Initiatives taken to reduce antimicrobial resistance in DK and in the EU in the health care sector

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The Copenhagen Recommendations

Report from the Invitational EU Conference on

The Microbial Threat

Copenhagen, Denmark

September 1998

Health of the population: Strategies to prevent and control the emergence and spread of antimicrobial-resistant micro-organisms
Copenhagen Recommendations (1998) vs. EU Council Recommendation (15.11.2001)

Copenhagen Recommendations:

- Recognise AMR as major EU and global problem
- Encourage search for new AM
- Setup EU surveillance on AMR
- Collect data on supply and consumption of AM agents
- EU Encourage prudent use of AM
- EU, member states and nat.res.councils research on AMR high priority
- Review progress on recommendation
Copenhagen Recommendations (1998) vs.
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Copenhagen Recommendations:
• Recognise AMR as major EU and global problem
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EU Council recommendation:
I Recognise problem and promote strategy for prudent use of AM
   Establish surveillance on AMR
   - and AM use
   Prescription only, guidelines, good practise for managing comm.dis.,
   education of health professionals and information of public
   Cooperate, coordinate and report to EU

II ”Intersectorial mechanism” for coordinated implementation of strategy
SECOND REPORT FROM THE COMMISSION TO THE COUNCIL ON THE BASIS OF MEMBER STATES’ REPORTS ON THE IMPLEMENTATION OF THE COUNCIL RECOMMENDATION (2002/77/EC) ON THE PRUDENT USE OF ANTIMICROBIAL AGENTS IN HUMAN MEDICINE

Response to survey in 2008, 27 Member States and 1 Non-MS (1)
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Response to survey in 2008, 27 Member States and 1 Non-MS (2)

<table>
<thead>
<tr>
<th>No. of countries</th>
<th>Sales of antibiotics without prescription, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>&lt; 1</td>
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<tr>
<td>5</td>
<td>1 - 5</td>
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<tr>
<td>3</td>
<td>5 - 10</td>
</tr>
<tr>
<td>1</td>
<td>&gt; 15</td>
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DANMAP
Danish
Integrated
Antimicrobial
Monitoring and
Research
Programme

- Since 1995
- Collaborative project:
  - Danish Veterinary Institut
  - Danish Food & Veterinary Adm.
  - Danish Medicines Agency
  - Statens Serum Institut
- Annual report since 1997
  http://www.danmap.org

http://www.danmap.org
Surveillance systems on resistance and consumption

Resistance: EARSS (EARS-Net)

Antibiotic use: ESAC

Results of data collection & research in monitoring programs:

Clear correlation between consumption and resistance
The logodds of resistance to penicillin among invasive isolates of *Streptococcus pneumoniae* (PNSP); \( \ln(R/[1-R]) \) is regressed against outpatient sales of beta-lactam antibiotics in 11 European countries; antimicrobial resistance data are from 1998 to 1999 and antibiotic sales data are from 1997. 

DDD = defined daily dose
Relationship Between Outpatient Antibiotic Use and Antibiotic Resistance in Community-Acquired Infections: Two Examples for Europe

![Graph showing the relationship between community consumption of macrolides and lincosamides and antibiotic resistance in E. coli.]

- **Erythromycin-R. S. pneumoniae** (% 1998)
- **Nalidixic acid-R. E. coli** from community-acquired uncomplicated UTIs (% 1999-2000)

**Community consumption of macrolides and lincosamides** (DDD per 1,000 inh-days, 1997)

**Community consumption of fluoroquinolones** (DDD per 1,000 inh-days, 1999)


Source: Kahlmeter G. Clin Microbiol Infect 2001;7(Suppl 1): 86; and ESAC.
Consequences of increased awareness of relationship between consumption and resistance: Interventions, campaigns...
Total outpatient antibiotic use (ATC J01) in 29 European countries, 1998-2005

*Total use for Bulgaria and Iceland, and for Greece (2004 & 2005 only).

**Reimbursement data, which do not include over-the-counter sales without a prescription.
Decreases in antimicrobial resistance following national media campaigns

France

Belgium


Decreases in antimicrobial resistance following national media campaigns

- S. pneumoniae, penicillin-non susceptible
- S. pneumoniae, erythromycin-resistant
- S. pyogenes, erythromycin-resistant
Staphylococcus aureus: proportion of invasive isolates resistant to methicillin (MRSA), 2009

The symbols ‡ and § indicate a significant increasing or decreasing trend for the period 2006-2009, respectively. These trends were calculated on laboratories that consistently reported during 2006-2009.
Examples of resistance issues not solved…
3. Generation Cephalosporin Resistant (ESBL) *E. coli*
Figure 5.10: *Enterococcus faecalis*: proportion of invasive isolates with high-level resistance to aminoglycosides in 2010

- **< 1%**
- **1% to < 5%**
- **5% to < 10%**
- **10% to < 25%**
- **25% to < 50%**
- **≥ 50%**
- **No data reported or less than 10 isolates**
- **Not included**
AMR in Europe and beyond: Organisational changes and measures since 1998

- ECDC established 2005:
  - AMR issue priority
  - AMR “focal points” network & meetings
  - EARS-Net, ESAC, HAI-Net….
  - European Antibiotic Awareness Day – Nov. 18

- EU funded research in AMR
  - DG-Research and FP-programs (5,6,7..)

- Transatlantic Taskforce on Antimicrobial Resistance (TATFAR)

- WHO, ReACT,……
Conclusion:
Initiatives taken to reduce antimicrobial resistance in DK and the EU to reduce resistance in the health care sector

- Prudent use recommendations and initiatives have been implemented in almost all countries of the EU and several Non-MS
- Major advances have been made in the understanding and awareness of the antibiotic resistance threat among governments, health care professionals and the public
- Campaigns and interventions have succeeded in significantly reducing antibiotic consumption leading to reduction in antibiotic resistance especially in Gram-positive pathogens
- **Important issues remain:**
  - Multiple resistant Gram-negative pathogens are still on the increase, why further significant reduction in antibiotic selection pressure is urgently needed
  - Import and spread of such pathogens calls for action = intervention outside the EU