Prudent use of antimicrobial agents in the EU: lessons from the Commission survey, 2015

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Information and views set out in the report and in this presentation are those of the author
Background

- Recommendations on the prudent use of antimicrobial agents in human medicine (2001)
  - Organisation / Governance
    - Strategy, action plan, coordinating mechanism
    - Intersectoral implementation
  - Surveillance of antimicrobial resistance and of use of antimicrobial agents
    - Reliable data at regional, national and EU levels
  - Control and preventive measures
    - Use of antimicrobial agents
    - Hygiene and infection control standards
  - Training, education, information of the general public and professionals
  - Research
Background

2001

- Prudent use of antimicrobial agents in human medicine
  - Council Recommendation for Member States, 15 November 2001

2009

- Patient safety, including the prevention and control of healthcare associated infections
  - Council Recommendation for Member States, 9 June 2009

2011

- Action plan against the rising threats from Antimicrobial Resistance
  - Communication from the European Commission, 15 November 2011
    - 5-years action plan with 12 key actions reg. human and animal health
Objectives

- Assess the implementation, by Member States, of the Council Recommendation on the prudent use of antimicrobial agents in human medicine

  - Taking into account
    - Gaps underscored in previous reports
    - Publication of the Council Recommendation on patient safety
    - Current context – including EU Action Plan and international activities
Methods

- **Questionnaire**
  - Template based on
    - Provisions of the Council Recommendation
    - EU and Transatlantic Taskforce on Antimicrobial Resistance (TATFAR) activities
  - Emphasis on
    - Use of indicators to follow-up implementation of action plan and results
    - Control of multidrug-resistant (MDR) and extensively drug-resistant (XDR) bacteria
    - Antimicrobial stewardship activities in hospitals
    - Involvement of the nursing homes and other long-term care facilities (NH & LTCFs) sector

- **Data collection**
  - Questionnaire sent to the EU Health Security Committee: 31 EU/EEA countries (June-July 2015)
RESULTS

29 EU/EEA countries
Governance

- National strategies and action plans
  - Strategy
  - Formal action plan in 21 countries
    - Currently active action plan launched in 2014/15 in 12 countries

- Intersectoral coordinating mechanism
  - Composition
    - Nursing homes (in 3 countries)
    - Patient groups (4 and one under preparation)
    - Nurses (9)
Governance: Action plan

- Content of the action plan/ activities in 25 countries

- Use of rapid diagnostic tests
- Research
- Detection and control of outbreaks
- Prevention policy
- Surveillance of antimicrobial resistance
- Information of the general public
- Education and training of health professionals
- Detection and control of emerging extensively drug-resistant* (XDR) and pandrug-resistant
- Prudent use of antimicrobial agents
- Surveillance of antimicrobial use
- Surveillance of antimicrobial resistance

* XDR (Extensively Drug-Resistant)
Surveillance of antimicrobial resistance

- European Antimicrobial Resistance Surveillance Network: All!

- Additional national system in 26/29
  - Targets:
    - Carbapenem-resistant Enterobacteriaceae (CRE) in all 26
    - Extended-spectrum beta-lactamase-producing Enterobacteriaceae (ESBL-E) in 24/26
  - Scope:
    - Ambulatory care 20/26
    - Nursing homes and other long-term care facilities 13/26

- Annual report: 22 countries

- System for alert and early reporting
  - CRE in 19
  - Vancomycin-resistant enterococci (VRE) in 11
Surveillance of antimicrobial agents use

- European Surveillance of Antimicrobial Consumption Network: All!
- Additional national surveillance system: 19
  - Scope: Hospital: 17
  - Ambulatory care: 17
  - Nursing homes and other long-term care facilities: 8
- Annual report: 18 countries
- Use of data
  - Prescribers: access to their individual data in 12 countries
  - Hospital data at hospital level (surveillance system) in 14 countries
Control and preventive measures

- Sales of antimicrobial agents without prescription
  - More than 1% in 8 countries

- Electronic prescriptions
  - Hospital sector: 14 countries – Ambulatory care: 13 countries

- Guidelines on prudent use of antimicrobial agents: 28/29
  - Endorsed by health authorities 22/28
  - Assessment of prescribers compliance 14/28
  - Assessment of impact on practices 8/28
  - Guidelines for NH&LTCFs 13/29

