Introduction to Country-Level Activities

Molly Miller–Petrie

GARP-Bangladesh and GARP-Pakistan Inaugural Meeting

July 15, 2016
Situation analysis
Situation analysis as critical step towards a NAP

**Situation analysis**
- Current status of AMR
- Gaps in practices and processes

**NAP (strategic plan)**
- Define what strategic actions are going to be taken to address the gaps and meet the Strategic Objectives defined by WHO

**Operational plan and costing**
- Defines exactly the tasks that each key stakeholder must undertake and how much it will cost

**M&E plan**
- Monitoring and evaluating against specific indicators the achievement of the plan
Recommended situation analysis procedure

- Utilise the WHO Situation Analysis Template to conduct interviews with key stakeholders in AMR
- Source data from all relevant sources
- Core team from country to conduct interviews
- Peer review by external panel such as WHO or GARP
The key elements to starting the situation analysis

- People
- Data
- Process
The key people

The academics – human health
The academics – animal health
Laboratory services – public and private

Clinicians – Infectious diseases, IPC
Pharmacists
Veterinarians

The People
Funding and technical support
## The key data

| Key health indicators and health economics information about the country |
| Burden of infectious diseases: |
| - Laboratory data – public sector – sentinel sites only |
| - Laboratory data – private sector |

| Availability of medicines data |
| Antibiotic supply chain data: |
| - EML/ formularies |
| - Supply chain – contracting, distribution, prescribing and dispensing information |

| Antibiotic consumption data and spend data |
| Vaccination coverage and access |

| Infection Prevention and Control data: |
| - Coverage in facilities for IPC staff |
| - IPC staff numbers and skills |

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**CDDEP**

The Center for Disease Dynamics, Economics & Policy
Washington DC • New Delhi
The key process

<table>
<thead>
<tr>
<th>Initial meeting of key people to determine the aim of the situation analysis</th>
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<tbody>
<tr>
<td>What do we know</td>
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<tr>
<td>What don’t we know</td>
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<table>
<thead>
<tr>
<th>Set up of a GARP Working Group</th>
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<td>Key people</td>
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<td>Additional stakeholders</td>
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<table>
<thead>
<tr>
<th>Identify key information/ data sources needed and gather data</th>
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<tr>
<td>Desktop research</td>
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<td>Key informant Interviews</td>
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<table>
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<tr>
<th>Drafting of chapters by key people or GARP coordinator</th>
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<tr>
<td>Each section drafted by working group experts and coordinator</td>
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<td>Expert review of each chapter</td>
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Situation analysis chapters (suggested)

- Part I: Executive Summary and Recommendations
- Part II: Health and Economic Context
- Part III: Bacterial Disease and Antibiotic Resistance
- Part IV: Supply Chain and Implications for Antibiotic Access
- Part V: Veterinary Antibiotic Use
- Part VI: Conclusion and Recommendations
- References
Situation analysis chapters

Part II: Health and Economic Context – select the general topics that are the most important for your country

- Geographic and Demographic Context
  - Language, male/female, rural/urban and age distribution of the population, education/literacy, illustrative charts

- Economic Context
  - GDP, population living under the poverty line, recent growth trends, major sources of revenue i.e. agriculture, illustrative charts

- Health System Context

- Health Indicators
  - Life expectancy, major causes of mortality, maternal and child mortality and recent trends, access to water and sanitation, vaccination coverage, tables/figures

- Policy
  - List important existing national health policies and major goals, laws related to medicines, major institutes/bodies involved in healthcare

- Organization and Distribution of services
  - Public/private sector health services, primary/secondary/tertiary care, major disease control programs

- Access to Healthcare and Medicines
  - Workforce, doctor/population ratio, time/distance/cost to access care, disparities, access to medicines

- Health Financing
  - Source of funding for health services, government contribution to health financing, trends
Situation analysis chapters

Part III: Bacterial Disease and Antibiotic Resistance

- For each, list all available studies documenting disease burden and antibiotic resistance patterns in humans. Create a single table including all studies.

