WHO Strategies to Control Antimicrobial Resistance in the Asia-Pacific Region

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Antimicrobial medicines changed the world for the better

Penicillin increased survival of patients with pneumonia & bacteria in blood from 10% to 90%

Adapted from Austrian et al. Ann. Int. Med 1964; 60, 759
Now facing a global public health crisis

Increasing resistance to antimicrobial medicines among many pathogens

- bacteria
- viruses
- parasites
- fungi

Few new antimicrobial medicines in pipeline

Implications of antimicrobial resistance (AMR)

- Infections currently considered trivial or treatable becoming life threatening
  - More anxiety for every ill patient, every parent with a sick child, every son or daughter with an ill parent

- Reduced public health control over many infectious diseases
  - Bacteria like tuberculosis, gonorrhoea, pneumonia ....
  - Viral diseases like HIV/AIDS ....
  - Major tropical diseases like malaria ....
Implications AMR

- Reduced safety net for patients undergoing medical procedures such as surgery
- In today's globalized world, potential for rapid spread of AMR
- Higher treatment costs

Treatment costs go up when first line antimicrobials can't be used
Costs of AMR to society are high

- In the EU
  - 2.5 million extra hospital days in 2007
  - 25,000 deaths per year
  - Overall about 1.5 billion € per year
    ECDC 2009. Joint technical report: the bacterial challenge—time to react

- Thailand
  - > 140,000 cases/yr AMR infected patients
    WHA 2012, also published at Financial Times 27 May 2012
  - 2.0 billion USD per year

Many other factors contributing to development of resistance

- Unrestricted sale & misuse of antimicrobial drugs in many settings
  - Clinical medicine, communities, agriculture

- Widely used in food animals
  - Food considered most important vector for spread of resistance
  - 80% of AB produced in USA are used in animal agriculture (USFDA)
  - Globalized distribution of food - requires international cooperation

- Inadequate systems for ensuring quality medicines

- Insufficient information on scope & key trends
  - Surveillance systems weak or absent

- Few countries have national plans to limit use
  - No clear accountability within countries
AMR in disease-specific programmes

- Drug Resistant Malaria
- Drug Resistant TB
- Drug Resistant Influenza
- Drug resistance in other bacteria

Artemisinin Resistance (AR)
Containment of Artemisinin resistant falciparum malaria in the GMS

- 2006: Confirmation of Artemisinin resistant (AR) falciparum malaria
- 2009-2011: Implementation of AR containment in Pailin Province, Thailand border; adjudged largely successful by external review
- 2011: Global Plan for AR Containment (GPARC) established
- Malaria 2012, Sydney: Saving lives in the Asia Pacific
- Regional Strategy and Emergency Response to Artemisinin Resistance developed

Proportion of MDR among new TB cases (2011)

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* Figures are based on the most recent year for which data have been reported, which varies among countries.
MDR TB
Progress made in the Western Pacific

- Regional Green Light Committee (rGLC) established (July ‘11)
- High burden countries with MDR-TB plan to scale up Programmatic Management of Drug Resistant TB (PMDT)
- Excitement about new drugs & diagnostics (GeneXpert)
- Diagnostic algorithm tool (WPRO designed)
- Assessment of private sector involvement & potential for PMDT

Monitoring Drug Resistant Influenza

- WHO Global Influenza Surveillance and Response System (GISRS) – in the Western Pacific
  - 21 National Influenza Centres in 15 countries
  - 3 WHO Collaborating Centres for Reference and Research
- WHO expert working group on surveillance of influenza antiviral susceptibility (AVWG)
MDR Bacterial Infections

- MDR healthcare associated infections
- MDR organisms
  - Carbapenemase-resistant Enterobacteriaceae
  - Methicillin-Resistant *Staph aureus* [MRSA]
  - Vancomycin-Intermediate and -Resistant Staphylococci (VISA/VRSA)
  - Vancomycin-Resistant Enterococci (VRE)
  - Penicillin-Resistant *Strept pneumoniae* (PRSP)
  - *Pseudomonas aeruginosa*
  - Acinetobacter sps
  - Burkholderia sps
  - etc

Different metallo-beta-lactamases causing resistance in gram negative bacteria

Source: Reprinted from * with permission from Elsevier.
Networks for MDR bacterial pathogens

- National
  - MOHNARIN (China) – 1300+ hospital laboratories
  - VINARES (Viet Nam) – 16 hospital laboratories
  - ARSP (Philippines) – 22 hospital laboratories
  - National networks - Australia, Malaysia, Korea, Japan, New Zealand...
  - Etc...

- Regional
  - ANSORP (Asian Network for Surveillance of Resistant Pathogens) – 123 centres, 14 countries/areas
  - Gonococcal Antimicrobial Surveillance Program
  - GARP (Global AMR Partnership) – 4 countries; ± 80% AB courses purchased without prescription through pharmacist (Viet Nam)

- Global
  - ......

Disease specific programs vs drug resistant bacterial infections

- Strong programs globally for TB, HIV, Malaria, Flu
  - Well coordinated
  - Morbidity/mortality data/information/evidence
  - Funding
  - Strong stand-alone surveillance system with monitoring systems, including drug resistance

- Other drug resistant bacterial infections – challenges
  - Not one organism
  - Use in animal sector
  - Costs (drugs used to subsidize the health system, including salaries)
  - AB more easily available and in many countries even over-the-counter
  - Regional and local surveillance mechanisms and networks, but globally less comprehensive/coordinated
Moving forward

Making a difference ...
WHO’s role

- Increase awareness through dissemination of data/information/evidence
- Bring together ALL key stakeholders (convening role)
  - More coordinated international and multi-sectoral collaboration
  - Inclusive approaches acceptable for all players
  - Work with and strengthen existing networks
- Provide guidance & facilitate action
  - Standardize techniques and data
  - Build capacity and improve quality
  - Ensure equity

“We are as strong as our weakest link”

World Health Day 2011
6-point policy package

1) Commit to a comprehensive, financed national plan with accountability and civil society engagement
2) Strengthen surveillance and laboratory capacity
3) Ensure uninterrupted access to essential medicines of assured quality
4) Regulate and promote rational use of medicines, including in animal husbandry, and ensure proper patient care; and 4d) Reduce use of antimicrobials in food-producing animals
5) Enhance infection prevention and control
6) Foster innovations and research & development for new tools

Comprehensive & multi-sectoral
WHO in the Asia-Pacific Region

- Scientific group (1984)
- Working Group on Regional Information Network (1987)
- Bi-regional National Laboratory Policy and Plan; Bi-regional Workshop on AMR Surveillance and Containment (2005 & 2011)

Other partners

- Australian AID
- Bill and Melinda Gates Foundation
- JICA
- Sida
- Department for International Development
- Wellcome Trust
- Institut Pasteur
- Fondation Merieux
- University of Oxford
- The Global Fund
- USAID
No action today, no cure tomorrow

7 April 2011 World Health Day

Thank you

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