

How to improve antibiotic prescribing practices in primary care as a measure to control antibiotic resistance in Bangladesh?

Sajal Kumar Saha
MPH (International), University of Leeds, UK
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Nottingham University, UK

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What if there were no antibiotics to
treat infections anymore???

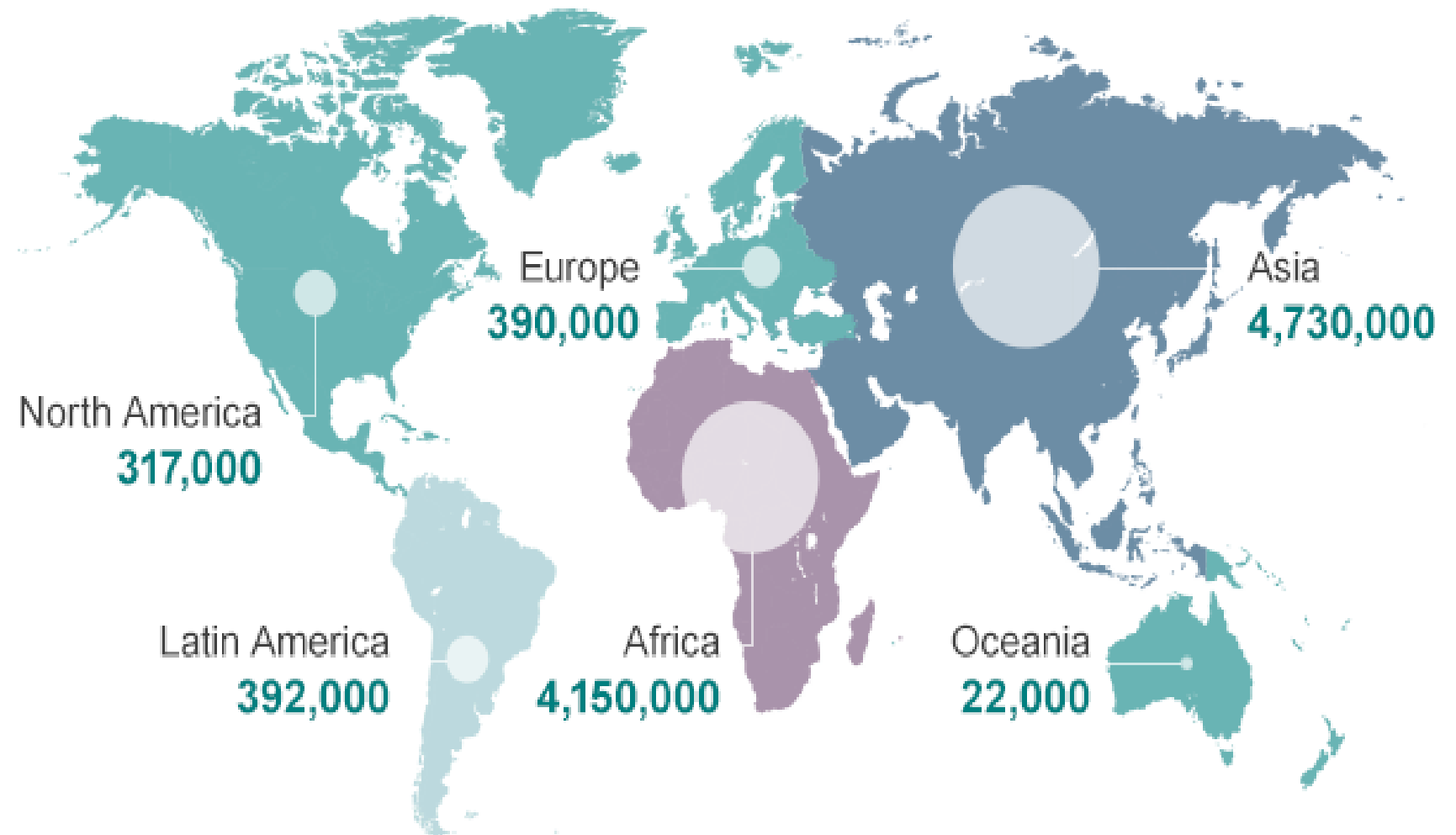
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Deaths attributable to antimicrobial resistance every year by 2050

GLOBAL A failure to address the problem of antibiotic resistance could result in:

 **10m** deaths by 2050

Costing  **£66** trillion



Source: Review on Antimicrobial Resistance 2014

1

Introduction and Background

- *Overview of Antibiotic Resistance and Antibiotic Prescribing*
- *Global burden of AR in relation to its effect on international health*
- *Why AR and Antibiotic use is concern in Bangladesh ?*

