ECDC’s activities on antimicrobial resistance (AMR), 2016

Dominique L. Monnet, on behalf of the ECDC Antimicrobial Resistance and Healthcare-Associated Infections (ARHAI) Programme
EFSA Advisory Forum, Utrecht, 8 June 2016
Antimicrobial Resistance and Healthcare-Associated Infections (ARHAI) Networks

- European Antimicrobial Resistance Surveillance Network (EARS-Net)  
  (formerly EARSS, integrated in January 2010)

- European Surveillance of Antimicrobial Consumption Network (ESAC-Net)  
  (formerly ESAC, integrated in July 2011)

- Healthcare-Associated Infections surveillance Network (HAI-Net)  
  (formerly HELICS / IPSE, integrated in July 2008)
<table>
<thead>
<tr>
<th>Indicators</th>
<th>EARS-Net</th>
<th>ESAC-Net</th>
<th>HAI-Net</th>
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<td>CDI surveillance</td>
<td>EPIS AMR-HAI</td>
<td>Antibiotic stewardship indicators</td>
<td>Infection control indicators</td>
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<td>EuSCAPE, LA-MRSA</td>
<td>Hosp. use (2016)</td>
<td>CDI surveillance</td>
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<td>MDROs</td>
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<td>Burden of HAI &amp; AMR (2016-2017)</td>
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<td>Joint Meetings of ARHAI Networks</td>
<td>Interactive database &amp; Annual report</td>
<td>Contribution to inter-agency report - JIACRA</td>
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<td>Coordination</td>
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<td>Ongoing surveillance</td>
<td>Interactive database &amp; Annual report</td>
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<td>Interactive database &amp; Reports</td>
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<td>Risk assessment: syst. reviews and guidance</td>
<td>CRE, ESBL</td>
<td>Periop. prophylaxis</td>
<td>Hosp. IPC prog.</td>
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<td>Communication</td>
<td>European Antibiotic Awareness Day (in partnership with World Antibiotic Awareness Week)</td>
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<td>Contribution to WHO Hand Hygiene Day</td>
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<tr>
<td>Training</td>
<td>Short course on prevention and control of MDROs</td>
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<td>Infection control training (TRICE-IS)</td>
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Source: ECDC, 2016.
Surveillance activities (1)

- **EARS-Net**
  - AMR interactive database, 2015 update *(17 Nov. 2016)*
  - EARS-Net 2015 report *(Q1 2017)*

- **ESAC-Net**
  - Antimicrobial consumption interactive database, 2015 update *(17 Nov. 2016)*
  - ESAC-Net report 2013-2014 *(in preparation)*
  - Start of pilot survey on hospital antimicrobial consumption surveillance

- **Support to standardisation of antimicrobial susceptibility testing** methods and clinical breakpoints for surveillance of antimicrobial resistance
Population-weighted, average % resistant isolates among bacteria from bloodstream infections (and meningitides), EU/EEA, 2002-2014

**Gram-positive bacteria**
- Meticillin-resistant *S. aureus* (MRSA)
- Vancomycin-resistant *E. faecium*

**Gram-negative bacteria**
- Third-gen. cephalosporin-resistant *E. coli*
- Third-gen. ceph.-resistant *K. pneumoniae*
- Carbapenem-resistant *K. pneumoniae*
- Carbapenem-resistant *P. aeruginosa*

Klebsiella pneumoniae: percentage of invasive isolates resistant to carbapenems; EU/EEA, 2014

Source: EARS-Net, 2015

The symbols ‡ and † indicate a significant increasing or decreasing trend for the period 2011-2014, respectively. These trends were calculated on laboratories that consistently reported during this period.
Surveillance activities (2)

- **FWD-Net**

- EU Summary report on antimicrobial resistance in zoonotic and indicator bacteria from humans, animals and food in 2014 (EFSA/ECDC, *published February 2016*)

- Updated EU protocol for harmonised monitoring of antimicrobial resistance in human *Salmonella* and *Campylobacter* isolates (*7 June 2016*)

- Report of 1st EQA on AMR *Salmonella* and *Campylobacter* (*in preparation*)
Surveillance activities (2)

- **Euro-GASP**
  Report on gonococcal antimicrobial susceptibility surveillance in Europe 2014 (*June 2016 tbc*)

- **MDR/XDR TB**
  As part of ECDC/WHO Europe report on tuberculosis surveillance and monitoring in Europe 2016 (*published March 2016*) and ECDC Surveillance Atlas of Infectious Diseases
The Surveillance Atlas of Infectious Diseases is a web-based tool for easy access to European infectious disease surveillance data. It aims at improving availability and accessibility of data, providing it in a user-friendly way (maps, diagrams, time series, distributions, tables). Indicators are set individually for each disease to ensure better information for action in the prevention and control of infectious diseases. You can search information by disease, region or period. It aims at improving availability and accessibility of data, providing it in a user-friendly way (maps, diagrams, time series, distributions, tables). Indicators are set individually for each disease to ensure better information for action in the prevention and control of infectious diseases. Currently the Atlas contains information on tuberculosis, invasive Haemophilus influenzae disease, invasive meningococcal disease, measles and rubella; additional diseases will be added gradually.

