Progress in Europe in Human Antimicrobial Resistance Reduction Strategies

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Challenges

- 28 Member States
- 24 official languages
- > 500 million inhabitants (per country: 416,333 – 81.7 million)
- €25,100 GDP/capita (per country: 10,400 – 69,300)

Many are WHO “Less resourced” countries
Inappropriate Ambulatory Antibiotic Use (EUROBAROMETER) & Cultural Dimension Hofstede Scores

European Football Championship 2008: Fair play indicator also correlated significantly with the total antimicrobial use in the ambulatory sector (correlation coefficient 0.833; p = 0.003).

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<table>
<thead>
<tr>
<th>Topic</th>
<th>Agree</th>
<th>Modify</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organisation</td>
<td>85%</td>
<td>9%</td>
<td>4%</td>
<td>1%</td>
</tr>
<tr>
<td>Control</td>
<td>79%</td>
<td>7%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Surveillance</td>
<td>79%</td>
<td>11%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Education</td>
<td>79%</td>
<td>14%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resources</td>
<td>79%</td>
<td>15%</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Overall Averages</td>
<td>80%</td>
<td>11%</td>
<td>2%</td>
<td></td>
</tr>
</tbody>
</table>
COUNCIL RECOMMENDATION 2002/77/EC
on the prudent human antimicrobial agent use

• Article 2e: implement **hygiene and infection control standards** in institutions (hospitals, child care facilities, nursing homes etc.) and in the community and assessing their impact

• Article 3b: enhance **training** on hygiene and infection control standards

• invites Commission to cooperate with **WHO**
13 MS and 5 regions report that the Recommendation has triggered initiatives on HAI, in particular:

- the implementation of an inter-sectoral mechanism or equivalent system
- preparation/revision of strategies
- information campaigns addressing healthcare workers
8 components of WHO Regional Strategy

- Combined strategy on HAI and AMR and link to patient safety
- Strengthen surveillance of HAI and combine AMR
- Improve use of standardized surveillance methods and indicators, and process & progress indicators
- Standardize guidelines and tools for infection control and prevention in health care settings, including AM drug use.
- Move from individual projects to national programmes
- Foster partnership with professional groups
- Review research agenda, training needs and gaps
- **Political commitment, advocacy**, resources

ECDC (& UK!) AMR Strategy

**Antimicrobial Stewardship**

- New Diagnostics, Antibiotics and Treatments
- AMR & AB Usage Surveillance
- International Collaboration

**Infection Prevention & Control**

- Training/ Education: Professionals & Public
- Prioritisation of R&D & Interventions: Organisational & Behavioural
Relevant DG SANCO EU Networks

**HELICS**
Hospitals in Europe Link for Infection Control through Surveillance
unofficial
1993
Embedded in Improving Patient Safety in Europe (IPSE) 2005

**EARSS:**
European Antimicrobial Resistance Surveillance Scheme 2000

**ESAC:** European Surveillance of Antimicrobial Consumption

**ECDC**
HELICS 2008

**ECDC**
2002
### Table I
Mean, minimum and maximum scores for the national performance indicators (NPIs) ‘national programme’ and ‘guidelines’ for long-term care facilities (LTCFs) in 32 participating countries, 2010

<table>
<thead>
<tr>
<th>NPI</th>
<th>Included in:</th>
<th>Component indicator</th>
<th>Mean score</th>
<th>Min. score</th>
<th>Max. score</th>
</tr>
</thead>
<tbody>
<tr>
<td>National programme</td>
<td>X</td>
<td>A national committee has agreed, and reviews, an HAI programme annually (ideally online) specific for, or including, LTCFs</td>
<td>2.5</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>Evidence that HAI programme is reviewed annually</td>
<td>1.7</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>A national committee has agreed, and reviews, an AS programme annually (ideally online) specific for, or including, LTCFs</td>
<td>2.4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>Evidence that AS programme is reviewed annually</td>
<td>1.9</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>National HAI committee(s) meet(s) at least twice a year with minutes available (e.g. online)</td>
<td>2.2</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>National AS committee(s) meet(s) at least twice a year with minutes available (e.g. online)</td>
<td>1.9</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Mean score for NPI (mean % of total possible score for NPI)</td>
<td></td>
<td></td>
<td>2.1</td>
<td>1.0</td>
<td>5.0 (42%)</td>
</tr>
</tbody>
</table>
Prevalence of antimicrobial use in acute care hospitals, ECDC PPS 2011-2012

*Poor PPS data representativeness
2013:

2014-15: TRICE-Implementation Strategy includes:
• IC Course assessments
• IC/HH WIKI : ESCMID SGs to be involved
• Revisiting TRICE IC Resources
Indicators for hospital antimicrobial stewardship programmes

Seventeen “core” indicators essential to fully characterise all aspects of ASP programmes
Sixteen “supplemental” indicators

