotics</th>
<th>Goal 3: The consumption of antibiotics that are critically important for the treatment of infections should be reduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>The number of redeemed prescriptions for antibiotics in the primary healthcare sector should be reduced from 460 prescriptions per 1000 inhabitants per year in 2016 to 350 prescriptions per 1000 inhabitants per year in 2020.</td>
<td>Narrow-spectrum antibiotics should be used more frequently in illness treatment. The use of <em>Penicillin V</em> should be increased from approx. 31% in 2016 to constituting 36% of the total antibiotic use in the primary healthcare sector in 2020, measured by the number of prescriptions per 1000 inhabitants.</td>
<td>The consumption of critically important antibiotics should be reduced by 10% by 2020 measured by DDD/100 bed-days for hospitalised patients, compared with consumption in 2016.</td>
</tr>
</tbody>
</table>
Goal 1: Number of redeemed prescriptions for antibiotics should be reduced

![Graph showing the number of redeemed prescriptions for antibiotics from 2015 to 2017. The number of prescriptions per 1,000 inhabitants is displayed on the y-axis, and the years 2015, 2016, and 2017 are shown on the x-axis. The graph indicates a decrease in the number of prescriptions over the years.]
Goal 2: There should be a change in the use of broad-spectrum to narrow-spectrum antibiotics

<table>
<thead>
<tr>
<th>År</th>
<th>Al antibiotika</th>
<th>Penicillin V</th>
<th>Andel (%) af Penicillin V</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>473</td>
<td>151</td>
<td>32</td>
</tr>
<tr>
<td>2016</td>
<td>462</td>
<td>145</td>
<td>31</td>
</tr>
<tr>
<td>2017</td>
<td>427</td>
<td>136</td>
<td>32</td>
</tr>
</tbody>
</table>
Goal 3: The consumption of antibiotics that are critically important for the treatment of infections should be reduced
One Health monitoring of AMU and AMR
Antimicrobials for Humans and Animals

Growth promoter stop

Yellow card threshold

Goals for use in humans
Total consumption of systemic antimicrobials in humans, Denmark 2017
Figure 10. Spatial distribution of overall sales of all antimicrobials for food-producing animals, in mg/PCU, for 30 countries, for 2016
Important steps on the Danish way

1995/2000 DANMAP/VetStat Data on consumption and resistance

1996 Decoupling - Veterinarian has no longer profit on sales of antimicrobials. And 1:1 relation farmer and veterinarian

1999 Stop for use of antimicrobials growth promotors

2010 Goal for production animals, Yellow card initiative

2017 Goals for use of antimicrobials in humans
Ban on AM growth promotors
Mitigation of AMR in Danish animal population

Decreased use of antimicrobials has resulted in less resistance. Infections in pigs remain treatable without the use of antibiotics of critical importance in human medicine, such as fluoroquinolones and 3rd and 4th generation cephalosporins.

It is feasible to reduce the use of antimicrobial for pigs, and maintain a sustained low use in a pig industry with high productivity, with no detrimental effect on pig health or welfare, and marginal cost to the farmer’s economy.

Herd veterinarians have become the primary advisory expert to farmers on herd health management and prevention of diseases.
Public-private collaboration

Denmark has acted on emerging AMR concerns. By using the strong data collected in the VetStat database we have been able to react to increased antimicrobial use before we have been able to detect increased AMR.

Public-private collaboration between the authorities, the industry, veterinarians and researchers have been crucial for the success of reducing antibiotics and finding efficient ways to reduce the usage.

The close surveillance of the use of antibiotics on farm level has been an important tool to provide an overview of usage and have formed the basis of a number of interventions by stakeholders.
Change takes time

The yellow card initiative has proven to be an important and effective tool in promoting a prudent use of antimicrobial use and to discourage the use of certain critically important antimicrobials.

Joint research activities in the pig industry in collaboration with universities, veterinarians and authorities have given new innovative solutions, where herd health management go hand in hand with increasing productivity and competitiveness.

Change takes time. Most of our initiatives have been rolled out or been adjusted gradually. This has given the farmers and veterinarians time to adjust and to devise smart solutions.
The Yellow Card Initiative - Thresholds for Antimicrobial Usage in pigs
ADD for weaners/100 days

Yellow Card Initiative Threshold for weaners

ADD prescribed in one month for this herd

9-month ADD average for this herd

National ADD average for weaners (7-30 kg)
Guidance on Prudent Use

GUIDELINES ON GOOD ANTIBIOTIC PRACTICE

- As little as possible, but as often as necessary

2013

Videncenter for Svineproduktion

DOGS & CATS

Antibiotikavejledning til familiedyr

NATIONAL ACTION PLAN ON ANTIBIOTICS IN HUMAN HEALTHCARE

Three measurable goals for a reduction of antibiotic consumption towards 2020

JULY 2017

HUMANS
FAO report in 2019
Thank You