To start, choose data below:

Choose Data

Tuberculosis - All cases - MDR-TB cases

Data by Country and Year. Current time period: 2014

Surveillance activities (4)

- HAI-Net
  - Launch of 2nd point prevalence survey (PPS) of HAI and antimicrobial use in acute care hospitals (2016-2017)
  - HAI in intensive care units *(report in preparation)*
  - Surgical site infections *(report in preparation)*
  - Launch of *Clostridium difficile* infection surveillance
  - Introduction of structure & process indicators
2nd ECDC point prevalence survey (PPS), 2016-2017 – an integrated approach for surveillance, prevention and control of HAI and AMR in European acute care hospitals

Outcome indicators (HAI, selected MDROs)

Guidance (directory of online resources)

Structure and process indicators (incl. antimicrobial consumption)

Source: ECDC, 2015.
Ad-hoc studies/surveys

• European Survey of Carbapenemase-Producing *Enterobacteriaceae* (EuSCAPE) – final report *(submitted)*

• Livestock-associated MRSA infections in humans *(in preparation)*

• Burden of HAI in the EU/EEA *(submitted)*
• Burden of carbapenem-resistant *Enterobacteriaceae* in the EU/EEA *(in preparation)*
• Burden of AMR in the EU/EEA *(in preparation)*
Spread of carbapenemase-producing *Enterobacteriaceae* (CPE) in the EU/EEA: assessment by national experts

No case reported
Sporadic occurrence
Single hospital outbreaks
Sporadic hospital outbreaks
Regional spread
Interregional spread
Endemic situation

### National capacity for containment of CPE in the EU/EEA, May 2015

<table>
<thead>
<tr>
<th>National measure for containment</th>
<th>No. EU/EEA MSs</th>
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</thead>
<tbody>
<tr>
<td>National surveillance system dedicated to CPE</td>
<td>27</td>
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<tr>
<td>National reference/expert laboratory for CPE</td>
<td>29</td>
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<tr>
<td>System for notification of CPE cases to health authorities</td>
<td>22</td>
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<tr>
<td><strong>National guidance for prevention and control of CPE</strong></td>
<td>23 -&gt;</td>
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<tr>
<td>National plan for containment of CPE</td>
<td>10</td>
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</tbody>
</table>

ECDC rapid risk assessment: carbapenem-resistant *Enterobacteriaceae* (CRE), 8 April 2016

Options for actions to reduce identified risks

- Limited treatment options and high mortality
- Prevent spread of CRE in hospitals and other healthcare settings
  - Targeting patients at high risk for carriage of CRE
  - Preventing transmission from CRE-positive patients
  - Preventing spread of CRE in specific wards/units
  - Antimicrobial stewardship
- Prevent spread of CRE into the community
- Cross-border aspects
- Risks for healthcare systems

Systematic reviews and guidance documents

- Rapid risk assessment: carbapenem-resistant *Enterobacteriaceae* (CRE) *(published April 2016)*
- Precautions for patients being transferred between healthcare institutions across borders (guidance)
- Expert opinion on the risks from digestive colonization with multidrug-resistant *Enterobacteriaceae* after international travel and implications for surveillance, infection control and patient management

- **ECDC directory of online resources** (& toolbox)
Directory of online resources for prevention and control of antimicrobial resistance (AMR) and healthcare-associated infections (HAI)


The directory lists strategies, guidance documents and training courses on the prevention and control of antimicrobial resistance and healthcare-associated infections available online. These documents were published by ECDC, EU/EEA Member States, international and national agencies and professional societies to support healthcare professionals, hospital administrators and public health professionals. In addition, the directory lists ongoing research projects and their corresponding websites.