2

Determinants to PHC antibiotic prescribing in Bangladesh

- *Conceptual Framework*
- *Factors analysis*
- *Key problem identification*

3

Intervention Options to improve the situation

- *Suitable Intervention options at Bangladesh context*

4

Outputs

- *Recommendations*
- *Key challenges*
- *Conclusions*

- To explore antibiotics prescribing practices in Primary care in Bangladesh
- To identify determinants influencing antibiotics prescribing in PHC in Bangladesh
- To analyse interventions to improve antibiotic prescribing
- To develop priority interventions to promote rational prescribing of antibiotics at primary health care settings of Bangladesh
- To place recommendations to stakeholders including appropriate intervention and implementation mechanism to promote rational use of antibiotics in Bangladesh

- The most recent worldwide estimates of global antibiotic resistance, published by the World Health Organization (WHO) in 2014, list *Escherichia coli*, *Klebsiella pneumoniae*, and *Staphylococcus aureus* as the three agents of greatest concern, associated with both hospital- and community acquired infections.
- In five of the six WHO regions, some countries reported *E. coli* resistance of more than 50 percent to fluoroquinolones and third-generation cephalosporins.
- *K. pneumoniae* resistance rates to third-generation cephalosporins are above 30 percent in most WHO member countries and exceed 60 percent in some regions (WHO 2014).
- MRSA resistance rates exceed 20 percent in all WHO regions and are above 80 percent in some regions (WHO 2014).
- High rates of resistance to first- and second-line drugs are already increasing reliance on last-resort drugs, such as carbapenems (WHO 2014).
- In Asia, susceptibility to third-generation cephalosporins is declining, and treatment failures were reported from Hong Kong, Japan, and Sri Lanka (WHO Western Pacific Region, 2009)