Acute Respiratory Tract Infections, Invasive Bacterial Disease

- Invasive Pneumococcal Disease
- Meningitis
- *Haemophilus Influenzae*
- Bacteremia

Enteric Infections

- *Escherichia coli*
- Non-typhoidal *Salmonella*
- *Shigella*
- *Vibrio cholerae*

Urinary Tract Infections

Sexually Transmitted Infections

Healthcare–Associated Infections
Situation analysis chapters

Part IV: Supply Chain and Implications for Antibiotic Access

• Pharmaceutical Registration, Licensing, Inspection
  • Responsible institutions, laws

• Importation and Local Production of Medicines

• Formal Drug Sales
  • Quantity of drugs sold and consumed

• Informal Drug Sales

• Procurement and Distribution

• Rational use
  • Studies looking at purchasing of antibiotics without a prescription, inappropriate prescribing in hospitals

Part V: Veterinary Antibiotic Use

• Antibiotic Use
  • List laws/regulations governing antibiotic use in animals, any studies documenting how much antibiotics are consumed in agriculture

• Antibiotic Resistance
  • List any studies documenting antibiotic resistance in animals, include a table with all studies
Situation analysis chapters

Part VI: Conclusion and Recommendations

• *Recommend the establishment of a national working group, action plan and implementation plan in line with the WHO action plan.*

• *List priority activities*

References
National action plans

ANTIMICROBIAL RESISTANCE NATIONAL STRATEGY FRAMEWORK

2014-2024
WHO recommended key strategic objectives for a National Action Plan

1. Improve awareness and understanding of AMR
   - Risk communication
   - National AMR surveillance
   - Laboratory capacities
   - Research and development

2. Strengthen knowledge through surveillance and research
   - IPC in health care
   - Community level prevention
   - Animal health: prevention and control

3. Reduce the incidence of infection through effective hygiene & IPC
   - Access to qualified antimicrobial medicines, regulation, AMS
   - Use in veterinary and agriculture

4. Optimize the use of antimicrobial medicines in human & animal health
   - Measuring the burden of AMR
   - Assessing investment needs
   - Establishing procedures for participation

5. Ensure sustainable investment through research & development

GLOBAL ACTION PLAN ON ANTIMICROBIAL RESISTANCE
**CDDEP Proposed Framework for National AMR Action Plans**

**Prevention**
1. Improve awareness and understanding of AMR and educate health care professionals
   - Risk communication and awareness
   - Educate Health care professionals

2. Reduce the incidence of infection through effective immunisation, sanitation, hygiene & IPC
   - Community level hygiene and prevention
   - Immunisation – human and animal
   - IPC in health care facilities
   - Animal health: biosecurity and hygiene

3. Strengthen knowledge through surveillance, ensure sustainability through funding, research and development
   - Diagnostic stewardship
   - Improve laboratory capacity and quality assurance systems

4. Improve access to antibiotics to treat infection
   - National AMR and AM use surveillance
   - Development of new diagnostic tools and investigations
   - Budget for AMR activities

5. Optimize the use of antimicrobial medicines in human & animal health
   - Ensure availability
   - Pharmaceutical and health products supply chain (selection – procurement – distribution – storage – dispensing)

**Access**

**Use**
1. Improve access to antibiotics to treat infection
   - AMS in human health (point of care interventions)
   - AM use in veterinary and agriculture (point of care interventions)

2. Reduce the incidence of infection through effective immunisation, sanitation, hygiene & IPC
   - Ensure availability
   - Pharmaceutical and health products supply chain (selection – procurement – distribution – storage – dispensing)

3. Strengthen knowledge through surveillance, ensure sustainability through funding, research and development
   - Diagnostic stewardship
   - Improve laboratory capacity and quality assurance systems
   - National AMR and AM use surveillance

4. Improve access to antibiotics to treat infection
   - Develop new diagnostic tools and investigations
   - Budget for AMR activities

5. Optimize the use of antimicrobial medicines in human & animal health
   - Ensure availability
   - Pharmaceutical and health products supply chain (selection – procurement – distribution – storage – dispensing)

6. Change incentives that encourage over use and enforce rational use
   - Regulate quality and use of antibiotics
   - Regulate prescribing and dispensing
   - License pharmacies
   - Inspect and enforce

**Notes:**
- **health care professionals include human, animal and agriculture practitioners**
The South Africa AMR strategy

Impact: Rational Antimicrobial use and improved patient outcomes

Antimicrobial Resistance Governance

- Diagnostic stewardship
- Enhance Surveillance
- Antimicrobial Stewardship
- Prevention including IPC and vaccination

Health systems strengthening, research, education and communication

The evolution of the South African AMR Strategy and program

**2009 - 2011**
- GARP places an AMR co-ordinator in SA
- SA Antibiotic Stewardship Partnership (SAASP) clinicians group launched

**2012**
- GARP - SA Situational analysis on AMR - Published Feb 2011 in SAMJ

**2013**
- October 2013 Antimicrobial Resistance working group established and meetings held (Feb 2014)
- April 2014 Antimicrobial Resistance Stakeholder Consultative meeting.

