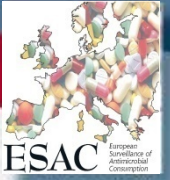


The European Surveillance of Antimicrobial Consumption Project

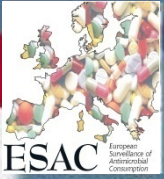
Arno Muller





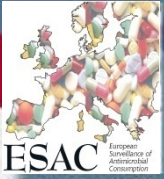
ESAC History

Background



- Before 2001
 - Some national data available, but not comparable
 - Few pan-European data available
- European Conference on Antibiotic Use in Europe
15-17 November 2001
 - ⇒ Launch of ESAC

The 3 phases of ESAC

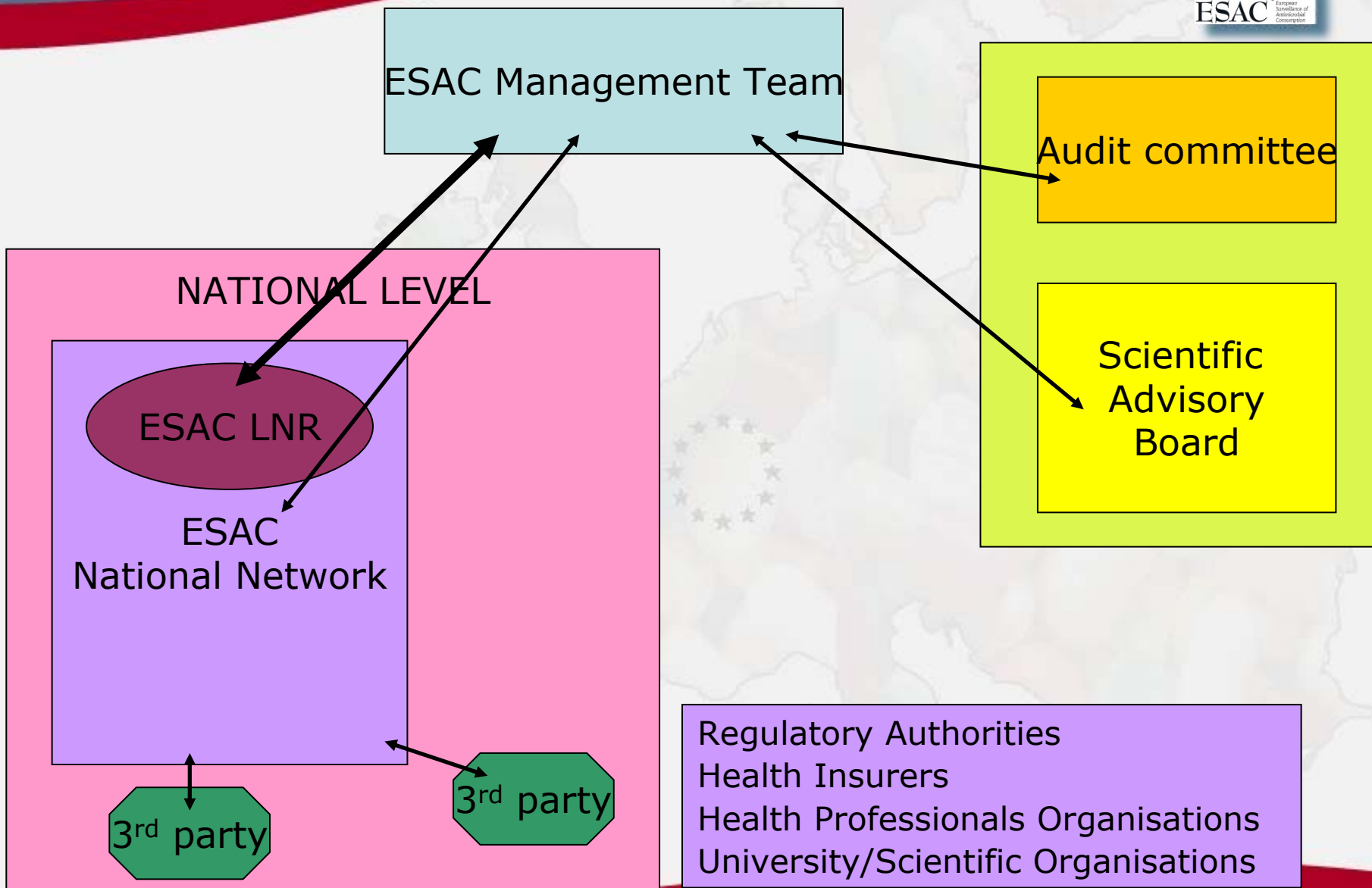


1) 2001-2004: ESAC-I
funded by DG SANCO

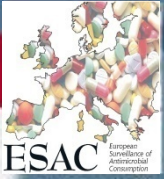
2) 2004-2007: ESAC-II
funded by DG SANCO