ECDC welcomes suggestions and further information on existing guidance. Comments can be provided to: arhai@ecdc.europa.eu.
Epidemic intelligence and response support activities

- Epidemic Intelligence Information System (EPIS) for AMR and HAI events

- ECDC country visits to discuss AMR and HAI issues:
  - Spain, *February 2016*
  - Italy, *October 2016*
  - One additional visit (*tbd*)

- Participation in country visits with focus on food animals and foods organised by DG SANTE:
  - AMR monitoring audit (Hungary, *October 2016*)
  - Prudent use of antimicrobials (Spain, *October 2016*; Romania, *November 2016*)
Country visits to discuss antimicrobial resistance (AMR) issues, 2006-2016

Country visits to discuss AMR issues (as of June 2016)

- Based on Council Recommendation of 15 November 2001 on the prudent use of antimicrobial agents in human medicine (2002/77/EC)
- Reports (observations, conclusions, suggestions, examples of best practice)
- 20 initial visits (see map)
- 5 follow-up visits (Czech Rep., Greece x 2 and Hungary x 2)
- 2 additional visits budgeted for 2016
Public health training activities

• Training in infection control and hospital hygiene professionals in Europe – Implementation strategy
  - List of evaluated of existing national courses against the core competencies *(in press)*
  - Report on infection prevention and control/hospital hygiene professionals and training needs in the EU/EEA *(in press)*
  - Field Epidemiology Manual Wiki for infection control and hospital hygiene *(in preparation)*

• Short course on control of multidrug-resistant organisms (MDROs) in healthcare settings *(Sept. 2016)*
Training on infection control in the EU/EEA

Supporting training on infection control and hospital hygiene in the EU/EEA

Prevention and control of healthcare-associated infections (HAIs) relies on specialised infection prevention and control staff in charge of elaborating, implementing and monitoring local preventive measures such as hand hygiene, patient isolation and HAI surveillance.

ECDC activities supports infection control and hospital hygiene training programmes in the EU and EEA Member States at national and regional level through:

- Developing core competencies for disciplines related to infection control and hospital hygiene;
- Evaluating existing courses on infection control and hospital hygiene and establishing a catalogue of evaluated courses;
- Developing an "Infection Control Wiki" - an 'e-learning tool' for trainers, including chapters addressing core competencies on infection control and hospital hygiene;
- Assessing the infection prevention and control capacity and training needs in EU/EEA Member States through repeated surveys.

Core competencies for infection control and hospital hygiene professionals

Contributing to core competencies for disciplines related to infection control and hand hygiene

Catalogue of courses on infection control and hand hygiene

Evaluating courses on infection control and hospital hygiene, and establishing a catalogue of evaluated courses

Infection Control Wiki

An "e-learning tool" for trainers, including chapters addressing core competencies on infection control and hospital hygiene

Survey results: infection control capacity and training

Assessing the infection prevention and control capacity in EU and EEA Member States

Support to the Commission – Collaboration at EU and international level

• Support to the Commission on *ad-hoc* requests:
  - technical advice on surveillance of antimicrobial resistance in human health in the EU/EEA and options for strengthening systems (*May 2016*)
  - draft EU guidelines on the prudent use of antimicrobials in human medicine (*October 2016*)

• Collaboration with other EU agencies (EMA, EFSA):
  - EMA/AMEG advice on colistin (*July 2016*)
  - 2nd JIACRA report (*June 2017*)

• Collaboration with WHO, in particular WHO GLASS

• Bilateral collaboration with the US, Canada and Norway under the Transatlantic Task Force on Antimicrobial Resistance (TATFAR), 2016-2020
**European Antibiotic Awareness Day, 2008-2016**

<table>
<thead>
<tr>
<th>Year</th>
<th>Toolkit for the general public</th>
<th>Toolkit for primary care prescribers</th>
<th>Toolkit for hospital prescribers and hospitals</th>
<th>Matched Get Smart week in the U.S. and the campaign in Canada</th>
<th>Patient stories and Euronews movie, Social media guidance, 37 countries</th>
<th>Collaboration with WHO/Europe: 43 countries participated</th>
<th>First EAAD Twitter chat</th>
<th>Australia becomes a partner</th>
<th>Start work on self-medication with antibiotics, with PGEU and CPME</th>
<th>Training module and pilot course</th>
<th>Revised toolkit for the general public on self-medication with antibiotics</th>
<th>New Zealand becomes a partner</th>
<th>European Twitter chat</th>
<th>Global Twitter conversation</th>
<th>Partner with the first World Antibiotic Awareness Week</th>
<th>Start work on revised toolkit for hospitals</th>
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Thank you!

EUROPEAN ANTIBIOTIC AWARENESS DAY

A EUROPEAN HEALTH INITIATIVE

Website:  http://antibiotic.ecdc.europa.eu
Facebook:  EAAD.EU
Twitter chat:  @EAAD_EU  #EAAD
Global Twitter chat:  #AntibioticResistance (tbc)