Antimicrobial Sensitivity Pattern

Staph aureus



E coli



Pseudomonas



Klebsiella

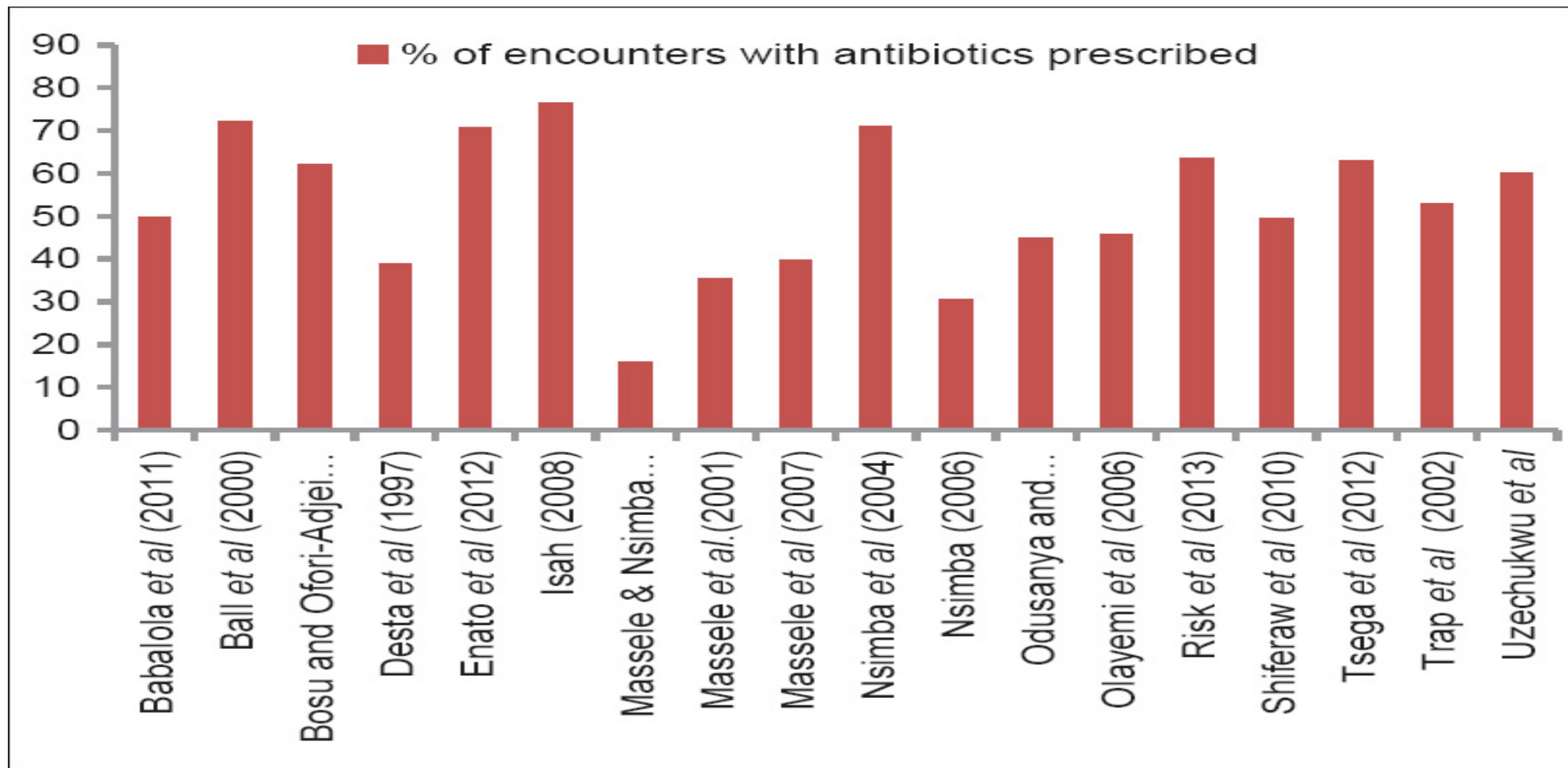


(Rahman et al., 2014)

Antibiotics prescribing Rate



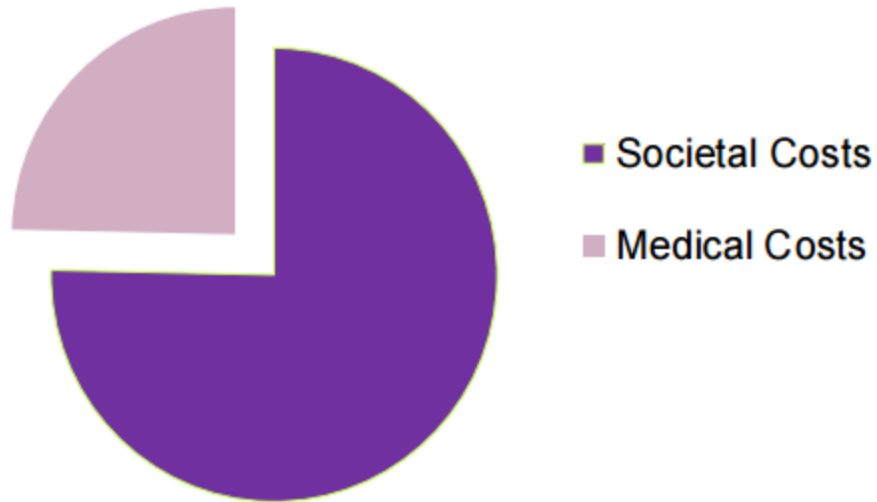
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- The link between inappropriate use of antibiotics and resistance development were acknowledged by World Health Assembly resolution WHA51.17 (1998)
- Worldwide about 25% to 75% of antibiotic prescriptions are inappropriate. (CDDEP,2015)
- Antibiotic overuse caused 40% global consumption rise for ten years (2000-2010) (McKay, 2011)
- In South-East Asia, 50% upper respiratory tract infection, 54% diarrhoea are treated with unnecessary antibiotic and 40% prescribed antibiotics are under-dose (Islam et al,2012)

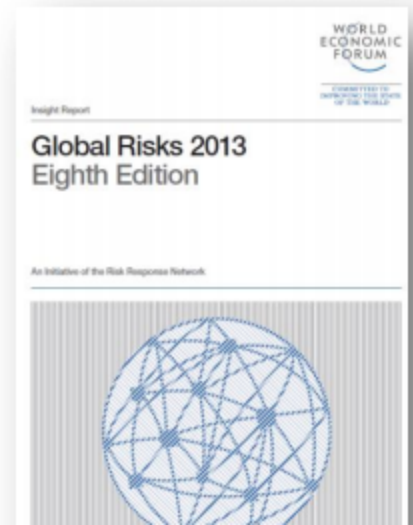
Overall Economic Impact Much Higher

AMR Costs



- Reduced consumer income, employment, savings
- Increased national investment, spending, healthcare delivery
- Reduced gross domestic product (GDP): 1.4% to 1.6%

Source: Roberts et al CID 2009; 49:1147-84.