3) 2007-2010: ESAC-III
funded by ECDC

ESAC Organisation

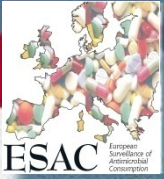


General Aim of ESAC



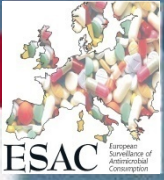
- To maintain a comprehensible, comparable, reliable database on antibiotic use in 35 countries:
 - 27 Member States, 3 EFTA-EEA countries, 3 candidate countries + Russia, Israel

ESAC Original Activities (ESAC I)



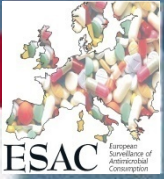
- To collect antibiotic consumption data:
 - Using the WHO ATC Classification
 - Aggregated at the substance level (5th level)
 - Limited to ATC class J01: antibiotics for systemic use
 - Expressed in Defined Daily Doses (DDD)
 - In:
 - Ambulatory Care (AC) sector
 - Hospital Care (HC) sector

ESAC Extended Aims (ESAC II/III)



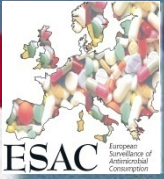
- To deepen the knowledge of antibiotic consumption by:
 - Extending the range of antimicrobials classes
 - Focusing on specific consumption groups and/or patterns

ESAC Extended Activities



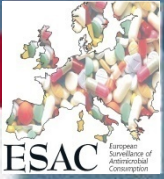
- To extend the range of collected antimicrobial classes
 - ⇒ ESAC Core Activity
- To focus on specific groups
 - ⇒ 4 dedicated ESAC Subprojects
 - Ambulatory Care Subproject
 - Hospital Care Subproject
 - Nursing Homes Subproject
 - Socio-economics Subproject

ESAC Core Activity



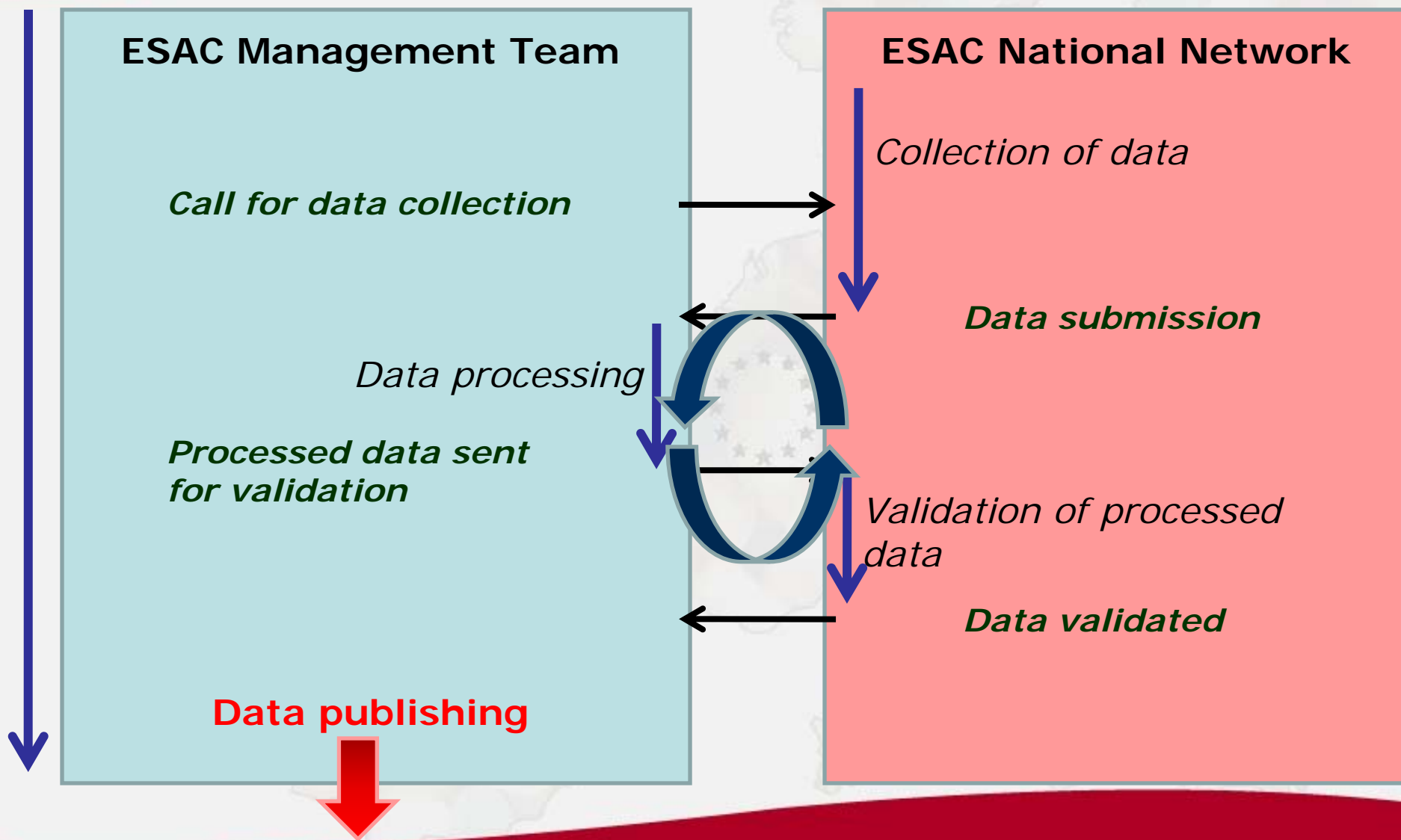
- Antimicrobial spectrum:
 - antibiotics (J01), antimycotics (J02), anti-tuberculosis drugs (J04) and antivirals (J05)
- Data format:
 - At the product level
 - No of packages (incl. national register)
 - Fallback to ATC substance level + DDD if packages not available
- Regional data

