Setting a national agenda for health systems research for tuberculosis, malaria and neglected tropical diseases in the United Republic of Tanzania

Access and Delivery Partnership: Pathway 2
National Institute for Medical Research
March 2015
About the Access and Delivery Partnership

The Access and Delivery Partnership (ADP) is a unique partnership between the United Nations Development Programme (UNDP), the World Health Organization Special Programme for Research and Training in Tropical Diseases (WHO/TDR) and PATH. It is supported by the Government of Japan with the aim of increasing access to and delivery of health technologies used to address neglected tropical diseases (NTDs), tuberculosis (TB) and malaria. Recognizing widespread capacity gaps in low- and middle-income countries (LMICs) to effectively access and deliver essential new health technologies, the ADP supports countries to strengthen their capacities to address bottlenecks in this area.
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NATIONAL INSTITUTE FOR MEDICAL RESEARCH
MARCH 2015

Editors
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Foreword

The National Institute for Medical Research accepted the role of leading and delivering pathway 2 of the Access and Delivery Partnership, which focused on enhanced capacity to identify and address country-specific health systems needs for effective access to and delivery of new health technologies. The plan of activities for pathway 2 was divided into three main activities: analysis of national capacity for implementation and operational research (gaps and bottlenecks analysis); stakeholder consultations to formulate research questions (stakeholders’ workshop); and capacity strengthening (implementation and operational research and training).

In 2014, the National Institute for Medical Research successfully delivered the first two activities, paving the way for implementation of the third activity on capacity strengthening. The first two activities yielded intriguing results, leading to production of this report, which comprises a collection of outputs from the two important workshops: the control programmes workshop, which engaged in gap analysis; and the stakeholders’ consultative workshop, which focused on the formulation of research questions.

In the first workshop, programme officers and managers from the National Malaria Control Programme, National Tuberculosis and Leprosy Control Programme and Neglected Tropical Diseases Control Programme, in collaboration with scientists from the National Institute for Medical Research, identified gaps that impinged upon the daily operation of the programmes and had adverse impacts on access to and delivery of health services in the country.

At the second workshop, programme officers and managers from the three control programmes, researchers from various research and academic institutions, regional medical officers and development partners formulated implementation and operational research questions that addressed gaps identified during the first workshop. From the workshop, 103 research questions that needed the attention of the public health research community in the United Republic of Tanzania were formulated and prioritized. The questions fall into six thematic areas: human resources for health, service delivery, infrastructure and logistics, leadership and governance, health financing, and data management and information. The questions are a compass for public health research on tuberculosis, malaria and neglected tropical diseases, which research and academic institutions in collaboration with the control programmes should strive to address in the next five to ten years.

Over the years, the National Institute for Medical Research has been executing its mandate as a leader of research in public health. The Institute has led and facilitated the development of national health research priorities from 1999, leading to the elaboration of four health research priority documents for the periods 1999–2004, 2005–2008, 2009–2014, and 2015–2018.

With this background, the Institute is proud to present this important report, which will facilitate research activities for scientists working in academic and research institutions, international nongovernmental organizations and related control programmes. It is my sincere hope that we shall all seize the opportunity to utilize this report fruitfully so that communities in the United Republic of Tanzania and elsewhere can have improved access to health technologies. If all the questions contained in this report are innovatively addressed, there is no doubt that the health system shall be strengthened through improved implementation, policies and practice.

Mwelecele N. Malecela
Director-General, National Institute for Medical Research
Acknowledgements

The National Institute for Medical Research would like to thank the Government of Japan and two United Nations programmes it has funded for this work: TDR, the Special Programme for Research and Training in Tropical Diseases, which is hosted at the World Health Organization, and the United Nations Development Programme (UNDP). TDR is also thanked for its tireless technical support of this pathway 2 of the Access and Delivery Partnership.