- Use of rapid diagnostic tests (RDT)
  - encouraged by the Government in 9 countries
Control and preventive measures

- Antimicrobial stewardship in hospitals: 20 EU/EEA countries

- Antimicrobial stewardship programme
- Multidisciplinary organisational structure
- Antibiotic advisor/leader
- Antimicrobial pharmacist(s)
- Antimicrobial stewardship team
- Facility-specific treatment recommendations
- Monitoring of antimicrobial use in DDD/100PD
- Review of appropriateness after 48-72h
- Communication to prescribers of audits results

Professional recommendations
Legal/regulatory requirements
Infection control

- Legal requirements or national recommendations for
  - Number of infection control nurses in hospitals: 19 countries
  - Number of infection control doctors in hospitals: 15 countries
  - Nursing homes: 2 for nurses; 1 for doctors

- Impact of infection control measures assessed
  - 13 countries in hospitals
  - 6 countries in nursing homes
Infection control

- Guidelines for the prevention and control of CRE in 18 countries (\(\text{/26 with surveillance system}\)):
  - Identification and screening of patients at risk: 18
  - Dedicated staff and cohorting: 18
  - Contact tracing: 17

- Communication on patient status / transfer:
  - Required in 20 countries if intra-country transfer
  - Required in 11 countries if cross-border transfer

- Root-cause analysis of HAI: required in 14 countries:
  - MDR infections/bacteraemia (5)
  - Outbreaks (3)
  - CPE/VRE infections/colonisations (2 each)
Public and healthcare professionals awareness

- Awareness raising campaigns 25/29
  - Positive impact of European Antibiotic Awareness Day (EAAD)
  - Design based on behavioural research: 7 countries
  - Professional audience
    - Medical doctors in 69%
    - Pharmacists in 48%
    - Dentists/nurses/midwives <20%

- Specific educational programme for school children: 9
Indicators

- Description of indicators used (or about to be used) by 18 countries to assess the implementation and/or the results of action plans
  - Indicators for hospitals: 18
  - Indicators for ambulatory care: 16
  - Indicators for NH&LTCFs: 9

- Indicators publicly available
  - At hospital level in 8 countries (+ UK: trust-level)
  - At NH&LTCFs level in 2 countries

- Specific targets defined in 8 countries
### Indicators

Examples of indicators used in ambulatory care, in hospitals and in NH&LTCFs (N=18 countries)

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Ambulatory care sector (N=16)</th>
<th>Hospitals (N=18)</th>
<th>Nursing homes and other LTCFs (N=9)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antimicrobial resistance, MRSA</td>
<td>8</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>bacteraemia, incidence</td>
<td>5</td>
<td>not publicly available at hospital level</td>
<td>2 not publicly available at facility level</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>not publicly available at hospital level</td>
<td>5 not publicly available at facility level</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>publicly available at hospital level</td>
<td>1 publicly available at facility level</td>
</tr>
<tr>
<td>Clostridium difficile infection, incidence</td>
<td>16</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>not publicly available at hospital level</td>
<td>5 not publicly available at facility level</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>publicly available at hospital level</td>
<td>1 publicly available at facility level</td>
</tr>
<tr>
<td>Antimicrobial consumption</td>
<td>16</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>not publicly available at hospital level</td>
<td>1 not publicly available at facility level</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>publicly available at hospital level</td>
<td>1 publicly available at facility level</td>
</tr>
<tr>
<td><strong>Structure &amp; Process</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume of alcohol hand rub used per year/ 1000 beds (or other denominator)</td>
<td>2</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>not publicly available at hospital level</td>
<td>1 not publicly available at facility level</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>publicly available at hospital level</td>
<td>0 publicly available at facility level</td>
</tr>
<tr>
<td>Number of FTE of IC/HH professionals/ 1000 beds (or other denominator)</td>
<td>11</td>
<td>not publicly available at hospital level</td>
<td>1 not publicly available at facility level</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>publicly available at hospital level</td>
<td>0 publicly available at facility level</td>
</tr>
</tbody>
</table>
## Examples of specific targets for indicators reported by eight countries