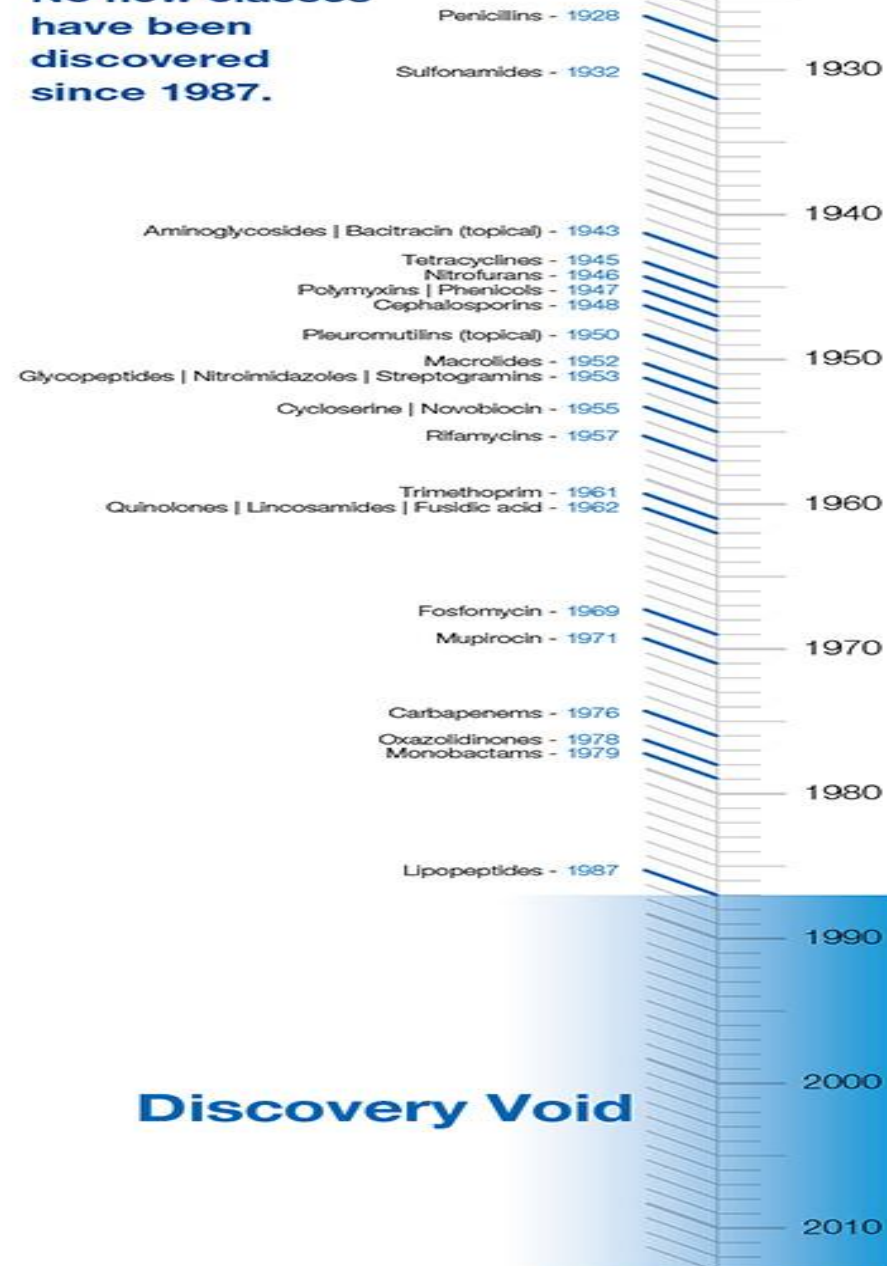


Disappointing fact

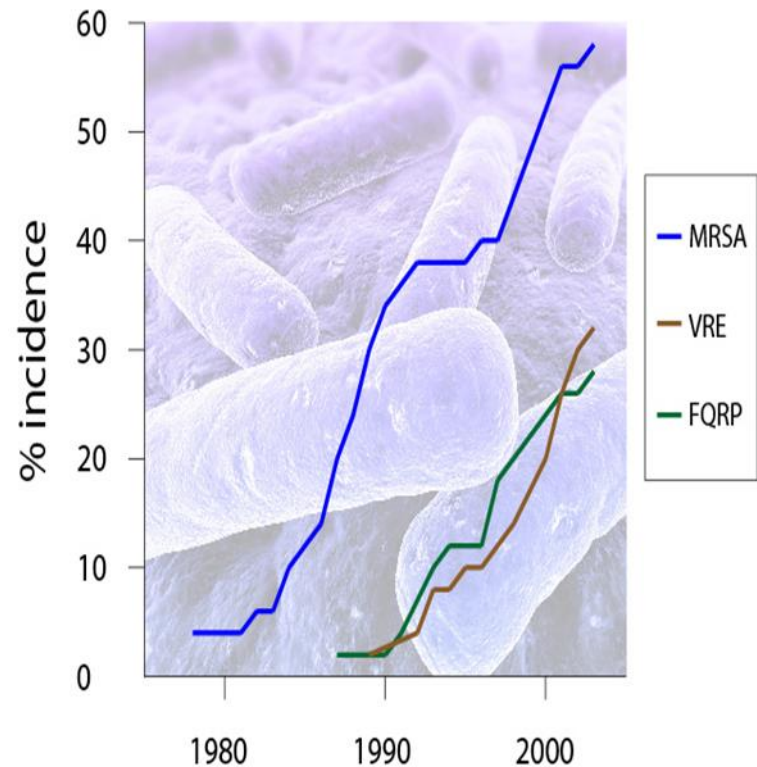


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