Antibiotic resistance control in Croatia – the impact of the MATRA project

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Intersectoral coordination mechanism for antibiotic resistance control (ISKRA)
Croatia
WHO global strategy for containment of antimicrobial resistance, 2001

- Patients and the general community education
- Prescribers and dispensers education (diagnostic and treatment guidelines)
- Infection control programmes
- Antibiotic resistance surveillance
- Timely reporting of the surveillance results
  - Feedback to the prescribers and IC teams
- Antimicrobial usage monitoring
- Control of antimicrobial usage in food-producing animals
- Drug and vaccine development
"Controlling infections and antibiotic resistance in 21st century"

- Vaccine development (HIV, malaria, TB)
- New therapeutic options (immunomodulators)
- Restriction of antibiotic consumption
European Union

➢ “The microbial threat” conference, Copenhagen 1998

➢ Council Resolution on antibiotic resistance (“A strategy against microbial threat”), 8 June 1999
  ▪ Antimicrobial resistance increases morbidity and mortality due to communicable diseases
  ▪ Diminution of quality of life
  ▪ Additional health and medical care costs
  ▪ Action needs to be taken at Community level
The Council of the European Union

- Council recommendation on the prudent use of antimicrobial agents in human medicine,
  15 November 2001, 2002/77/EC

  - Initiatives and actions that should be taken at Member State and Community level identified
  - National governments and health systems should play an important role in antimicrobial resistance containment
Croatian Committee for Antibiotic Resistance Surveillance
Croatian Academy of Medical Sciences

- Committee for antibiotic resistance surveillance founded in 1996 at the Croatian Academy of Medical Sciences
- Committee gathers heads of 30 Croatian microbiology laboratories, ID doctors, clinical pharmacologists
Activities:

- collecting sensitivity data from different regions of the country
- detecting local resistance problems / outbreaks / new resistance mechanisms
- organizing focused studies
- education
Croatian Committee for Antibiotic Resistance Surveillance
Croatian Academy of Medical Sciences

Education:
- Detection of new resistance mechanisms
- Standardization of laboratory procedures and AST interpretation
  - Yearly training courses
  - External quality control (CDC/WHO EQAS)
  - Scientific meetings
Incidence, epidemiology and characteristics of quinolone-nonsusceptible *S. pneumoniae* in Croatia


- **585 isolates** (all sites, adults)
- **Resistance rates:**
  - Penicillin 36% (22% low level; 14% high level)
  - Erythromycin 18%
  - Ciprofloxacin 4% (21 isolate)
  - seven isolates with mutations in *gyrA*, *parC* and *parE*: also high MICs for penicillin and for all quinolones tested
  - 14 (2%) isolates had mutations only in *parC* and/or *parE* with lower MICs for quinolones tested
Quinolone resistance in pneumococci, 2000 / 2001

serotype 23F, parC, gyrA, parE mutations
Croatian Committee for Antibiotic Resistance Surveillance
Croatian Academy of Medical Sciences

- Comunication of results:
  - Scientific meetings
    - Croatian Symposium on antibiotic resistance (every 3 yrs.)
    - other symposia and congresses
  - Publications
    - Liječnički vjesnik, 2000
    - Emerging Infectious Diseases, 2002
  - Yearly reports
    - hard copy publication (Croatian & English)
    - www.amzh.hr
Croatian Committee for Antibiotic Resistance Surveillance
Croatian Academy of Medical Sciences

- Collaboration:
  - with international organizations
    - World Health Organization
    - ESCMID / EUCAST, EARSS, ESAC, APUA
    - (NCCLS) CLSI
  - with Croatian Ministry of Health
Control of antibiotic resistance in Croatia

- Well organized laboratory network for antibiotic resistance surveillance
- Good data on resistance rates and prevalence of resistance mechanisms
- Poor informatization
- Lack of official support
- Low impact of resistance surveillance on antibiotic prescribing
- Poor control of antibiotic consumption
- Poor coordination of different activities related to antibiotic resistance control
- No coordination between human, veterinary and environment sectors
- No national strategy
Matra Project MAT 05/hr/9/2
Antimicrobial Resistance Surveillance in Human Medicine

- The Netherlands Ministry of Foreign Affairs contributes to the accession of Croatia to the European Union through the Matra Pre-Accession Programme (MPAP)
- Aim of the project is to assist Croatia in implementing EU-directives and recommendations in the field of antimicrobial resistance containment
- Project co-ordinator: Public Health Consultants, Amsterdam
- Project partners: the Ministry of Health, Welfare and Sports, the SWAB, the RIVM, the WIP
- Project counterpart: the Croatian Ministry of Health and Social Welfare
- Project beneficiary: the Croatian Reference Center for Antibiotic Resistance Surveillance
- International consultants available for assistance in achieving:
  1. An Intersectoral Co-ordination mechanism (ICM) in the field of antimicrobial resistance established and functional
  2. Strengthening of surveillance systems for antibiotic resistance and consumption
  3. Guidelines for prudent use of antibiotics formulated and implemented
Study visit to the Netherlands
The Netherlands Study visit
May 2006