<table>
<thead>
<tr>
<th>CORE Indicators for hospital antimicrobial stewardship programs</th>
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<tbody>
<tr>
<td>1. Does your facility have a formal antimicrobial stewardship programme accountable for ensuring appropriate antimicrobial use?</td>
</tr>
<tr>
<td>2. Does your facility have a formal organizational structure responsible for antimicrobial stewardship (e.g., a multidisciplinary committee focused on appropriate antimicrobial use, pharmacy committee, patient safety committee or other relevant structure)?</td>
</tr>
<tr>
<td>3. Is an antimicrobial stewardship team available at your facility (e.g., greater than one staff member supporting clinical decisions to ensure appropriate antimicrobial use)?</td>
</tr>
<tr>
<td>4. Is there a physician identified as a leader for antimicrobial stewardship activities at your facility?</td>
</tr>
<tr>
<td>5. Is there a pharmacist responsible for ensuring appropriate antimicrobial use at your facility?</td>
</tr>
<tr>
<td>6. Does your facility provide any salary support for dedicated time for antimicrobial stewardship activities (e.g., percentage of full-time equivalent [FTE] for ensuring appropriate antimicrobial use)?</td>
</tr>
<tr>
<td>7. Does your facility have the IT capability to support the needs of the antimicrobial stewardship activities?</td>
</tr>
<tr>
<td>8. Does your facility have facility-specific treatment recommendations based on local antimicrobial susceptibility to assist with antimicrobial selection for common clinical conditions?</td>
</tr>
<tr>
<td>9. Does your facility have a written policy that requires prescribers to document an indication in the medical record or during order entry for all antimicrobial prescriptions?</td>
</tr>
<tr>
<td>10. Is it routine practice for specified antimicrobial agents to be approved by a physician or pharmacist in your facility (e.g., pre-authorization)?</td>
</tr>
<tr>
<td>11. Is there a formal procedure for a physician, pharmacist, or other staff member to review the appropriateness of an antimicrobial at or after 48 hours from the initial order (post-prescription review)?</td>
</tr>
<tr>
<td>12. Has your facility produced a cumulative antimicrobial susceptibility report in the past year?</td>
</tr>
<tr>
<td>13. Does your facility monitor if the indication is captured in the medical record for all antimicrobial prescriptions?</td>
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<tr>
<td>14. Does your facility audit or review surgical antimicrobial prophylaxis choice and duration?</td>
</tr>
<tr>
<td>15. Are results of antimicrobial audits or reviews communicated directly with prescribers?</td>
</tr>
<tr>
<td>16. Does your facility monitor antimicrobial use by grams [Defined Daily Dose (DDD)] or counts [Days of Therapy (DOT)] of antimicrobial(s) by patients per days?</td>
</tr>
<tr>
<td>17. Has an annual report focused on antimicrobial stewardship (summary antimicrobial use and/or practices improvement initiatives) been produced for your facility in the past year?</td>
</tr>
</tbody>
</table>

Domains
- Infrastructure
- Policy and practice
- Monitoring and feedback

ESAC/ARHAI Networks -11-13/2/15
Stockholm, ECDC
### ECDC: European Annual Cost Estimates of Five Top MDR Pathogens

<table>
<thead>
<tr>
<th>Extra in-hospital costs</th>
<th>Extra outpatient costs</th>
<th>Productivity losses due to absence from work</th>
<th>Productivity losses due to patients who died from their infection</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>€ 927.8 million</td>
<td>€ 10 million</td>
<td>€ 150.4 million</td>
<td>€ 445.9 million</td>
<td>€ 1.5 billion</td>
</tr>
</tbody>
</table>

Excluded Costs

• intensive care

• expensive last line antibiotics and other drugs

• infection control precautions
HORIZON 2020

• HEALTH.2013.2.3.1-1: Drugs and vaccines for infections that have developed or are at the risk of developing significant anti-microbrial resistance.

• HEALTH.2013.2.3.1-2: Stratified approaches to antibacterial and/or antifungal treatment
A “Perfect Storm”
Companies withdrawing from antimicrobial market as:

- New drug development expensive
- Resistance, not just side effects, a huge challenge
- Patient numbers often relatively small & regimens short
- Patents short-lived
IMI New Drugs for Bad Bugs (ND4BB) initiative

**COMbatting BACterial resistance in Europe (COMBACTE)** €194.6m

- “CLIN-Net”: large clinical trials
- “LAB-Net”: microbial surveillance for trial site selection
- Studies: Novel antibiotic vs skin and respiratory infections
  - New human immunoglobulin monoclonal antibody against S. aureus alpha toxin

**Molecular basis of the bacterial cell wall permeability (TRANSLOCATION)** €29.3m

- Explore how to stop the Gram negative bacteria ejecting antimicrobials