The three control programmes – the National Malaria Control Programme, National Tuberculosis and Leprosy Programme and Neglected Tropical Diseases Control Programme – are highly acknowledged for their invaluable contributions to the Access and Delivery Partnership. Special thanks to members of the project secretariat at the National Institute for Medical Research, comprising Mwelecele N. Malecela, Julius J. Massaga, Kijakazi Mashoto, Adiel Mushi, Amos Kahwa, Justin Omolo, Prince Mutalemwa, Wilfred L. Mandara and Theckla Ngao Mutemi, for their support and excellent facilitation of the two successful workshops. Bwijo Bwijo, the Access and Delivery Partnership focal person at UNDP, is thanked for advice and technical contribution during the two workshops. The workshop participants from various institutions are acknowledged for their participation in the two workshops leading to production of this report.
# Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACT</td>
<td>artemisinin-based combination therapy</td>
</tr>
<tr>
<td>BCC</td>
<td>behaviour change communication</td>
</tr>
<tr>
<td>CDD</td>
<td>community drugs distributor</td>
</tr>
<tr>
<td>CORP</td>
<td>community-owned resource person</td>
</tr>
<tr>
<td>IEC</td>
<td>information, education and communication</td>
</tr>
<tr>
<td>ITN</td>
<td>insecticide-treated net</td>
</tr>
<tr>
<td>LLIN</td>
<td>long-lasting insecticidal net</td>
</tr>
<tr>
<td>mRDT</td>
<td>malaria rapid diagnostic testing</td>
</tr>
<tr>
<td>NIMR</td>
<td>National Institute for Medical Research</td>
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<tr>
<td>NTD</td>
<td>neglected tropical disease</td>
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<tr>
<td>PCT</td>
<td>preventive chemotherapy</td>
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<tr>
<td>TB</td>
<td>tuberculosis</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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<tr>
<td>WHO/TDR</td>
<td>WHO Special Programme for Research and Training in Tropical Diseases</td>
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</table>
1.1 Overview of the Access and Delivery Partnership

The Access and Delivery Partnership works with key stakeholders to strengthen capacity to address gaps and bottlenecks that can have critical impacts on the access to and delivery of new health technologies in the United Republic of Tanzania. Key intervention points for capacity-building have been identified along the value chain of health service delivery, including the development of a conducive policy and legal environment; implementation of effective disease control and drug regulatory systems; promotion of sustainable financing for public health innovation and procurement of health technologies; and maintenance of an efficient system for procurement, supply and distribution. In this respect, the Access and Delivery Partnership seeks to adopt a health systems strengthening approach to enable the health system in the United Republic of Tanzania to efficiently and effectively access and introduce new health technologies for tuberculosis (TB), malaria and neglected tropical diseases (NTDs).

The implementation of the Access and Delivery Partnership in the United Republic of Tanzania is guided by the national health needs and priorities, as reflected in the following five pathways:

- **Pathway 1:** Coherent policy and legal frameworks for expedited access to and delivery of new health technologies.
- **Pathway 2:** Enhanced capacity to identify and address country-specific health systems needs for effective access to and delivery of new health technologies.
- **Pathway 3:** Strengthened capacity to monitor and respond to safety issues associated with new health technologies.
- **Pathway 4:** Improved capacity to ensure sustainable financing and commercialization of new technologies such that supply meets demand.
- **Pathway 5:** Strengthened capacity of delivery systems, including supply chain of new global health technologies for TB, malaria, NTDs and other diseases.

The workplan to deliver the outlined five pathways of the Access and Delivery Partnership was developed at the planning and inception meeting held on 5–6 March 2014 at the Hilton Double Tree Hotel, Dar es Salaam. The meeting, which involved various government institutions and other development partners, identified appropriate institutions to deliver each of the five pathways. The National Institute for Medical Research (NIMR) was identified as a lead institution to address pathway 2, while also partnering with other institutions to deliver pathway 3. The plan of activities for pathway 2 is appended in Annex 1.
1.2 National health research priorities in the United Republic of Tanzania

Governments across the world have embraced public health strategies for the considerable promise they hold for improving the quality of lives of their citizens through addressing public health problems. Efforts to realize this promise have led national scientific communities to mobilize to produce the evidence needed to address the critical uncertainties in how best to organize, finance and deliver effective public health strategies to their populations. These efforts start with a consultative process involving a broad base of key stakeholders for the development of a national health research agenda. The United Republic of Tanzania has experience in these processes, having completed four to date. Development of the fourth National Health Research Priorities, 2013–2018, involved a number of studies among different groups, including marginalized and vulnerable populations and community-, district- and national-level stakeholders. Reports from various workshops led to the development of a range of priorities categorized into three major groups: biomedical research, health systems and social determinants of health (Table 1).