**2014**
- Oct 2014 AMR summit launch’s AMR strategic framework and background document
- Feb 2015 - Norms & standards draft published along side for AMR quality standards
- June 2015 SA AMR implementation plan and MAC approved

**2015**
- 6 – 8 May 2015 – WHO Africa region hosts experts consultative conference on AMR in Brazzaville, DRC
- 25th May 2015 WHO endorses Global action plan to tackle AMR
- 19 May 2015 – FPGH side event at 68th WHA in Geneva

**Background situational analysis**
- Strategy and policy outlining begins
- AMR strategy launched
- Implementation planning and stakeholder commitments defined
Questions to ask

1. What are the important activities/actions?
2. Who is responsible for these actions – stakeholders?
3. How long will it take to implement or start these actions?
4. What will be the challenges or risks?
## Stakeholders

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# Actions

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## Key challenges and risks
1. Prevention – Improve awareness and education on AMR

- Additional **modules on AMR** to be incorporated into Healthcare, veterinarian and agricultural practitioners undergraduate curricula as well as for post graduates

- **Effective communication, mentoring and coaching** of health care and veterinarian practitioners and regular provision of information on AMR and Antimicrobial use to change prescribing practices and behaviours;

- **A public education campaign** to communicate the importance of antimicrobials and the need to prevent overuse and should focus on infection prevention through immunisations and treatment for viral infections;

- **Public awareness campaigns on hand washing and food safety measures** to prevent the spread of infections within the household, through meal production and general hygiene measures. This needs to be supported by improved access to water, waste and sanitation services;

- Educate farmers, veterinarians and others on the appropriate use of Antimicrobials and their preservation for the treatment of illness and disease.

**Responsible institutions:** Ministries of Education, Health, Agriculture, media, health and veterinary professional bodies and associations, societies of pharmacists and health care professionals, consumer associations
2. Prevention – Immunization, sanitation, infection prevention and control

• Improvement in access of households to water and sanitation services in order to reduce the burden of infectious diseases and improve hygiene and cleanliness in the home;

• **Education campaigns** for the public especially school children and parents on hand hygiene and food preparation safety to prevent the acquisition and spread of disease;

• **Improved immunization coverage** for all children including new immunisation introduced recently – Hib and pneumococcal conjugate vaccines;

• Implementing improvements in hospital and health institutional level infection prevention and control programmes with a focus on hand hygiene, environmental decontamination and barrier precautions for health care professionals and patients;

**Responsible institutions:** Ministries of Public Works, Housing, Health, Environment, Education, municipal governments
3. Access – Surveillance and R&D

- **Building capacity of microbiology labs** in hospitals across the country.

- **Standardised laboratory methods** and procedures to ensure consistent application of testing methods and reporting;

- Develop **standard diagnostic stewardship guidelines** for the appropriate testing methods that health care practitioners must use.

- **Monitor AMR and antimicrobial use** as well as under 5 mortality rate indicators to monitor impact of AMR initiatives.

- Monitor and report on AMR and antimicrobial use data through a **National AMR Surveillance Program**. Investigate if the same system can be used to gather animal AMR and antimicrobial use data.
3. Access – Surveillance and R&D cont...

- Critical research on antimicrobial use and resistance includes:
  - Quantitative and qualitative studies on community acquired (CAI) and hospital acquired infections (HAI)
  - Impact of access to immunisations
  - New diagnostics tools for community acquired infections

**Responsible institutions:** Ministries of Health, Agriculture, Water and Sanitation, Science and Technology, laboratory service providers, national institutes, research and academy Institutions
4. Access – Access to antimicrobials

• The wise and appropriate selection of the correct antimicrobial’s and vaccines to meet the objectives of combating diseases. This includes:
  – **Review of the Essential Antimicrobials List** driven by the burden of disease in the country and clearly defining the level of the health care system where the medicines are available;
  – Development of an **Essential Antimicrobials in Animals List** classified according to the WHO recommendations as critically important, highly important and important
  – **Selection of appropriate vaccines** into the essential immunisation programme

• The efficient **procurement** of antimicrobials in a centralised fashion ensuring that medicines are available of the right quality, at a price that is affordable for the health system and that doesn’t place additional unnecessary financial costs on citizens through out of pocket expenses

• The effective **distribution** of these antimicrobials to the locations where patients are

**Responsible institution:** Ministries of Health, Agriculture and Finance, pharmaceutical directorate and procurement, private sector
### Aspects of the supply chain that can improve antimicrobial management