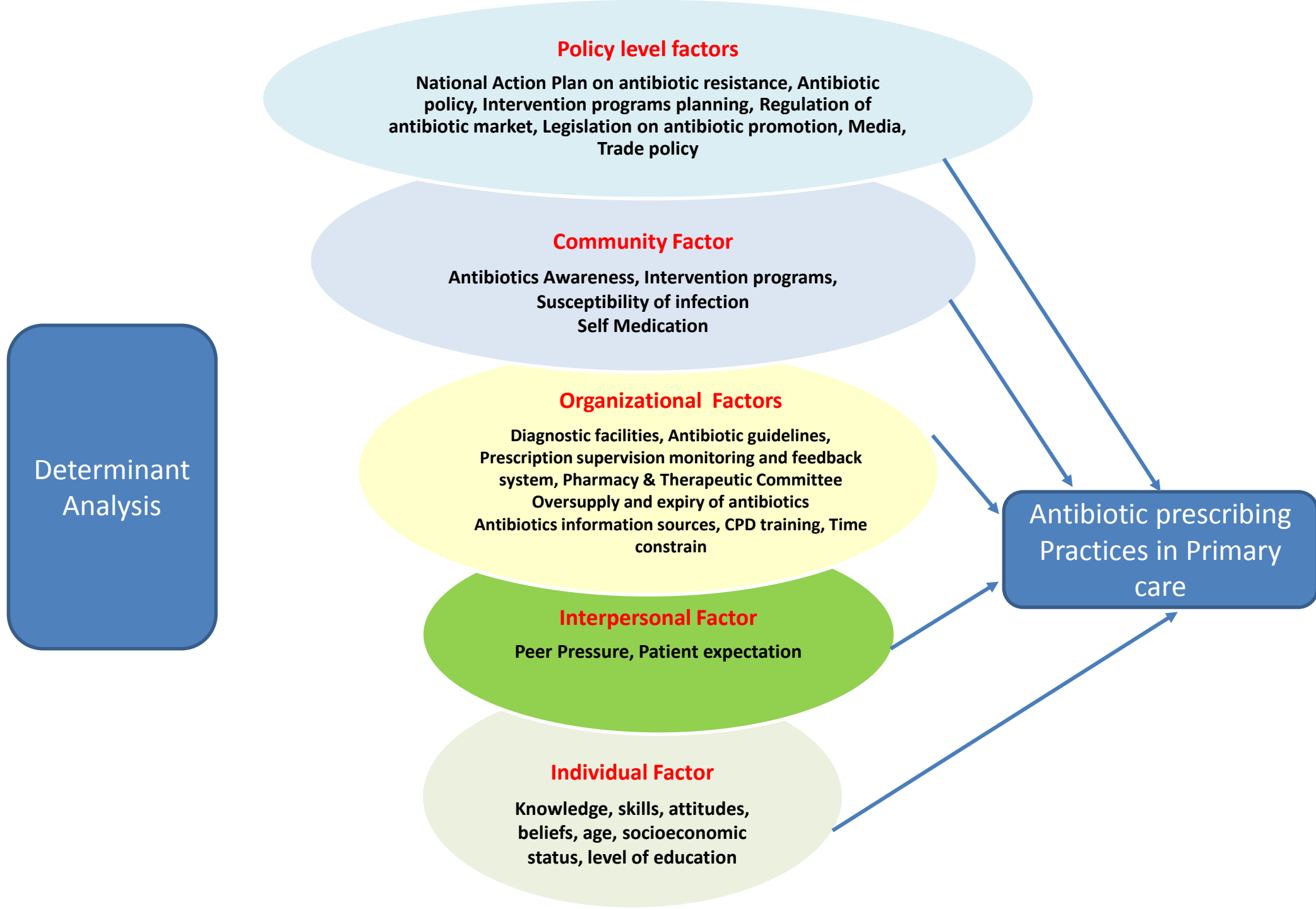
The discovery dates of distinct classes of antibiotics. No new classes have been discovered since 1987.