Data sources

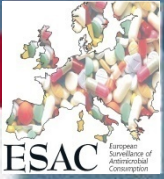


- Different types:
 - Public (ministry of health, medicine agency)
 - Insurance systems/companies
 - Research marketing companies
 - Other (pharmacies/hospitals networks)
- Impact:
 - Type of data
 - Sales data
 - Reimbursement data
 - Coverage
 - Delivery lag
- Change in data sources ⇒ ESAC data

Standard Procedure

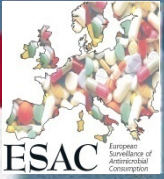


ESAC Ambulatory Care Subproject



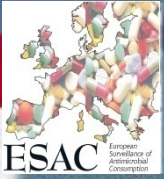
- To collect national dispensing data linked to the patients' age & gender and to the prescribers' speciality (Protocol A)
- To collect national or sample data of prescriptions by general practitioners linked to the patients' age & gender and to the indication (Protocol B)
- To collect recommendations including antibiotic guides
- To develop a set of indicators including the indication to assess quality of antibiotic use in ambulatory care

ESAC Hospital Care Subproject



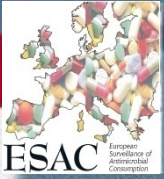
- To establish a European network of hospitals for longitudinal & point prevalence surveys
- To organise European wide point prevalence surveys
- To develop quality indicators of antimicrobial use in the hospital care sector
- To use a set of clinical activity denominators for longitudinal studies to assess time trends in hospital antimicrobial use
- To cluster the hospital antimicrobial consumption according to the characteristics of the institutions
- To identify targets for intervention on improved antimicrobial prescribing

ESAC Nursing Homes Subproject



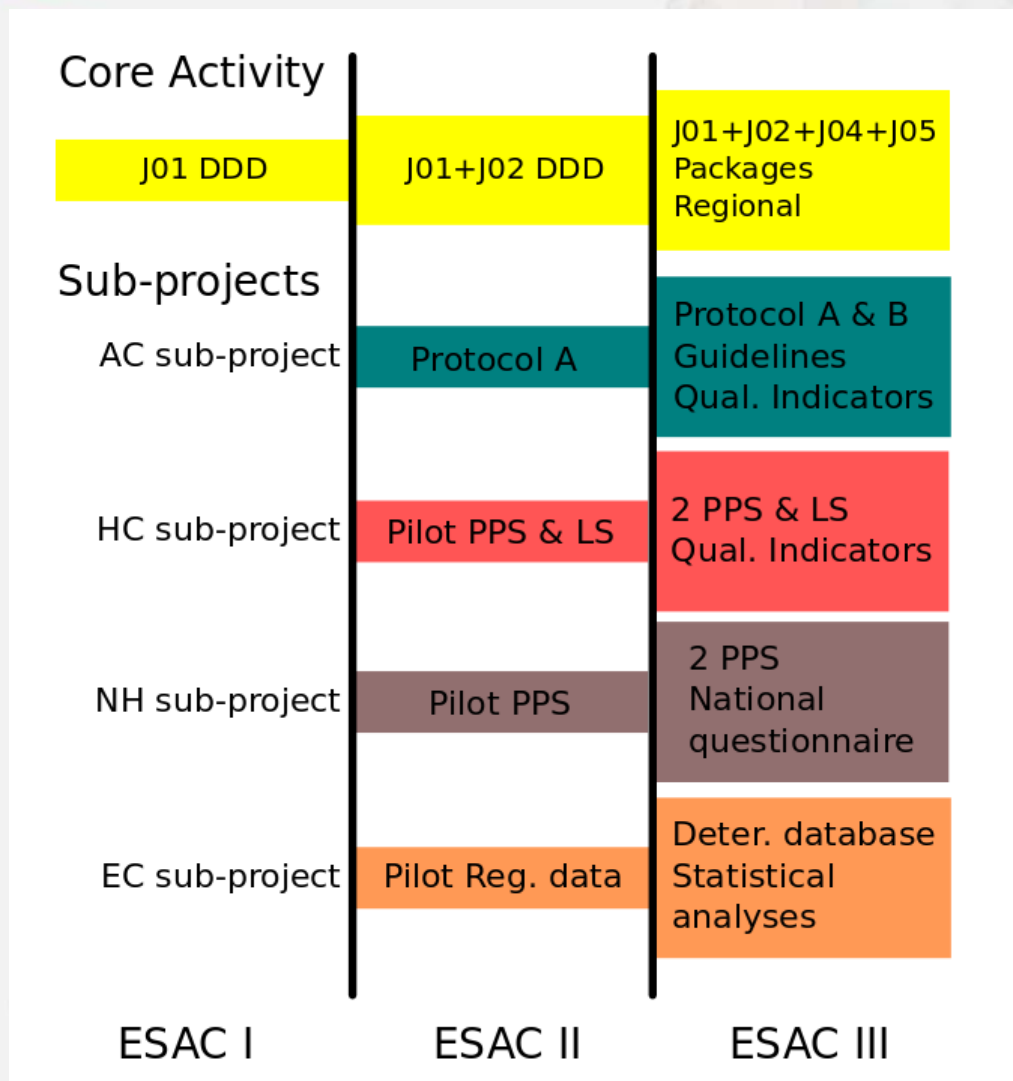
- To measure and describe antibiotic use and prescriptions in European nursing homes using a standardised methodology
- To explore determinants of antibiotic use at national, institutional and resident levels

