3 European projects on surveillance of antimicrobial consumption

• Human sector
  • In the European Union (EU)
    The European Surveillance of Antimicrobial Consumption Network (ESAC-Net)
    managed by The European Centre for Disease Prevention and Control (ECDC)
  • In the remaining part of the WHO European Region
    The WHO/EURO Antimicrobial Medicines Consumption Project
    managed by WHO/EURO

• Veterinary sector
  • In the European Union
    The European Surveillance of Veterinary Antimicrobial Consumption (ESVAC) project
    managed by The European Medicines Agency (EMA)
History

• 2001: European Surveillance of Antimicrobial Consumption (ESAC) project launched. Funded by the European Commission Run by the University of Antwerp

• 2011: Project transferred to the European CDC Project renamed ESAC-Net
Lead: Klaus Weist klaus.weist@ecdc.europa.eu

• 2011: Launch of the WHO/EURO Antimicrobial Medicines Consumption (AMC) project
http://www.euro.who.int/en/health-topics/Health-systems/medicines
Lead: Hanne Bak Pedersen hba@euro.who.int
Methodology

- Annual collection on data of the sales (reimbursement) of antimicrobials
- Using the ATC/DDD methodology developed by the WHO CC Oslo
- For community and hospital sectors
  If not possible to differentiate the sectors: total care
- Spectrum of antimicrobials limited to:
  - antimicrobials for systemic use:
    - Antibacterials (J01)
    - Antimycotics and antifungals (D01BA & J02)
    - Drugs against tuberculosis (J04)
    - Antivirals (J05)
  - And few other substances:
    - Some intestinal anti-infectives (A07AA)
    - Some antiprotozoal substances (P01AB)
Consumption data

• Two types of data
  • Sales data (e.g. import data, wholesalers, pharmaceutical industry, pharmacies, hospitals)
  • Reimbursement data (e.g. health insurance data)

• Different data providers
  • Ministry of health, national medicines agencies
  • Health insurance companies
  • Hospitals, pharmacies
  • Others, e.g. market research companies

• Level of details
  • Participants provide data on:
    • The antimicrobial products available on the market
    • The number of sold packages of each antimicrobial product
Product data

- Register of antimicrobial products:
  - List of all antimicrobial products on the market

- For each antimicrobial product, the following information is recorded:
  - The product label, the ATC substance code, the route of administration, the number of items per box, the strength of one item
  - The content of active substance and number of DDD in each product is calculated

- Number of packages used during the period under surveillance

- Consumption data
  Total number of DDD is calculated by multiplying the number of packages sold for each product by the number of DDD per each product.
  Data are reported using the ATC classification
Population data

• Required to adjust the consumption data to the size of the countries in term of population and to compare countries

• Depends of the type of data:
  • For reimbursement data ⇒ insured population
  • For sales data ⇒ number of inhabitants

• Depends of the coverage:
  • For complete coverage ⇒ overall population
  • For incomplete coverage ⇒ population of the sample
Indicators to measure antimicrobial consumption

- Number of DDD per 1000 inhabitants per day
  - Used for both community and hospital sectors
  - Standardized methodology to allow comparison between countries
  - The DDD does not reflect always the actual prescribed daily dose, thus it is difficult to estimate the frequency of prescribing using DDD

- Number of Packages per 1000 inhabitants per day
  - To overcome the limitations of the DDD for analyzing prescriptions, prescription data are needed but unfortunately are not available in the EU.
  - The package (box) is used as a proxy for prescription by assuming that for one prescription, there is one box sold. *only valid for oral forms and antibacterials for systemic use*
Results

- ESAC-Net data are freely available in the public interactive database on the ECDC website:
  - Data is available up to the fourth level of the ATC classification
  - Bar charts, trends plots and maps of the EU.
  - Non-publicly available data can be shared by ECDC on formal demand and after ECDC approval

- ECDC publishes ESAC-Net surveillance reports containing additional information and materials for interpretation of the results
ESAC-Net results: Community

Consumption of antimicrobials of Antibacterials For Systemic Use (ATC group J01) in the community (primary care sector) in Europe, reporting year 2013

* Country provided only total care data.
ESAC-Net results: Hospital

Consumption of antimicrobials of Antibacterials For Systemic Use (ATC group J01) in the hospital sector in Europe, reporting year 2012
ESAC-Net results: Map

Geographical distribution of antimicrobial consumption of Combinations Of Penicillins, Incl. Beta-Lactamase Inhibitors (ATC group J01CR) in the community (primary care sector) in Europe, reporting year 2013

This report has been generated from ESAC-Net data submitted to TESSy. The European Surveillance System on 2015-09-16. The report reflects the state of submissions to TESSy as of 2015-08-18 at 14:00.
ESAC-Net results: Trends

Trend of antimicrobial consumption of Carbapenems (ATC group J01DH) in the hospital sector in Slovenia, Denmark and Norway from 1997 to 2013
Expanding AM consumption surveillance throughout Europe

Two different surveillance programmes
Using compatible methodology
Enable data comparison in the European Region

Total antibiotic use in 2011, expressed in number of DDD per 1000 inhabitants per day in 12 European countries and Kosovo as compared to 29 ESAC-Net countries.

The category (ATC subgroup) “Other beta-lactam antibacterials, cephalosporins” includes carbapenems and monobactams; “Other antibacterials” includes glycopeptide antibacterials, polymyxins, fusidic acid, imidazole derivatives, nitrofurantoin derivatives and other antibacterials.

*Countries reporting only outpatient antibiotic use
Romania and Spain provided reimbursement data
*Kosovo (in accordance with UN Security Council resolution 1244 (1999))

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Conclusion

- Relatively simple methodology
- Used by 2 surveillance programmes
- Successfully implemented in high-income and low-income countries
- Strong involvement of the actors of the networks
- Data have been used to identify issues in antimicrobial consumption at national level
- Some countries have taken actions to improve their use of antibiotics based on these data and effects of these actions have been followed using these data