Antimicrobial Resistance (AMR) in Humans and the Global Health Security Agenda

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A health threat anywhere is a health threat everywhere

Global Antimicrobial Resistance (AMR)

- AMR has reached alarming levels in many parts of the world
  - High levels of resistance in all 6 WHO regions

- Treatment options are limited

- Gaps in surveillance standards, data sharing, coordination

Estimates of Burden of Antibacterial Resistance

**European Union**
*Population 500m*
- 25,000 deaths per year
- 2.5m extra hospital days
- **Overall societal costs**
  - € 900 million, hosp. days
  - Approx. € 1.5 billion per year

*Source: ECDC 2007*

**Thailand**
*Population 70m*
- >38,000 deaths
- >3.2m hospital days
- **Overall societal costs**
  - US$ 84.6–202.8 mill. direct
  - >US$1.3 billion indirect

*Source: Pumart et al 2012*

**United States**
*Population 300m*
- >23,000 deaths
- >2.0m illnesses
- **Overall societal costs**
  - Up to $20 billion direct
  - Up to $35 billion indirect

*Source: US CDC 2013*

Global information is insufficient to show complete disease burden impact and costs

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Infection Control and AMR

- Development of AMR due to unnecessary antibiotic exposure
  - Outpatient and inpatient, veterinary
- Transmission of AMR primarily occurs in healthcare settings
  - Poor hygiene
  - Lack of transmission precautions

To reduce the burden of AMR, infection control in healthcare settings must be a focus
Importance of Infection Control for Emerging Diseases
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Poor Hospital Practices Blamed for 2003 SARS Epidemic in Toronto

By CHRISTOPHER MASON
Published: January 10, 2007

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Nigeria Struggles to Cope With Ebola Outbreak

By SABRINA TAVERNISE    AUG. 10, 2014

Ebola, one of the world’s most fatal diseases, has surfaced in Africa’s most populous country.
Importance of Infection Control for Emerging Diseases

Poor Hospital Practices Blamed for 2003 SARS Epidemic in Toronto

By CHRISTOPHER MASON

ASIA PACIFIC

MERS Virus’s Path: One Man, Many South Korean Hospitals

By CHOE SANG-HUN JUNE 8, 2015
What about the SOLUTIONS?
What about the SOLUTIONS?

Data → Information → Action

Diagram: A flowchart showing the relationship between data, information, and action.
CDC strategy to fight antimicrobial resistance

Detect
- Track AR in real time; uncover outbreaks quickly; identify new, emerging resistant organisms

Respond
- Stop outbreaks early

Prevent
- Prevent spread of resistant organisms & emergence of new resistance; scale up proven interventions; preserve effectiveness of current antibiotic treatments

Innovate
- Design new interventions
National Strategy for Combatting Antibiotic Resistance

- Slow the development of resistant bacteria and prevent the spread of resistant infections
- Strengthen national One-Health surveillance efforts to combat resistance
- Advance development and use of rapid and innovative diagnostic tests for identification and characterization of resistant bacteria
- Accelerate basic and applied research and development for new antibiotics, other therapeutics, and vaccines
- Improve international collaboration and capacities for antibiotic resistance prevention, surveillance, control, and antibiotic research and development
Global Health Security Agenda

“…We must come together to prevent, and detect and fight every kind of biological danger – whether it’s a pandemic like H1N1, a terrorist threat, or a treatable disease.”

President Barack Obama, 2011
WHEN

GHSA TIMELINE

Launch in WASHINGTON, DC
Commitment Meeting on Zoonotic Diseases JAKARTA, INDONESIA
US Congress passes $1.9 billion Emergency Funding Request for Ebola and Global Health Security

Commitment Development Meeting HELSINKI, FINLAND
Summit Announcing Country Commitments WASHINGTON, DC
US Government Priority Countries Selected
Technical meeting for Biosafety/Biosecurity Nairobi, Kenya
Global Health Security Agenda

- Prevent avoidable catastrophes
- Detect threats early
- Respond rapidly and effectively
Action Packages to Achieve Targets

- Antimicrobial Resistance
- Zoonotic Diseases
- Biosafety/Biosecurity
- Immunization
- National Laboratory Systems
- Surveillance
- Reporting
- Workforce Development
- Emergency Operations Centers
- Linking Public Health with Law Enforcement and Multisectoral Rapid Response
- Medical Countermeasures and Personnel Deployment
Action Packages to Achieve Targets

Prevent avoidable catastrophes

Antimicrobial Resistance

5-Year Target:
• Integrated and global package of activities to combat AMR

Desired Impact:
• Enhance infection prevention and control
• Prevent the emergence and spread of AMR, especially among drug-resistant bacteria
• Strengthen surveillance and laboratory capacity
Global Health Security

USG Phase 1 Countries, 2015

GHS Countries:
- Bangladesh
- Cameroon
- Ethiopia
- India
- Indonesia
- Kenya
- Pakistan
- Tanzania
- Uganda
- Vietnam

Ebola-affected countries:
- Guinea
- Liberia
- Sierra Leone

High Risk Non-Affected Ebola Funded Countries:
- Mali
- Senegal
- Côte d'Ivoire
- Burkina Faso
U.S. Government GHS Landscape

• Department of Health and Human Services
  • Office of Global Affairs
  • Centers for Disease Control and Prevention (CDC)
  • Office of the Assistant Secretary for Preparedness and Response
  • Food and Drug Administration

• Department of State
  • Biosecurity Engagement Program (BEP)
  • Office of International Health and Biosecurity
  • Biological Policy Office

• U.S. Agency for International Development
  • Emerging Pandemic Threats Program

• Department of Defense
  • Office of the Assistant Secretary for Global Affairs
  • Office of the Assistant Secretary for Nuclear, Chemical and Biological Defense Programs
  • Defense Threat Reduction Agency
  • Armed Forces Health Surveillance Center

• Department of Agriculture
  • Foreign Agriculture Services
  • Animal and Plant Inspection Services
  • Agriculture Research Services
How Can We Partner?

**Share Information**
- Right Information
- Right People
- Right Time
- Right Decisions

**Share Solutions**
- Data collection & Management Systems
- Training & Employment
- Improved Communications
- Public Health Infrastructure
Thank you

For more information please contact Centers for Disease Control and Prevention

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Telephone: 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348
Visit: www.cdc.gov | Contact CDC at: 1-800-CDC-INFO or www.cdc.gov/info

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.