Antibiotic-resistant infections



Source: Centers for Disease Control and Prevention



1

Educational problem on antibiotic prescribing, use and antibiotic resistance

2

Managerial problem in Supervision and monitoring of antibiotic use across the country

3

Regulatory problems in policy actions to control antibiotic prescribing, market regulation and public use

4

Lacking in National initiatives and strategic plan to address the issue through planning, research, funding

Intervention options

No	Intervention Type	Component	Goal
Single Typed (Prescribers targeted)			
1.	Educational intervention measures	1. Printed Materials Manual, guidelines, leaflets, clinical literature 2. Training <ul style="list-style-type: none"> • Formal Education • Educational outreach visits • In service training – seminar • Clinical supervision and consultation • Interactive educational meetings • Physician reminders • Delayed antibiotic prescribing 3. Media based approach <ul style="list-style-type: none"> • pamphlets, posters, and mass media in television/ radio 	To inform or persuade prescribers to improve knowledge, attitude and judgement sk antibiotics, antibiotic resistance and antibiotics prescribing
2.	Managerial Intervention measures	<ul style="list-style-type: none"> • Antibiotic guidelines • Antibiotic stop order • Audit and feedback on antibiotic prescribing 	To restrict decision of antibiotic prescribing
3.	Regulatory intervention measures	<ul style="list-style-type: none"> • Antibiotic market control • Required Generic prescribing • Drug advertisement control • Limitation of antibiotic supply to public • Restricting broad spectrum antibiotics in market 	To structure decision of antibiotic prescribing

Intervention options to improve the situation?

1

**Educational
Training on
rational
antibiotic
prescribing**

2

**Audit and
Feedback on
antibiotic
prescribing**

3

**Providing
evidence based
antibiotic
guidelines**

4

**Changing
incentives
mechanism**

5

**Restricting
broad spectrum
antibiotics
supply**

6

**Provision of
diagnostic tools
and laboratories**

7

**Continuing
research on
antibiotic
prescribing
practice and
intervention
study**

**Mass media
campaign on
rational use of
antibiotic**

Short Term (1-3 years)

1. **Developing and distributing updated antibiotic guidelines** to primary care doctors and incorporating them into CPD curricula
2. **A dedicated unit to monitor antibiotic prescription in primary care** should be generated within MOHFW
3. **Continuous antibiotic prescription audit and feedback** in primary care especially in the area of potential misuse of antibiotics as identified through monitoring of consumption with annual publication

Medium Term (4-6 years)

1. **Designing and implementing educational intervention programs** targeting primary care providers under the leadership of existing health promotion units of MoHFW and in coordination with NGOs
2. **Disseminating core antibiotic messages to the public** through the already existing MOHFW health education units and media e.g. avoid self-medication antibiotics, do you really need antibiotics? Toxicity of antibiotics and consequence of unnecessary antibiotic use.

Long Term (>6 years)

1. Designate a **national action plan** to contain antibiotics resistance incorporating key strategy to control antibiotic prescribing in primary care by MoHFW in Bangladesh.
2. Establishing the functional **Pharmacy and Therapeutic committees** to monitor antibiotic use in primary care, CPD coordination and to report annually to MOHFW/DGHS.
3. **Instituting surveillance mechanisms** to generate reliable and actionable epidemiological information including baseline data and trends on antibiotic resistance, antibiotics utilization and their impact on the economy and health through designated regional and national reference centres
4. **Investing fund for operational research** for better understanding of the technical and behavioural aspects of antibiotic prescribing in PHC and intervention studies to improve quality of antibiotic prescribing. The outcomes of these studies would be utilized in future policy and programme development/ improvement

Short Term (1-3 years)

1. **Antibiotic Regulation:** Strengthening the DGDA with sufficient drug inspectors, pharmacists, clinical pharmacologist to deal many of the required activities of antibiotic registration, monitoring and supervision of antibiotic use
2. **Revising and regular updating of essential medicine list** including suitable antibiotics list for PHC use i) to ensure antibiotic selection be more consistent and cost-effective and II) to sensitize PHC doctors to utilize EML by rapid dissemination and incorporating it into pre and post service training curricula.

Medium Term (4-6 years)

1. **Improving the process of drug registration** by DGDA through reviewing criteria for antibiotic registration and raising the registration fee as to control availability of huge number of brands of the same antibiotic active ingredient.
2. **Annual antibiotic consumption analysis** by DGHS task force and reporting to maintain good supply and management chain of antibiotics in primary care by DGDA

Long Term (>6 years)

1. **A system and committees should be developed that could monitor and control antibiotic promotion** by pharmaceutical companies, authenticity of antibiotic information provided by medical representatives to medical professionals including primary care prescribers.