ESAC Socio-economics Subproject



- To construct a database on potential contextual determinants (socio-economics, demographic, organisational) of antimicrobial use
- To explain the differences observed between and within European countries in local use of antibiotics

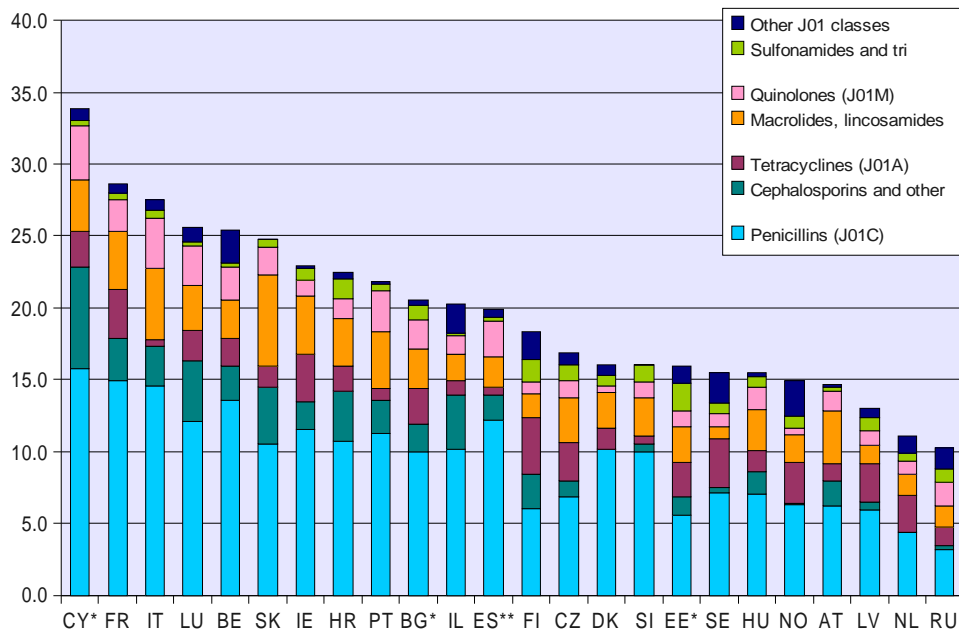
ESAC activities summary



ESAC Results

A flavour of...

