Reflections from GARP Phase 1

Kenya

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Overview

- Background
- GARP-Kenya contributions
- Recommendations
- Challenges
BACKGROUND
Antibiotic Resistance Knowledge Base

- Antibiotic overuse in some settings, yet little or no access in others, especially rural and remote places
- No clear picture of the extent of antibiotic resistance: glimpses from occasional hospital-specific studies
- Strong suspicion that patient treatment was being adversely affected by resistance: high treatment failure rates in ICUs and HDUs, prolonged hospitalizations

- Neonatal causes: 24%
- Other: 11%
- Malaria: 14%
- Diarrhoeal disease: 16%
- HIV/AIDS: 15%
- Pneumonia: 20%

Source: World Health Organization, Kenya: Country Health System Fact Sheet 2006,
Antibiotic Resistance in Kenya

Source: Kenya Situation Analysis

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Knowledge Gaps

• Almost nothing known about antibiotic resistance in the community
• What drives antibiotic prescribing? UNKNOWN!
• Antibiotic treatment guidelines: how are they used and how effective they in patient treatment? UNKNOWN!
• Staff in many hospitals lack access to guidelines, even if they know about their existence
Comparison of *S. aureus* isolates that are MRSA in Kenya (2001, 2006) and other geographical regions (2007)

![Bar chart showing the proportion of MRSA isolates in different regions: Nairobi (2006), World, Asia, Africa, Western Kenya (2001).](chart)

Antibiotic Use in Animals

• Lack of information about how and what antibiotics were being used by farmers raising cattle, pigs, chickens.
Staphylococcus aureus in Milk Samples: Resistance to Antibiotics (2001-2002)

GARP-KENYA CONTRIBUTIONS
SITUATION ANALYSIS AND RECOMMENDATIONS
Antibiotic Use and Resistance in Kenya

The GARP-Kenya Working Group
Dr. Samuel Karuki, Chairman
August 2011

Released August 2011
1. Survey on Perception of Antibiotic Resistance and Use in District Hospitals

- Antibiotic prices, profitability to supplier, affordability to patient or consumer
- Volumes of antibiotics purchased by hospitals
- Knowledge and perceptions of health workers in hospitals
Results

• Antibiotic resistance is a serious national problem… but not in my hospital
• Antibiotic shortages are common, especially outside of Nairobi
• Perception that infection control is adequate: may not equate with reality
• Medicines and therapeutics committees: private and faith-based hospitals have been ‘less enthusiastic’ than have public hospitals
• Treatment guidelines welcome if available
2. Antiobiotic Use and Resistant Bacteria in Food Animals

Two part pilot study:

• Knowledge, attitude and perceptions of prescribers and users of antimicrobials (livestock farmers, vets): which antibiotics they use, how often and why

• Resistance profiles for common bacterial pathogens from livestock
Findings: Interviews

• >80% of farmers gave antibiotics without veterinary supervision
• Most frequently used: tetracyclines, sulfonamides, penicillins, streptomycins
• Lack of access to veterinary professionals, especially in arid and semi-arid regions (cattle raising areas)
• Vaccines provided by government reduced antibiotic use AND antibiotics provided by NGOs increased use
• Government rules for antibiotic use had little impact BUT antibiotic residues better controlled in animals raised for export
Findings: Laboratory

- Significant antibiotic resistance across the three livestock production systems
- 10-15% bacteria from beef cattle and poultry production systems: resistant to 3 or more of 11 antibiotics tested; 15% pig samples resistant to 4 or more of antibiotics tested
- Most commonly used antibiotic classes also recorded the highest number of resistant bacteria:
  - tetracyclines, penicillins, sulfonamides and streptomycins

And has led to funding of continuing surveillance by FAO
Number of bacteria resistant to various classes of antibiotics

<table>
<thead>
<tr>
<th>Class of antibiotics</th>
<th>Pig (n=8)</th>
<th>Beef cattle (n=42)</th>
<th>Chicken (n=20)</th>
<th>Total (n=70)†</th>
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<td>Tetracyclines</td>
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<td>Quinolones</td>
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†Is the sum of intermediately sensitive and resistant samples

Source: Laboratory data
RECOMMENDATIONS
General Areas of Focus

- surveillance and monitoring
- training and education
- vaccination
- quality control and supply chain improvements
- veterinary use of antibiotics
Specific: Critical Paths for Policy Actions

HOSPITAL INFECTION CONTROL

• An agenda for the National Infection Prevention and Control (IPC) Secretariat, within the Ministries of Health
  ▪ Determine current IPC activities in all hospitals
  ▪ Collect specific information on antibiotic use regularly
Critical Paths [2]

VETERINARY

• Fast-track Veterinary Poisons and Medicines bill to provide legal mandate for further action

Future steps

• Surveillance
• Education and training
• Supply chain and quality assurance
ANTIBIOTIC USE GUIDELINES

• Experts and stakeholders
  ▪ Pharmacists, microbiologists and clinical specialists from professional bodies, Ministry of Health regulatory bodies, private sector, consumer society and relevant NGOs.
• Annual production of national antibiotic use guidelines
• Antibiotic guideline review in professional medical journal
• Pocket guideline distribution to all hospitals
• Repeat annually!
Challenges

• Expanding the GARP circle within Kenya: getting the word out about antibiotic access and resistance
• Sustainability of activities recommended/started (e.g., surveillance): interest and resources
• Conflicting interests among key players in antibiotic procurement, distribution, sale and use
• Taking advantage of GARP as a global partnership
Acknowledgments

- KEMRI
- University of Nairobi
- Ministry of Public Health and Sanitation
- Global Antibiotic Resistance Partnership