No simple solution but coordinated and multicomponent intervention and regulatory policies can bring a significant change in halting inappropriate and unnecessary antibiotic prescribing in primary care in Bangladesh. Therefore, today not tomorrow, the commitment of government, key stakeholders actions, donors' funding, whole of society's concern with concerted policy and strategic actions are needed to ensure rational use of antibiotics for healthy digital Bangladesh. Continuing educational and regulatory interventions and policies might be two potential drivers with others beating antibiotic resistance in near future in Bangladesh.

Please don't use antibiotics in fever and common cold

You and your family members don't take antibiotics
without doctors recommendation

Thank you

Saving life of antibiotics means saving billions of people's lives and securing global public health

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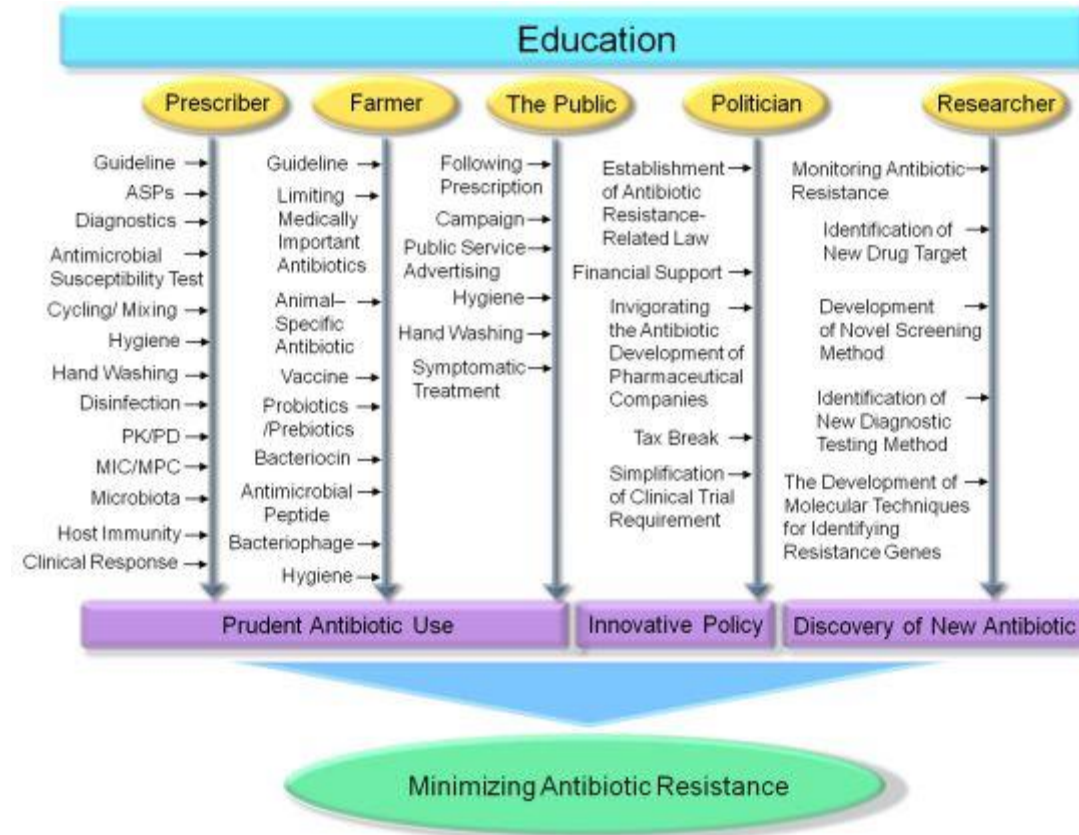
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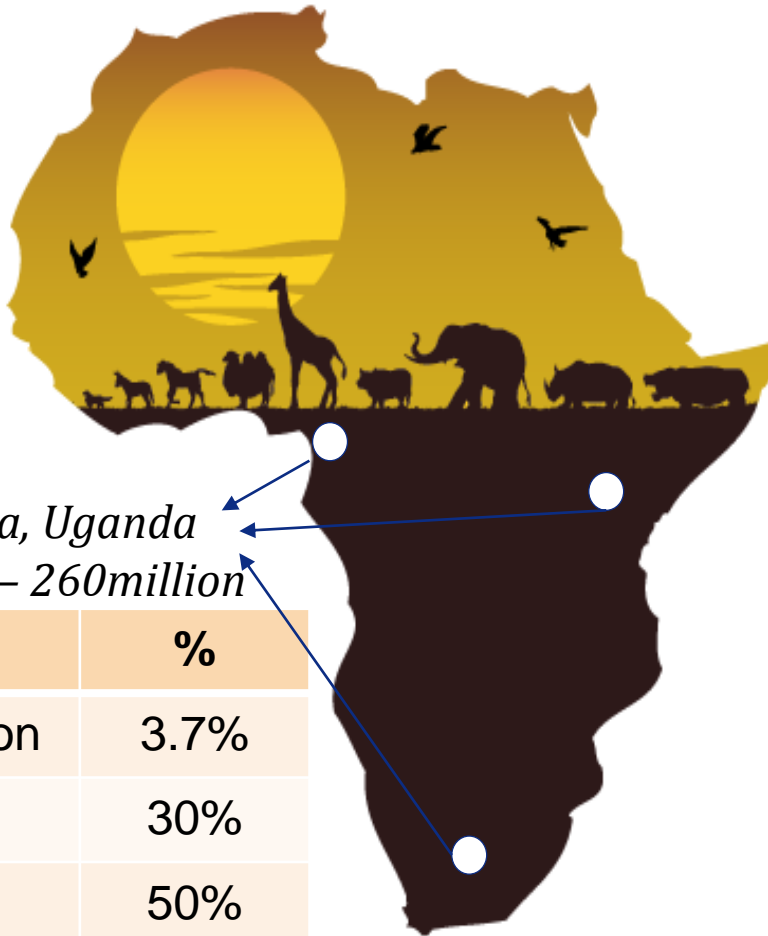
Is HIV/AIDS Really a Global Burden?



