EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL

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Document: Framework for an ECDC Project on Antimicrobial Resistance (AMR)	
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To: Members of the Management Board	**From**: ECDC
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Summary: Antimicrobial resistance (AMR) has been identified as a priority area of work for ECDC during the first year of operations; the reasons being that this is an extremely complex issue which is already a significant public health problem threatening to grow.

This paper outlines previous Community work against AMR and possible horizontal action points that could be taken by ECDC to move this issue further. The suggested action points with be thoroughly discussed with the stake holders and used afterwards for a more detailed Antimicrobial Resistance strategy for the Centre.

Project on Antimicrobial Resistance (AMR)

Preamble

Antimicrobial resistance is of concern for EU as well as for WHO. Many initiatives have been taken by EU Health Council and within the Commission. A large number of projects have been funded through EU, and there is a Council recommendation for strategy.

The different projects have and still are generating a large amount of data, mostly on surveillance of usage of antibiotics and resistance patterns. There is an added value to collect data from different projects in such a way that data are comparable i.e. similar criteria for collection and validation of data. Projects have accomplished this to some extent but more work needs to be done.

There are less data on interventions. Where interventions have been introduced few of them have been evaluated. This may partly be because few systematic interventions have been used. It would be of added value to collect but also to initiate studies and reports on interventions. Of special interest is to analyze costs of AMR and put that in relation to costs for interventions.

The mechanisms behind emerging AMR resistance is complex but can be simplified to two main issues: the use of antibiotics and the epidemiological spread of resistant microbes. The impact of both these issues can be diminished by preventive actions. Two areas for prevention are of special interest, infection control and immunizations. There are other reasons why these areas are of importance for health but they are also of big importance for combating AMR.

Countries have expressed interest in getting support for their work with AMR. This should be encouraged.

Since the area of AMR has many facets there are a number of activities that to a larger or lesser extent have importance. Some of them are incorporated in the work plan. One particularly important issue is to establish good collaboration with veterinary medicine.

The project AMR is planned to run for a number of years. At present timetables are being looked at as well as costs for specific activities connected to the different objectives. All units of ECDC will be involved to some extent depending on objectives and activities. External help will be looked for when appropriate. The work that is presently done in different projects will be supported. ECDC's main role will be to coordinate and support technical activities especially interventions and also to identify areas that are not covered but would need technical support. A close collaboration with all stakeholders is essential.

Since the project will run for some years an update of the work plans needs to be done regularly to see what has been achieved, what new elements might need to be incorporated in the work plan and what should be omitted.

The action points outlined in this paper will be thoroughly discussed with the Advisory Forum and other stake holders, to form the basis for a long-term ECDC strategy on AMR.

Previous work

AMR is an issue that has created concern in EU as well as in WHO. A number of meetings, reports and statements have been supported by EU. A thorough review has been published in Eurosurveillance Jan2004.

The latest international policy documents are:

1. Council Recommendation on the prudent use of antimicrobial agents in human medicine (2002/77/EC) (Implementation report by end of year 2005)
2. Regulation (EC) No 1831/2003 of the European Parliament and of the Council on additives for use in animal nutrition
3. World Health Assembly – WHA (WHO): Resolution "Improving the containment of antimicrobial resistance" WHA58.27 (25 May 2005)

DG SANCO has funded projects of importance for AMR. Still running are the following:

- European Antimicrobial Resistance Surveillance System (EARSS) - follows resistance of indicator bacteria from 31 countries
- Scientific Evaluation on the Use of Antimicrobial Agents in Human Therapy (ESAC) – collects comparable antibiotic consumption data from 34 countries
- European Committee on Antimicrobial Susceptibility Testing (EUCAST) – was set up to harmonise susceptibility testing
- Self medication with antibiotics and resistance levels in Europe (SAR)
- International surveillance network for the enteric infections (Enter-net) - follows salmonella and will follow *E.coli* and campylobacter susceptibility

A number of other surveillance systems monitor also the susceptibility of pathogen under surveillance:

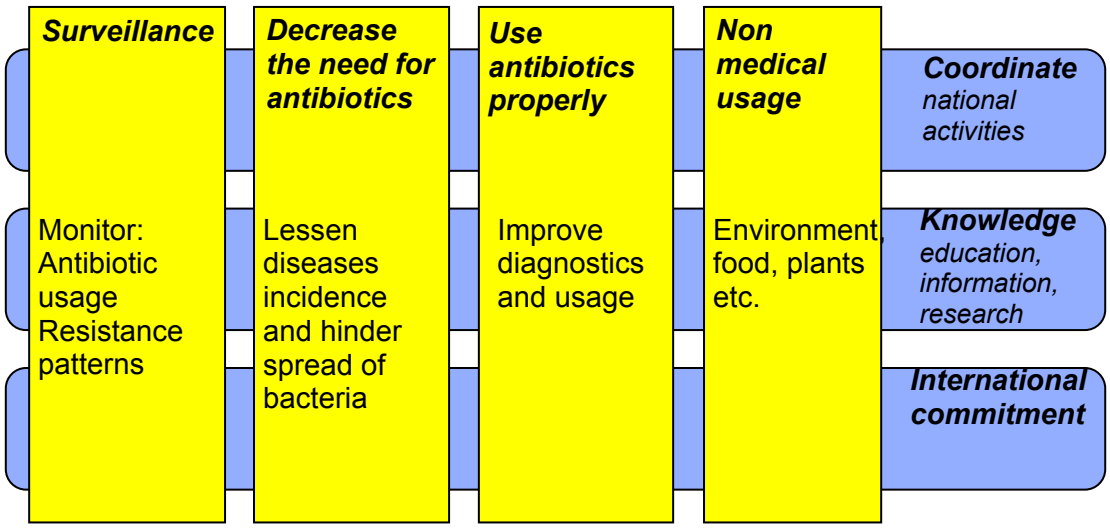
- EU Invasive Bacterial Infectious Surveillance (EU-IBIS) - invasive *Haemophilus influenza* and *Neisseria meningitides* susceptibility;
- Surveillance of tuberculosis in Europe (EuroTB) – follows MDR-TB;
- European Surveillance of Sexually Transmitted Infections (ESSTI) - monitors susceptibility of gonorrhoea;
- Hospitals in Europe Link for Infection Control through Surveillance (HELICS), now followed by : Improving Patient Safety in Europe (IPSE);

'The misuse of a miracle' is a public TV-film on antimicrobial resistance funded by the Public Health Programme to be broadcasted all over Europe

DG Research has funded projects for mostly biochemical research. Since 1999 € 20-30 million yearly has been dedicated for research in connection with antimicrobial resistance

Action plan for ECDC

A strategy to combat AMR will need very diverse actions since there are many mechanisms that drive the emergence of AMR. A way to illustrate the complexity can be seen in the following illustration.



It has so far been difficult to evaluate to what extent each component affects AMR but each issue has importance. A strategy for combating AMR for ECDC will need to evaluate each issue, and then work on those parts that fall within ECDC's competence.

ECDC is organized as a matrix organization. This means that in the AMR project all units of ECDC will take part to some extent. The AMR project will coordinate activities. Some of the activities will be funded for groups outside ECDC to work with.

The work plan will be extended with activities, timetables and estimated costs for each activity. It is expected to run for some years. It will be assessed each year and necessary changes will be suggested. Areas of work are followed by the expected results.

Surveillance

The basis for all strategies is to know what the resistance patterns look like and to be able to follow trends. Of equal importance is to know the amount of antibiotics used. When collecting system improves there will be a need to refine the collected data with more precise information. ECDC will

- Coordinate existing networks and develop a strategy for how data will be delivered to and kept in ECDC
- Review the comprehensiveness and comparability of data. Support further harmonization of methods and breakpoints
- Add and/or improve resistance components in relevant surveillance networks
- Ensure rapid communication on particularly resistant, emerging strains of bacteria
- Foster close collaboration with veterinary medicine and EFSA to improve further susceptibility monitoring for zoonotic pathogens (e.g. salmonella, campylobacter) for inclusion in Community report on zoonoses.

Evidence-based public health actions

Interventions in public health may be difficult to evaluate since there always will be confounding factors, Even so there is a need to use data that are available to evaluate interventions as well as possible. A collection of available data should be gathered. In specific areas guidelines could be developed.

- Evaluate the scientific basis for interventions
- Cost-benefit analysis of AMR vs. intervention actions

- Develop guidelines on good practice and on protective measures
- Facilitate sharing of information and experience of PH actions in MS

Areas of special concern

An important and often forgotten issue is the possibility to diminish the need of antibiotics. There are at least two main areas where compliance with the programs has an immediate effect on antibiotic consumption.

- Diminishing healthcare-associated infections by promoting actions to improve infection prevention and control in the health care sector at large
- Promote immunization programs supporting and strengthening present strategies in collaboration with WHO

New antibiotics

The lack of investment in R&D on new antibiotics by the pharmaceutical industry is a widely acknowledged problem. There could potentially be a role for the ECD to take a leadership on this issue: to chart the hurdles and to see what could be done collectively in Europe to overcome them.

Country support

In the Council recommendation as well as in statements from the Commission there is an expectation that ECDC will give direct support to countries that so request. ECDC will

- Provide expertise in the development of intervention strategies for countries with low, medium and high resistance levels based on models for stepwise intervention strategies
- Give active support to countries on request to improved adherence to Council recommendations
- Initiate coordinating meetings with National Coordinating Groups to harmonization of AMR work in MS

Other Activities

As stated above there are a number of miscellaneous issues where ECDC can offer support. Some of them are easy to fulfil other need more extensive strategies.

- Promote the prudent use of antibiotics
- Provide scientifically based information to public and professionals
- Actively work with the MS and Commission to bring the 'Community strategy against AMR' further
- Provide risk assessment where needed
- AMR conference in 2006-2007 where MS may show to public the advances made in the field of containment of AMR
- Monitor and foster public health research especially on public health interventions
- Establish collaboration with veterinary organizations and pharmaceutical industry
- Foster implementation of successful EU-activities and networks in neighbouring countries (neighbourhood policy)
- Take an active part in global activities – like REACT and WHO.