<table>
<thead>
<tr>
<th>Sector</th>
<th>Indicator (current value where relevant)</th>
<th>Target</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambulatory care</td>
<td>Number of prescriptions/1000 inhabitants/year (800 in 2015)</td>
<td>600 400</td>
<td>2020 2025</td>
</tr>
<tr>
<td></td>
<td>Ratio amoxicillin to amoxicillin-clavulanic acid (50/50 in 2015)</td>
<td>80/20</td>
<td>2018</td>
</tr>
<tr>
<td></td>
<td>Number of antibiotics prescribed by physician</td>
<td>Reduction ≥1%</td>
<td>2015/2016</td>
</tr>
<tr>
<td>Hospital</td>
<td>Duration of surgical prophylaxis &lt; 24 hours</td>
<td>&gt; 90% of cases</td>
<td>2015</td>
</tr>
<tr>
<td></td>
<td>Percentage of treatments lasting more than 7 days without justification</td>
<td>&lt; 10%</td>
<td>2016</td>
</tr>
<tr>
<td></td>
<td>Total antibiotic use in number of DDD/1000 inhabitants/day</td>
<td>25% reduction</td>
<td>2020</td>
</tr>
<tr>
<td></td>
<td>Percentage of hospitals with antimicrobial stewardship reports</td>
<td>100%</td>
<td>2017</td>
</tr>
<tr>
<td></td>
<td>Hand hygiene compliance by clinical staff</td>
<td>&gt; 90%</td>
<td>2015</td>
</tr>
<tr>
<td>All sectors</td>
<td>Incorrectly prescribed antibiotics</td>
<td>50% reduction</td>
<td>2020</td>
</tr>
</tbody>
</table>
Discussion

- Achievements
  - Governance: strategy, action plan and implementation intersectoral / One Health approach
  - Surveillance systems
  - Awareness campaigns
  - Integration of new concerns (CRE)

- Room for improvement
  - Governance and scope
    - Involvement of the general public and patient groups
    - NH & LTCFs sector
    - Coordination with HAI/patient safety programmes
  - Evaluation of compliance AND effectiveness
  - Alert and reporting
  - Training of healthcare professionals other than medical doctors
Discussion

Need for new initiatives

- Variations among Member States
- High levels of antimicrobial resistance and of antimicrobial agents use in countries with comprehensive action plans
  - Best use of behavioural sciences (communication and implementation)
  - Research on effective implementation of antimicrobial stewardship activities
Evaluation of EU action plan in 2016 ⇒ Next action plan 2017

Activities with EU-added value

- Support of Member States in the implementation and monitoring of their national action plans
  - Increasing policy makers commitment to implement comprehensive strategies
  - Promotion of sharing experiences and best practices; provision of “ready-to-adapt” tools
    - Success of surveillance networks, EAAD, technical documents from the European centre for disease prevention and control (ECDC), TATFAR and ECDC indicators
    - EU guidelines on the prudent use of antimicrobials in human medicine to come (ECDC, public consultation August 2016)

Innovation and research

- Rapid diagnostic tests, vaccines, alternatives to antimicrobials
- Effectiveness of measures in different healthcare systems
Thank you for your attention

More information on DG Sante website, AMR pages

HEALTH AND FOOD SAFETY

Antimicrobial Resistance

Antimicrobial Resistance (AMR) is the ability of microorganisms to resist antimicrobial treatments, especially antibiotics. AMR not only has a direct impact on human and animal health - due to the failure in the treatment of infectious diseases - but also carries a heavy economic cost.

AMR is a natural phenomenon but an accumulation of factors, including excessive and inappropriate use of antimicrobial medicines on humans and animals and poor infection control practices, transformed AMR into a serious threat to public health worldwide.

This leads to:

- increasing healthcare costs
- prolonged hospital stays
- treatment failures
- a significant number of deaths

Global consumption of antibiotics in human medicine rose by nearly 40% between 2000 and 2010 (UK Report).

In the US alone, “more than two million people are sickened every year with antibiotic-resistant infections, with at least 23,000 dying as a result” (data from the CDC).

UN General Assembly high-level meeting on antimicrobial resistance (21 September 2016)