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70% of all HIV+ people are in sub-Saharan Africa, in fact 3 countries alone; Nigeria, South Africa and Uganda account for 50% of all new infections globally

Region of Highest Burden



Nigeria, South Africa, Uganda
Combined population – 260million

Indices	%
% of world population	3.7%
% of all HIV +ve	30%
% of all New Infections	50%

People who inject drugs were 28 times, Men who have sex with men 19 times and female sex workers 13.5 times greater risk than the general population.

Men who have sex with Men



Key Risk Groups

Commercial Sex Workers



Injection Drug Users



50%

50% of people that are HIV positive do know their status. These people need to be identified, tested and placed on treatment



22
Million

22 Million People including about 5 Million that know their HIV status are currently not on ART. These people need access to treatment

500,000

For HIV/AIDS to be defeated as a public health concern, we need to get to less than 500,000 new infections and 500,000 AIDS related deaths annually

\$26.2
Billion

\$26.2 Billion is needed to fund this aggressive 90-90-90 strategy (Health Gap, 2016). This will require considerable scale up in funding by donor agencies and National Governments

Conclusion - An AIDS free generation by 2030 is possible. However will require considerable commitment and action by UNAIDS, National Governments, Donor Agencies and other stakeholders to ensure the 90-90-90 target is achieved.

In Nigeria, there is the need to amend criminal laws against key risk populations to encourage them to come forward for testing and treatment, make policies/strategies that align with UNAIDS guidelines and increase funding for current HIV efforts from the current 25% it currently is at.

KEY RECOMMENDATIONS

- ☐ to better understand why antibiotics are being used without having been prescribed.
- ☐ to increase public education so that people better understand: Antibiotic Resistance - which conditions can be treated with antibiotics and which cannot (e.g. antibiotics are not effective against colds and flu).
 - why antibiotics should only be taken when they have been prescribed to a specific individual for a particular episode of illness.
 - the importance of taking the full prescription as prescribed.



**Surveillance is key to inform
public health actions and strategies**

Antibiotic use is widespread: 65% of respondents across the 12 countries taken antibiotics in the past six months, including more than one third (35%) who took antibiotics within the past month.

- lower income countries where 42% of people say they used antibiotics within the past month compared with 29% of people surveyed in higher income countries.
- Young people are more likely to have used antibiotics within the past month: 37% of 16 to 24-year-olds, versus 24% of respondents aged 65 years and older.
- ☐ most people (81%) say they were prescribed or provided by a doctor or nurse (range between countries: 56%-93%), and 93% say they obtained the drugs from a pharmacy or medical store (range between countries: 83%-97%).
- ☐ Levels of knowledge around the appropriate use of antibiotics—including how and when to use antibiotics and what they should be used for—are mixed
- . - 25% of respondents think it is acceptable to use antibiotics that were given to a friend or family member, as long as they were used to treat the same illness;
- 43% think it is acceptable to buy the same antibiotics, or request these from a doctor, if they are sick and antibiotics helped them get better when they had the same symptoms before. Both these actions can result in improper use of antibiotics, and therefore contribute to the resistance problem. - 32% of respondents think that they should stop taking antibiotics when they feel better, not when they have taken all of them as directed. WHO advises that patients should always take the full prescription, even if they feel better earlier.

- Respondents in Sudan, Egypt and China were particularly likely to state that they should stop taking antibiotics when they feel better, with 62%, 55% and 53% of survey participants respectively choosing this response.