<table>
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<th>Selection</th>
<th>Procurement</th>
<th>Distribution</th>
<th>Rational Use</th>
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<tbody>
<tr>
<td>• Review prevalent health conditions – identify common conditions using sentinel site surveillance&lt;br&gt; • Identify treatment of choice – develop treatment protocols for common conditions&lt;br&gt; • Select medication and dosage forms to be part of Essential Medicines List against treatment protocols</td>
<td>• Quantify amount needed based on burden of disease and not just past consumption&lt;br&gt; • Select procurement methods and establish conditions and terms for bidders&lt;br&gt; • Register only medicines that have been quality assured by testing&lt;br&gt; • Ensure suppliers are licensed as importers, wholesalers or manufacturers&lt;br&gt; • Contract manage suppliers</td>
<td>• Inspect imported products for quality&lt;br&gt; • Reduce the channels of distribution in public sector and improve stock control at warehouses&lt;br&gt; • Improve logistics and cold chain/integrity of medicine delivered to health units&lt;br&gt; • License pharmacies and pharmacy owners in private sector (GPP, professional authority)&lt;br&gt; • Monitor availability of medicines at health unit level</td>
<td>• Review antimicrobial use against treatment protocols, against standards of dispensing and administration and patient outcomes&lt;br&gt; • Ensure administration is accurate and correct in terms of drug, dose and frequency&lt;br&gt; • Establish AMS activities and IPC strategies at all health units&lt;br&gt; • Establish “Order of pharmacists/technicians and pharmacy owners” and “Order of veterinarians and users”</td>
</tr>
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</table>
Balance between access and rational use

Balance between increased “access” and improved “rational use” requires “control”. This “control can come in various forms:

1. **Study** the quantities used and behaviours in prescribing and use for antimicrobials – animal, fish, humans and environment;
2. Ensure that there is **supporting legislation** to enable control;
3. **Educate, mentor and support** the prescribers, dispensers and users of antimicrobials in humans, fish, animals and the environment;
4. **Inspect/self regulate** the prescribers and dispensers and reward/accredit compliance with regulations. Recognise good practice and make the public aware that good practice is beneficial (quality improvement);
5. **Inspect** to identify compliance and implement **enforcement** mechanisms.

This may take 3 – 5 years for legislation to be promulgated in order to allow for enforcement. Therefore, self regulation must occur so that prescribers/dispensers are encouraged to improve their compliance. Self improvement is supported through education and mentorship.
5. Use – AMS

- National Standard Treatment Guidelines for Infants and Children in the Community should be developed taking into account the growing resistance of organisms to first line antibiotics as seen from surveillance. Similar guidelines for adults in the Community should be developed.

- Training and education of all health care practitioners providing community health care services on these guidelines.

- Development of Guidelines for ASP program implementation at the hospital level to cover the establishment of antimicrobial stewardship in all hospitals. These guidelines should include appropriate antibiotic choice, dose optimisation, de-escalation and discontinuation.

- Development guidelines for the appropriate treatment of animals as well as a list of antimicrobials that will be allowed for treating animals after an appropriate process of consultation with veterinarians and clinicians. These will be limited to antibiotics not of the highest importance to human health.
6. Use – Change incentives and enforce - Human

- Development of a **National Antimicrobial Policy as part of the National Medicines Policy** which addresses the quality of antimicrobials, the channels of access for antimicrobials, and describes the strategies for procurement, tendering, pricing policies and distribution throughout the health system.

- An **alternative funding model** to be developed to fund the provision of essential antimicrobials and then **procurement to be effected by a dedicated unit** within the Ministry of Health at a negotiated tender price.

- **Remove incentives to prescribe** and dispense antibiotics by health care professionals by regulating and enforcing a single exit price of antibiotics in the market. This single exit price will remove any profit from the sale of these medicines.

- **Enforce legislation in the country about antibiotic prescription**
6. Use – Change incentives and enforce – Human cont....

