Community preparedness and resilience: the antimicrobial resistance (AMR) perspective

Dominique L. Monnet, on behalf of ECDC Antimicrobial Resistance and Healthcare-Associated Infections (ARHAI) Programme
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Antimicrobial resistance
Carbapenem-resistant *Enterobacteriaceae*: a challenge for appropriate patient therapy

1. *Klebsiella pneumoniae ESBL-CARBA > E5 CFU/mL*
   - MIC: Aztreonam = 0.25 mg/L = S
   - MIC: Colistin = 0.12 mg/L = S
   - MIC: Kloramfenikol = 256 mg/L = R
   - MIC: Tobramycin = <256 mg/L = R
   - MIC: Amikacin = <256 mg/L = R
   - MIC: Netilmicin = <256 mg/L = R
   - MIC: Nitrofurantoin = 512 mg/L = R
   - MIC: Gentamicin = <256 mg/L = R

   **Obs! Stammen bildar ESBL-CARBA (ICD-10 kod U82.2). Klinisk anmälningsplick och smittspårningsplikt enl smittskyddslagen. Kontakta alltid vården. För mer information: www.smittskyddstockholm.se**

   **ANTIBIOTIKUM**
   - Ampicillin .................. R
   - Pipercillin/tazobaktam...... R
   - Cefadroxil .................. R
   - Imipenem ................... R
   - Meropenem .................. R
   - Ertapenem .................. R
   - Aztreonam .................. S
   - Colistin ................... S
   - Kloramfenikol ............... R
   - Tobramycin ................. R
   - Amikacin ................... R
   - Netilmicin ................... R
   - Trimetoprim ................. R
   - Trimetoprim-sulfå ......... R
   - Nitrofurantoin ............. R
   - Cefotaxim ................. R
   - Ceftazidim ................ R
   - Gentamicin ................. R
   - Ciprofloxacín .......... R

   **Svarsommentar:**
   **Sammanfattning/Övrigt:**
   Obs! Mycket omfattande resistensprofil. Endast känslig för colistin.
Spread of carbapenem-resistant Enterobacteriaceae (CRE) in the EU/EEA: assessment by national experts

2015

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

Cross-border transfer of patients
Frequency of fecal carriage of multidrug-resistant *Enterobacteriaceae* in international travellers, February 2012-April 2013

- **Latin America**: 57/183 (31.1%)
- **Sub-Saharan Africa**: 93/195 (47.7%)
- **Asia**: 142/196 (72.4%)
Joel
(Australia)

ABC – Four Corners
“Rise of the Superbugs”
http://www.abc.net.au/4corners/stories/2012/10/29/3618608.htm
Public transportation (buses, metro)

- **Porto (Portugal)**
  - 36% of 199 buses with MRSA
  - 2 of 3 major clones are the same as in hospitals
  - Association between proportion of MRSA contamination and bus serving more than 3 hospitals

- **Midwestern U.S. (urban)**
  - 63% of 40 buses with MRSA

- **New York Subway**
  - *Acinetobacter baumannii* at 220/466 stations sampled

Mobile communication devices

• Review of literature
  • 9-25% mobile communication devices with pathogenic bacteria
  • 0-10% with MRSA

• UK
  • 16% of 390 mobile phones in 12 cities contaminated with *E. coli* (London School of Hygiene and Tropical Medicine and Queen Mary, University of London)

Hand hygiene
Carbapenem-resistant *Escherichia coli* from food and the environment, 2016-2017

Germany (ex-Italy):
Venus clam from retail market

Ireland:
recreational waters and sewage

A plausible worst-case scenario for Sweden, 2025-2030: increasing carriage of carbapenem-resistant *Escherichia coli*

- **Q1**: Could 5% of the population in southern Sweden become carriers of carbapenem-resistant E. coli? Possible or even likely in 10-15 years.

- **Q3**: What would be the consequences of the scenario on society? Increased demand on healthcare.

- **Q4**: What measures should be taken to prevent or manage the scenario?
  - Initiate long-term screening programmes (human health, animal health, feeds, food, water, environment, outflow of sewage treatment plants, hospitals, etc.);
  - Hygienic and cleaning routines must be improved and enforced (hospitals, nursing homes, daycare centers);
  - Strategies and plans to prevent and handle this threat.

Thank you!

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E-mail: EAAD@ecdc.europa.eu
Website: http://antibiotic.ecdc.europa.eu
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