- AMC Amsterdam, the SWAB
- Ministry of Health, Welfare and Sport
- Ministry of Agriculture
- National Institute of Health and Environment (RIVM)
- Central Institute for Animal Disease Control Lelystad
- Working Party for Infection Prevention, the WIP
- Erasmus University Medical Centre, Rotterdam, the SWAB
- General practice in Amsterdam
ABRES
Inter-departmental policy platform

SWAB, 1996

- Non-governmental foundation
- Medical microbiologists, infectious diseases doctors, hospital pharmacists
- Long term grant from the government

- Antibiotic resistance surveillance
- Antibiotic consumption surveillance
- Guidelines on antibiotic use
- Education on antibiotic use
- Collaboration with working group for infection prevention (WIP)

VANTURES
Central Institute for Animal Disease Control Lelystad

- ATB resistance
  - Zoonotic food borne pathogens
  - Animals biological reservoir of resistant bacteria
  - ATB consumption
Croatian policy on antimicrobial resistance

- The Council of the European Union
  - Council Resolution, 8 June 1999
  - Council Recommendation on the prudent use of antimicrobial agents in human medicine, 2002/77/EC

- WHO
Croatian policy on antimicrobial resistance

Aims

✓ To contain the spread of antimicrobial resistance
✓ To preserve efficacy of the existing antibiotics and reduce morbidity and mortality due to infections caused by resistant bacteria
✓ To stimulate health care workers on rational antibiotic prescribing and increase the quality of medical care
✓ To establish collaboration between human and veterinarian sector in the field of antimicrobial resistance
✓ To establish collaboration with the European Commission and the Member States in activities stated in the Council Recommendation (2002/77/EC)
Croatian policy on antimicrobial resistance

Tasks involved

- Intersectoral Co-ordination mechanism (ICM)
- Surveillance
  - Antibiotic resistance surveillance
  - Antibiotic consumption surveillance
- Prudent use of antibiotics
  - Education
  - Guidelines on antibiotic use
- Infection control
- Information technology
- Research
Intersectoral Co-ordination mechanism (ICM)

- Ministry of Health and Social Welfare established an Intersectoral Co-ordination mechanism (ISM) – ISKRA (interdisciplinarna sekcija za kontrolu rezistencije na antibiotike)
- Tasks of ICM include:
  - Initiating and conducting activities related to the following areas
    - Surveillance of antibiotic resistance and consumption
    - Education and guidelines on prudent use of antibiotics
    - Infection control
  - Supervising and coordinating the above activities
  - Reporting to the MHSW on ongoing activities
  - Advising MHSW on actions to be taken in order to contain antimicrobial resistance and to be in line with European and international initiatives
Surveillance

- To strengthen antibiotic resistance surveillance network
  - Monitoring trends in resistance
  - Early notification of new resistance mechanisms
  - Assess the effects of interventions
  - Exchange data internationally (EARSS)

- To monitor the use of antibiotics
  - Indicator of prescribing practice
  - Assess the effects of interventions
  - Exchange data internationally (ESAC)

- To correlate data on antibiotic use with resistance rates
  - Collaboration between human and veterinarian sector
  - Exchange data internationally
Prudent use of antibiotics

- To promote optimal antibiotic prescribing in clinical practice
  - Guidelines on antibiotic use
  - Professional education
    - Medical students
    - Continuous medical education of prescribers
    - Education of educators
  - Strengthening antibiotic prescribing consulting service
    (infectious diseases doctors & clinical microbiologists)
  - Patient education
    - Public campaign
    - School education programme (e-Bug project)
Prudent use of antibiotics veterinary sector

- To promote optimal antibiotic use in animals
  - To reduce unnecessary and inappropriate use of antibiotics for non-therapeutic use
  - To promote optimal antibiotic prescribing in veterinary medicine
    - Education
    - Guidelines
Infection control

- To strengthen infection control practices in hospitals and the community
  - Guidelines
  - Surveillance
  - Education
Croatian policy on antimicrobial resistance

Key players

- Ministry of Health and Social Welfare
  - Department for medical affairs
  - Reference Center for Antibiotic Resistance Surveillance
- Croatian Academy of Medical Sciences
  - Croatian Committee for Antibiotic Resistance Surveillance
- Croatian Medical Assembly
  - Professional societies for ..... 
- Croatian Institute for Health Insurance
- Agency for Medicinal Products and Medical Devices
- Ministry of Agriculture Veterinary and Forestry
- Ministry of Science, Education and Sports
MATRA project expected results