ESAC Core Data

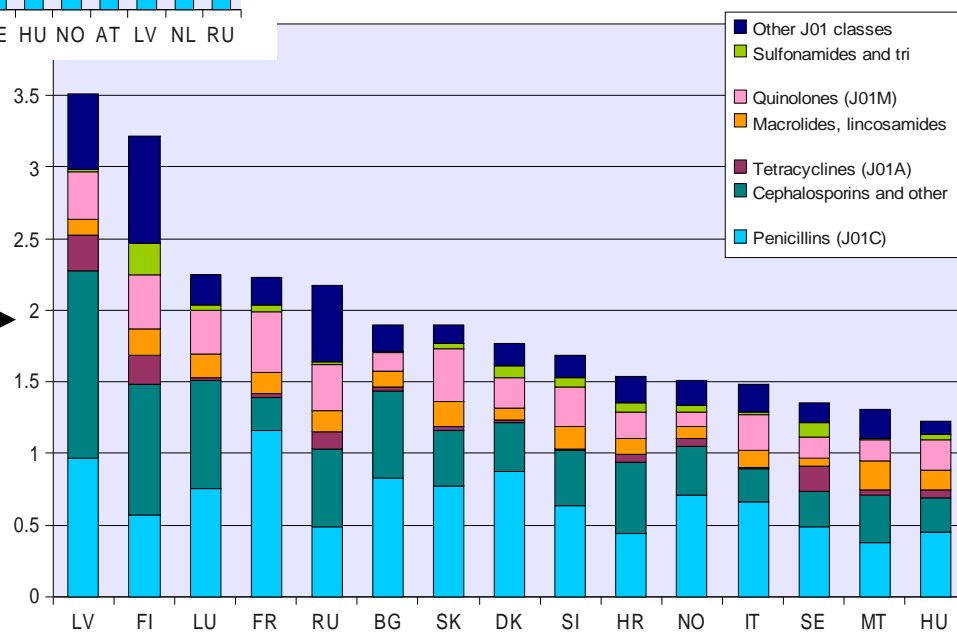


2007 data

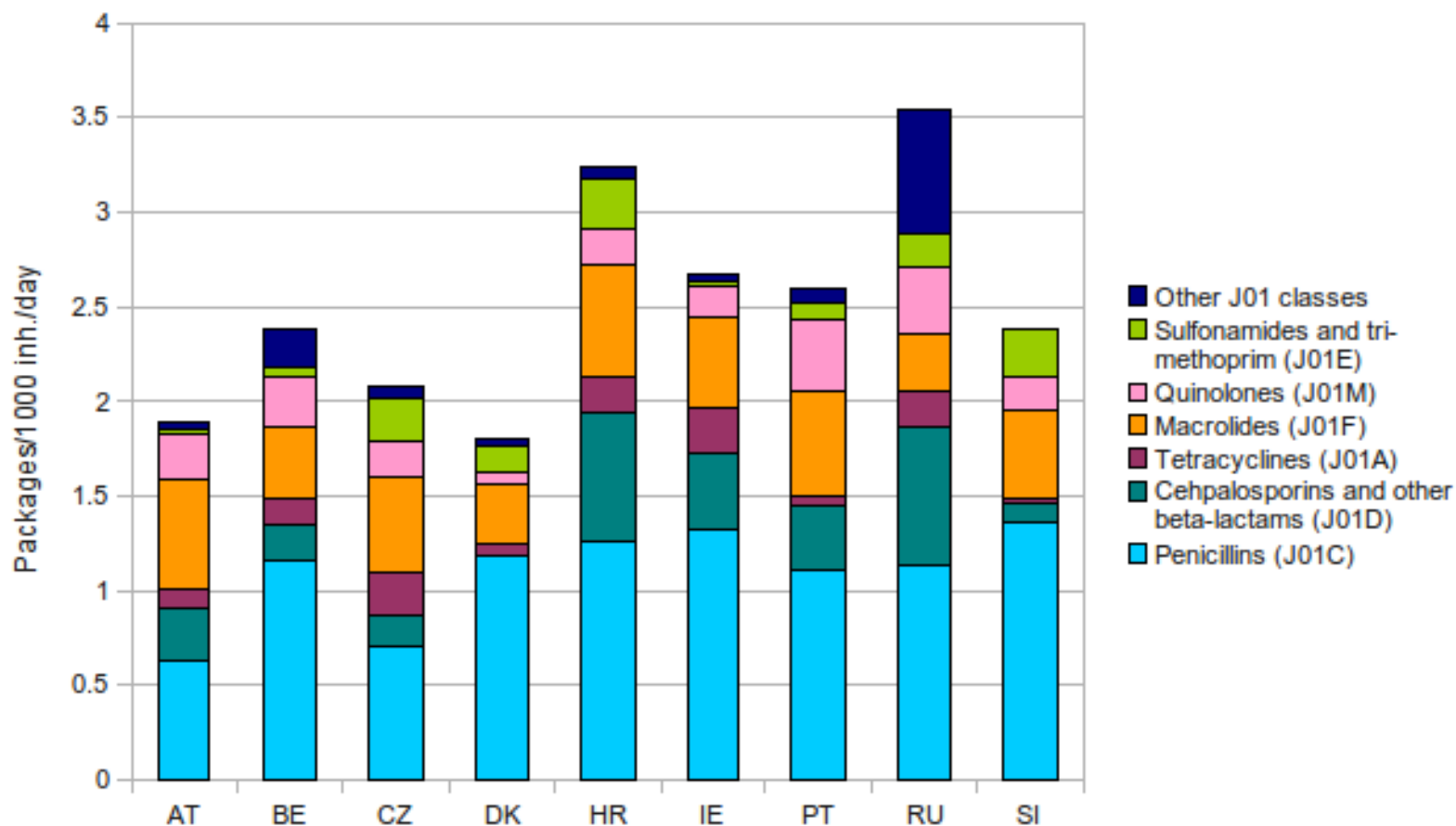
Antibiotics for systemic use (J01)