**Table 1. National health research priorities for 2013-2018**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Biomedical research</th>
<th>Health systems</th>
<th>Social determinants of health</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Communicable diseases</td>
<td>Medicines and medical supplies</td>
<td>Stigma and discrimination</td>
</tr>
<tr>
<td>2</td>
<td>Non-communicable diseases</td>
<td>Health resources for health</td>
<td>Gender-based violence and sexual abuse</td>
</tr>
<tr>
<td>3</td>
<td>Reproductive, maternal, newborn and child health</td>
<td>Health financing</td>
<td>Custom, traditions and beliefs</td>
</tr>
<tr>
<td>4</td>
<td>Products development and commercialization</td>
<td>Health services delivery</td>
<td>Gender inequality</td>
</tr>
<tr>
<td>5</td>
<td>Climate change and environmental health</td>
<td>Reproductive and child health</td>
<td>Key population behaviours</td>
</tr>
<tr>
<td>6</td>
<td>Food and nutrition</td>
<td>Health information management (including disease surveillance)</td>
<td>Governance for health and development</td>
</tr>
<tr>
<td>7</td>
<td>Bioinformatics and information technology</td>
<td>Water, hygiene and sanitation</td>
<td>Socio economic status (poverty) and health</td>
</tr>
<tr>
<td>8</td>
<td>Traditional and alternative medicine</td>
<td>Health care infrastructure</td>
<td>Substance use</td>
</tr>
<tr>
<td>9</td>
<td>Medicine safety</td>
<td>Behaviour change communication</td>
<td>Social and health equity</td>
</tr>
<tr>
<td>10</td>
<td>Occupational health</td>
<td>Health policy and planning</td>
<td>Social cohesion</td>
</tr>
<tr>
<td>11</td>
<td>Injuries</td>
<td>Disaster management in health</td>
<td>Female genital mutilation</td>
</tr>
<tr>
<td>12</td>
<td>Substance use</td>
<td>Inter-sectoral collaboration</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Oral health</td>
<td>Public-private partnership</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Geriatrics and elderly health care</td>
<td>Specialized services for special groups</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Decentralization by devolution</td>
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</table>

Source: Fourth National Health Research Priorities 2013-2018, NIMR.
The research priorities from the three categories were further broken down into research topics that needed to be addressed in the five-year Health Research Priority Plan. Of interest to the Access and Delivery Partnership is the inclusion of malaria, NTDs and TB as priority research topics, which all fall under biomedical research. Furthermore, integrated health care, human resources for health and lack of health care facilities are among the research topics given priority under improved health systems in the Fourth National Health Research Priorities, 2013–2018.

The malaria, TB and NTDs control programmes workshop at the Morogoro Hotel, Morogoro, 27–28 May 2014, identified gaps and bottlenecks that have an impact on access to and delivery of new health technologies, in line with the National Health Research Priorities 2013–2018. The gaps and bottlenecks identified were the foundation for the two-day stakeholders’ consultative workshop at the Gwami Hotel, Morogoro, 3–4 July 2014. The main task for the stakeholders was to formulate research questions addressing the gaps and bottlenecks identified by the control programmes.
CHAPTER 2

Identification of gaps and bottlenecks that limit access to and delivery of technologies for health: national control programmes workshop

2.1 Introduction

Pathway 2 under the Access and Delivery Partnership aims to strengthen capacity in implementation and operational research, in order to scale up and improve access to and delivery of both current and new interventions. Several activities have been planned to address the overall objective (Annex 1). Among the activities was the workshop for national control programmes, which was tasked to identify gaps and bottlenecks that limit access to and delivery of health technologies. The control programmes were further expected to propose strategies for addressing gaps and bottlenecks. The gaps and bottlenecks, and the proposed interventions, will be used by stakeholders to formulate research questions specifically designed to address the gaps and bottlenecks.