• Restrict the dispensing of antibiotics which are critically important to prescription only and regulating which types of antimicrobials are available at each level of the health care system and pharmacies

• Set up of a **National AMR Governance Structure** at the Ministry of Health made up of multidisciplinary members from health and animal experts who provide guidance on the AMR action plan, oversee surveillance and provide guidance on regulatory and policy interventions to reduce AMR

• Identification of **key champions** at the Ministry of Health, Ministry of Agriculture, etc who will remain accountable for the implementation of the AMR action plan and are responsible for sourcing funding for these activities
6. Use – Change incentives and enforce - Animal

- Regulate the registration, importation, manufacture and use of veterinary products including the establishment of a Veterinary Council that will regulate and enforce the appropriate use of veterinary medicines in animal, agriculture and aquaculture
- Regulate residues of antimicrobials in meat and seafood for consumption in the country as well as export
- Regulate and limit the pharmaceutical antimicrobial waste disposed of in the environmental water system by the agricultural industry
- Establish guidelines for the biosafety for agriculture to reduce the transmission of diseases amongst food producing animals
6. Use – Change incentives and enforce

**Responsible institutions:**

- Ministry of Health – community health facilities, prevention & infection control, education of health care workers and pharmaceutical services, policy development
- Ministry of Finance
- Ministry of Agriculture, Food and Agriculture Organization (FAO), World Organisation for Animal Health (OIE), producer associations
Priority activities pathway

1. Focus on diseases affecting children < 5yrs
   - Burden of disease and mortality
   - Antimicrobial pathogens and AMR
   - Antimicrobial use

2. Determine surveillance organisms
   - Set up sentinel sites for collection of AMR and antimicrobial use relating to priorities
   - Strengthen lab capacity and standardize testing and improve staff skills

Develop diagnostic and treatment protocols
   - First develop clinical diagnostic protocols – symptoms and signs of viral versus bacterial
   - Then develop treatment protocols for priority conditions

Implement empiric treatment with IPC interventions
   - Utilize empiric treatment without lab support
   - Once lab capacity is strengthened, ensure empiric is adjusted to therapeutic with lab evidence

Mentoring and supervision of health care professionals to follow diagnostic and treatment protocols

Review rational use
   - AMS activities at health units to review prescriptions
   - Ensure correct administration

Roll out laboratory capacity from sentinel sites to all and improve diagnostic capacity
Costing AMR plans
### SO 1 National multisectoral coordinating group

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<th>Activity</th>
<th>Personnel costs</th>
<th>Other recurrent expenses</th>
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### SO 2 Improve awareness and understanding of AMR through effective communication, education and training

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### SO 3 Strengthen the knowledge and evidence base through surveillance [I THINK COSTING SURVEILLANCE AND LAB STRENGTHENING IS OUTSIDE OUR SCOPE HERE] and research

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### Human Resources cost

**SO 1 National multisectoral coordinating group**

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321.8390805 Total per meeting

Meetings per year 4

Annual cost 1287.35632

**Others - please add**

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**SO 2 Improve awareness and understanding of AMR through effective communication, education and training**

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1839.08046 Total

Add AMR to clinical education modules

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459.7701149 Total

Guidelines for prescribing

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<td>Junior staff</td>
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<td>Consultants</td>
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<td>2</td>
<td>23</td>
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459.7701149 Total
### All other recurrent expenses

<table>
<thead>
<tr>
<th>Activity</th>
<th>Expenses type</th>
<th>Quantity</th>
<th>Price per unit (in USD)</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td>Meetings of the coordinating group</td>
<td>Printing</td>
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<td></td>
<td>Venue hiring</td>
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<td></td>
<td>Meals (per person)</td>
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<td>15.5</td>
<td>201.5</td>
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<td></td>
<td>Travel costs (taxi)</td>
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<td>91</td>
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<td></td>
<td>Per diems (consultants)</td>
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<td><strong>1002.5</strong></td>
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</table>

**Meetings per year:** 4  
**Annual cost:** 4010

### SO 2 Improve awareness and understanding of AMR through effective communication, education and training

<table>
<thead>
<tr>
<th>Activity</th>
<th>Expenses type</th>
<th>Quantity</th>
<th>Price per unit (in USD)</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td>National awareness campaign</td>
<td>Television ads</td>
<td>2</td>
<td>400</td>
<td>800</td>
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<td></td>
<td>Print ads</td>
<td>4</td>
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<td></td>
<td>Printing</td>
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<tr>
<td></td>
<td>Venue hiring</td>
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<td></td>
<td>Travel costs (taxis)</td>
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<td><strong>Total</strong></td>
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</table>

**Add AMR to clinical education modules**  
**Phone calls**  
**Total:** 10

**Guidelines for prescribing**  
**Printing**  
**Total:** 500

**Others - please add**
### Cost Breakdown

<table>
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<th>Strategic Objective</th>
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<th>Total Cost</th>
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Breakout Groups

- Bangladesh and Nepal groups
- Hellen and Molly moderating
- Each joined by GARP–Nepal members
- Discuss the tools and the way forward
- Questions?
For research, updates and tools on drug resistance and other global health topics, visit:

www.cddep.org

Thank you!