1. An Intersectoral Co-ordination mechanism (ICM) in the field of antimicrobial resistance established and functional

2. Strengthening of surveillance systems for antibiotic resistance and consumption

3. Guidelines for prudent use of antibiotics formulated and implemented
Antibiotic resistance surveillance

- Introduction of the WHONET network
  - MATRA workshop on the use of WHONET, Zagreb, April 2007
  - Different levels of informatization in laboratories
  - Backlink to WHONET done in reference laboratory for all the microbiology laboratories
  - Concern about the confidentiality of data
Antibiotic consumption surveillance

- ESAC methodology
  - Hospital Care subproject
  - Nursing Home subproject

- Wholesales data
  #

- Hospital data provided by hospital pharmacists
- Ambulatory data provided by Croatian Health Insurance Institute (all antibiotics are reimbursed)
MATRA project expected results

1. An Intersectoral Co-ordination mechanism (ICM) in the field of antimicrobial resistance established and functional

2. Strengthening of surveillance systems for antibiotic resistance and consumption

3. Guidelines for prudent use of antibiotics formulated and implemented
MATRA workshop on guideline development
Zadar September, 2006
Pre-Congress WS, 5th Croatian Congress of Infectious Diseases

- Croatian opinion leaders invited
- Croatian guidelines reviewed
- introduction to AGREE methodology
- topics selected
- Working Groups set up
MATRA workshop on MRSA control
Zadar September, 2006
Pre-Congress WS, 5th Croatian Congress of Infectious Diseases

- Croatian opinion leaders invited
- Overview of international initiatives (UK, the Netherlands)
- Current situation in Croatian hospitals
- Working Group for MRSA guidelines set up
MATRA workshop on guideline development
Zagreb, November, 2006

- Working groups: sorethroat, UTI, MRSA, surgical prophylaxis

- METHODOLOGY
- review of international guidelines
MATRA workshop on guidelines
GP meeting
Zagreb, November, 2006

- forming a network of 47 Health Center representatives
- Why guidelines
- Importance of the network for:
  - piloting guidelines
  - Implementation of guidelines
MATRA workshop on guidelines
WG meeting
Zagreb, March, 2007

- Working groups: sore throat, UTI, MRSA, surgical prophylaxis
- GUIDELINES first draft versions
- methodology
Guideline development

• July 2007
  – final draft version discussed with I. Gyssens
  – piloting principles set up
  – consensus checked
  – publishing policy discussed

• 1st October – 15th November 2007
  – Final draft versions on the web open for comments
  – Piloting phase
MATRA workshop: Overcoming barriers in guideline implementation
Zagreb, October, 2007

- Working groups: sore throat, UTI, MRSA, surgical prophylaxis

- Implementation process
  - Resistance to change
  - Force field analysis
MATRA workshop on guideline development
Zagreb, November, 2007

- Working groups: sore throat, UTI, MRSA, surgical prophylaxis
- Final documents presented
- Comments received during the piloting phase discussed
- Implementation of the guidelines
- Publication
Symposium on national guidelines for prudent use of antibiotics
Zagreb, May 2008

- Working groups: sore throat, UTI, MRSA
- GP network, Family Medicine Departments at the Medical Schools Zagreb, Rijeka, Split, Osijek
- Primary care physicians, Zagreb region

- Guideline presentation
- Guideline implementation
1st Croatian Symposium on Nosocomial Infections
Zagreb, May 2007

• Invited speakers:
  – Prof. Martin Rusnak: MRSA control guidelines
  – Thea Daha: Infection control auditing
  – Marijke Bilkert: Health Inspectorate

• Infection Control audit:
  – Three hospitals
  – ICU, operating theatre
  – Burn unit
  – Pediatric department
  – Hospital kitchen
MATRA workshop on hospital infection control: ward auditing
Zagreb, April, 2008
pilot visit: Zagreb, May 2007

- Infection control teams from eight hospitals

- Audits at:
  - Intensive care unit
  - Pediatric intensive care
  - Pediatric infectious disease ward
  - Operating theatre
• Public Health Consultants / Interaction in Health
  Dr. Jaap Koot, Dr. Maja Vucetic, Prof. Martin Rusnak, Prof. Vladimir Krcmery, Prof. Jos van der Meer, Dr. Heather Houlihan, Dr. Inge Gyssens

• SWAB
  Dr. I. Gyssens, Prof. J. Degener, Dr. J. Prins, Dr. E. Stobberingh, Prof. H. Verbrugh, Dr. D. Mevius, Drs. P.M.G. Filius, Dr. S. Geerlings, Dr. G. Vos,

• WIP
  Thea Daha

• Ministry of Health, Welfare and Sport
  Marijke Bilkert

• National Institute of Health and Environment (RIVM)
  Dr. Hajo Grundman & the EARSS team

• Central Institute for Animal Disease Control Lelystad

• Ministry of Agriculture

• Maurice Sleypen
Prehladeni ste?
Imate gripu?
Mirujte, liječite se ali NE antibioticima!