In furtherance of the objectives of this pathway, a two-day Access and Delivery Partnership workshop was held at the Morogoro Hotel, 27–28 May 2014, involving three national control programmes: National Tuberculosis and Leprosy Programme, National Malaria Control Programme and Neglected Tropical Diseases Control Programme. In order to consolidate more information on the diseases of interest to the Access and Delivery Partnership, NIMR scientists with experience of research into TB, malaria and NTDs and health systems experts were also involved. A total of 33 programme officers, NIMR scientists, United Nations Development Programme (UNDP) partners and an external consultant participated in the workshop (Annex 2).

The workshop was formally opened with welcome remarks from the NIMR Director for Research Coordination and Promotion on behalf of the NIMR Director-General. This was followed by statements from the UNDP Deputy Country Representative and the UNDP Access and Delivery Partnership focal person. The UNDP representative gave a brief background of the project, highlighting the project pathways and expected outcomes. The general overview of the project and what was expected from pathway 2 was presented by the Access and Delivery Partnership coordinator at NIMR. He presented the tasks that the workshop participants, led by the control programmes, should accomplish, and outlined the expected workshop deliverables. The presentation was followed by brief presentations from programme managers of the malaria, TB and NTDs control programmes. All three presentations pointed out the successes achieved and challenges faced during the implementation of different programme activities countrywide.
2.2 Workshop objectives and expected outcomes

2.2.1 Workshop objectives

The workshop participants, led by the three control programmes (for malaria, TB and NTDs), had the following tasks:

• identify gaps and bottlenecks limiting effective implementation of efforts to control malaria, TB and NTDs;
• identify causes of health systems integration failure, which in turn limits access to and effective delivery of health technologies in the country;
• propose strategies for addressing gaps and bottlenecks that, if adopted, would strengthen health systems in the country; and
• propose strategies for effective integration and strengthening of health systems in the country.

2.2.2 Expected outcomes

The workshop was expected to deliver the following:

• gaps and bottlenecks affecting access to and efficient delivery of health technologies identified;
• strategies to address gaps and bottlenecks proposed;
• reasons for health systems integration failure identified; and
• strategies to integrate and strengthen health systems proposed.

2.3 Workshop methodology

The meeting started with self-introduction by participants. The meeting was conducted mainly in plenary and group sessions, with technical presentations followed by discussions to identify main issues and recommendations. To facilitate focused and in-depth discussions, it was agreed that the deliberations at the group sessions be structured according to, and led by, the disease control programmes. Consequently, three groups were constituted: National Tuberculosis and Leprosy Control Programme (for TB), National Malaria Control Programme (for malaria) and Neglected Tropical Diseases Control Programme (for NTDs).

• Each group worked on the tasks as dictated by the workshop objectives.
• At the close of the first day, there was a 10-minute briefing session for each group to report back on how far they had gone in covering the tasks. No questions were asked; rather, guidance was provided to the groups on how the next day could be more productively and efficiently used.
• On the last day, each group was allocated 15 minutes to present their output.
• All participants discussed the presentations and provided useful comments, additional inputs and clarifications on some issues.

2.4 Workshop proceedings

2.4.1 National Malaria Control Programme

The National Malaria Control Programme identified gaps in access to and delivery of services along the lines of the programme’s strategic plan, covering six thematic areas: case management (diagnosis and treatment); vector control; surveillance, monitoring and evaluation; information, education and communication (IEC), including on behavioural change; programme management; and epidemic preparedness and response (Table 2). Forty issues were highlighted by the group as constituting bottlenecks to access and service delivery in five of the thematic areas. Human resources for health
issues topped the list of problems, with concerns raised on demand, supply and shortages, recruitment and retention, and competences and skills mix of the existing crop of health workers. Among the other issues noted by the group as high priority related to the procurement and supplies management of malaria commodities, with essential items frequently out of stock; inadequate infrastructure, especially for microscopy; weak surveillance, monitoring and evaluation systems; poor coordination of malaria control actions among the wide range of stakeholders, both public and private; investments in IEC and in behaviour change communication (BCC) not achieving the desired impact in increasing uptake of services; and limited funding, as reflected in overdependence on external partners for the financing of major interventions. The group provided a comprehensive listing of possible causes of the identified challenges and proffered strategies for addressing them.