← Ambulatory care

Hospital care →



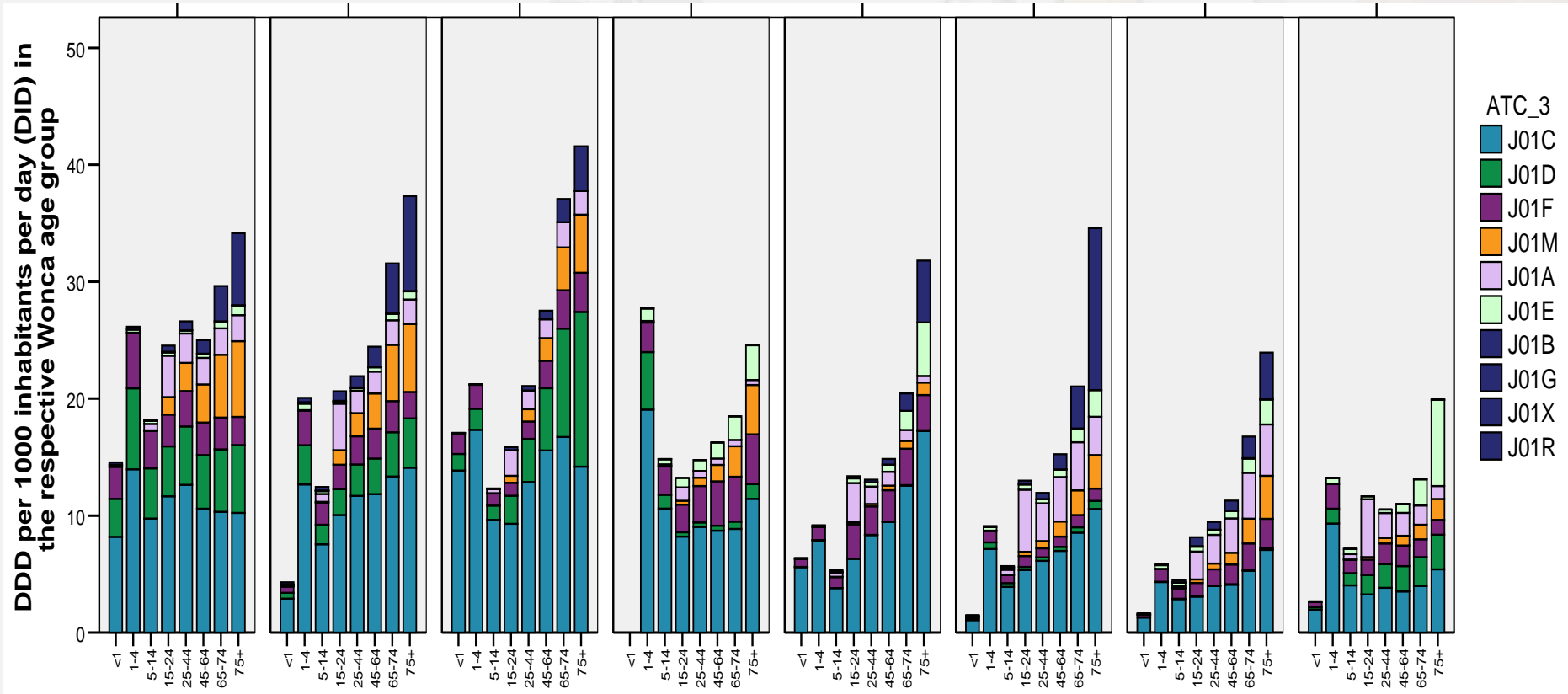
ESAC Core Data: Packages



AC Sub-project: Age



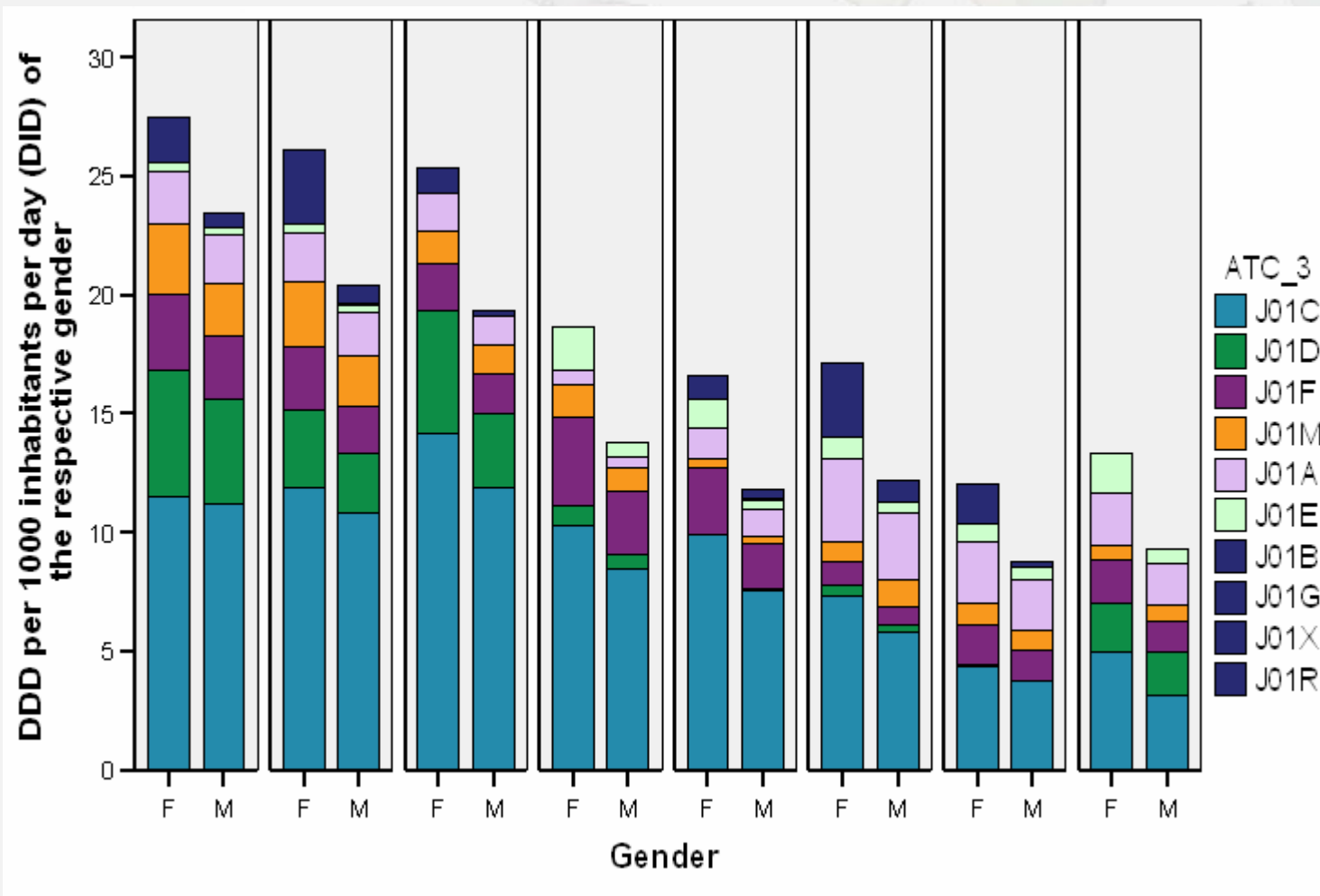
Consumption at ATC 3 level by age groups in 8 European countries



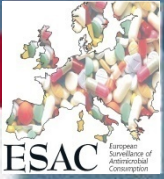
AC Sub-project: Gender



Consumption at ATC 3 level by gender in 8 European countries



HC sub-project: Point Prevalence surveys



- **PPS 2008 & 2009**

- 50 hospitals from 28 countries participated in the ESAC 2008 PPS
- >130 hospitals in the ESAC 2009 PPS (but data submission still ongoing)

- **Types of Data Output**

- *Antimicrobial prevalence*
 - \approx 30% at the hospital level
 - highest use in ICUs (\approx 50%)
- *ATC Distribution*
 - Level 1
 - Mainly J01
 - Level 2
 - Mainly J01C followed by J01D
- *Route of administration*
 - Route (Oral/Parenteral) depends
 - on the specialty and the ATC class
 - on the site treated (and/or source i.e., Community/Hospital acquired infections)
- 4 major diagnosis sites: Respiratory > SST&BJ > Urinary Tract > Gastro-intestinal
- Prophylaxis (Surgical & Medical) :
 - Surgical – Duration >1 day

NH Sub-project



- **ESAC-3 National Survey**
 - 21 countries completed the national questionnaire
 - Final report is in progress
- **Point prevalence surveys**
April 2009: data delivery for 19 countries and 301 high skilled NHs

Countries who delivered data for the first PPS (April 2009)
ESAC-3 Nursing home subproject*

COUNTRY	number of NHs	total number of eligible residents
Belgium	116	12085
Croatia	5	1290
Czech Rep.	6	691
Denmark	5	319
England	5	230
Finland	8	1706
France	30	2318
Germany	8	425
Ireland	18	1662
Italy	30	2820
Latvia	5	1195
Lithuania	1	126
Malta	5	320
Netherlands	4	712
Norway	5	568
Northern Ireland	30	970
Poland	5	692
Slovenia	6	1421
Sweden	9	508
TOTAL	301	30058

* state on 12 October 2009

Preliminary results

17 MS, 270 NHs (27.614 residents)
1740 residents with AB,
1757 molecules,
1679 infections treated
Crude median prevalence:
-> AB prevalence: 6% (0-30%)
-> zero prevalence in 7% of the
NHs

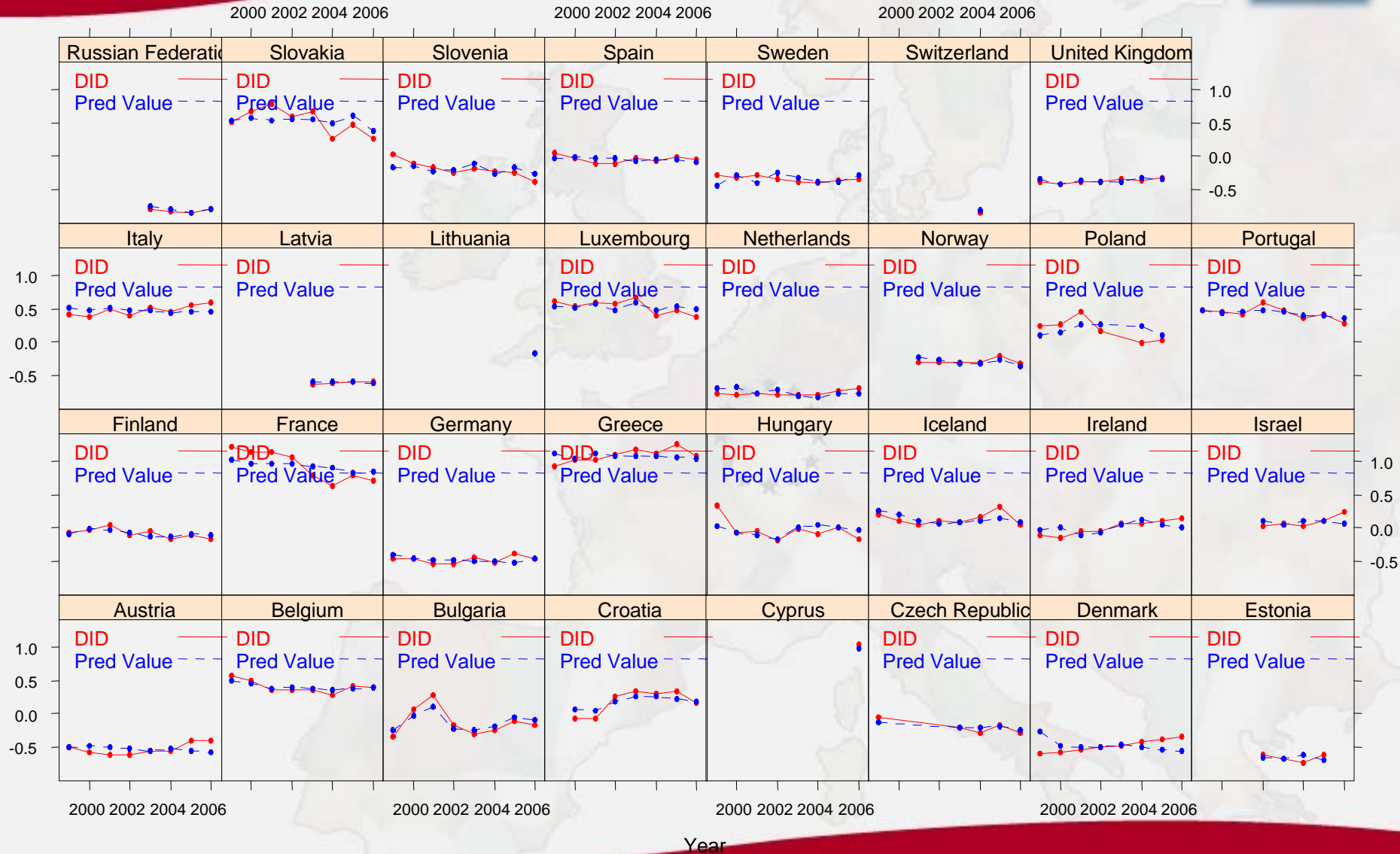
EC Sub-project: Database



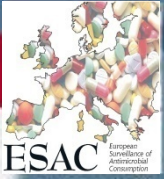
- Setup a database on socio-economic determinants related to AB use/Health
 - Contains **184** variables for **32** countries over **1999 – 2007** (> 50,000 elements)

Group	Number of variables
Agricultural factors	7
Burden of disease	35
Culture and perception of illness	26
Demographic factors	21
Education and knowledge about antibiotics	6
Healthcare system	78
Socioeconomic factors	11
TOTAL	184

Statistical analysis: Regression of DID against the determinants

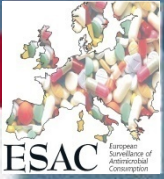


ESAC in conclusion



- Successful project
- Unique network of 35 different countries that deliver **comparable & reliable** data on antimicrobial use in Europe for 12 years
- Place:
 - Expertise (MT & NN)
 - Innovation (Methodology)
- Thanks all the motivated representatives from NNs
- Delivery of data is on a voluntary basis

Finally,



- The ESAC III project will end in 2010, but it will be taken over by **ECDC** in January 2011...