In the discussion, participants stressed the need for enhanced collaboration, coordination and integration with other programmes to improve access to and delivery of services. They raised concerns over the availability of large quantities of untreated nets in the open market, and poor quality of data.

**Table 2. National Malaria Control Programme gap analysis**

<table>
<thead>
<tr>
<th>Gaps and bottlenecks</th>
<th>Major causes and reasons</th>
<th>Programmatic response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case management (diagnosis and treatment)</strong></td>
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</table>
| Commodities (for example drugs, diagnostics) frequently out of stock at health facility level, despite improved procurement | • Problems with supply chain management at health facility and other levels  
• Stock management at all levels  
• Inadequate human resources to manage logistics and procurement demands  
• Low reporting rate, inaccuracy of consumption data for malaria commodities from health facility level  
• Weak systems in tracking and management of malaria commodities from medical stores department to health facility  
• Inadequate quantification of drugs  
• Irrational prescription and dispensing of drugs  
• Weak or ineffective routine supportive supervision | • Conduct a thorough assessment of the supply chain management system at all levels and develop a workplan to address identified issues |
| Availability of non-recommended drugs in private outlets | • Inadequate coordination and reinforcement of regulatory issues  
• Low capacity of local manufacturers to manufacture recommended antimalarial drugs | • Improve coordination with regulatory authorities  
• Promote and build capacity for local manufacturing of recommended antimalarials |
| Poor diagnosis of malaria in the government and private sector | • In private sector (services available)  
• Poor quality of microscopy  
• Lack of malaria rapid diagnostic testing (mRDT) in private health facilities  
• Lack of regulatory framework to scale up and maintain mRDT to informal health sector and community level  
• Public sector  
• Availability of malaria microscopy  
• Quality of services  
• Lack of skilled and competent laboratory technicians | • Develop and implement a policy for malaria diagnosis and dispensing in collaboration with laboratory regulatory authorities and Pharmacy Council  
• Advocate use of mRDT in private health facilities  
• Strengthen quality control and quality assurance of commodities and services  
• Scale up quality assurance mechanisms for mRDT and blood slides countrywide |
<table>
<thead>
<tr>
<th>Gaps and bottlenecks</th>
<th>Major causes and reasons</th>
<th>Programmatic response</th>
</tr>
</thead>
</table>
|                       | • Inadequate number of laboratory personnel, who are overwhelmed by the large volume of blood slides requested by clinicians  
  • Poor quality of laboratory reagents and equipment  
  • Inadequate supportive supervision  
  • Limited quality assurance systems for mRDT and microscope testing |                       |
| Poor adherence to treatment guidelines in the management of uncomplicated malaria in the public and private sector | • Low knowledge on treatment guidelines  
  • Poor quality of laboratory results  
  • Poor perception on mRDT tests  
  • Weak supportive supervision  
  • Lack of diagnostic facilities for other non-malarial fevers | • Improve knowledge on malaria treatment guidelines through reorientation and refresher training of providers  
  • Strengthen quality assurance of laboratory and mRDT services  
  • Undertake sensitization programmes to share experience on performance of mRDT  
  • Strengthen supportive supervision |
| Self-medication (community) | • Limited availability and poor quality of services in formal health facilities  
  • Availability of and easy access to non-prescribed antimalarial drugs  
  • Limited knowledge of clients | • Public education to improve health seeking behaviours  
  • Improve availability and quality of services provided in formal health facilities  
  • Improve communication skills of health workers  
  • Explore introduction of integrated community case management in hard-to-reach areas |
| Low uptake of intermittent preventive treatment | • Late booking and irregular antenatal clinic attendance by pregnant women  
  • Shortage of skilled health providers at antenatal clinics especially in the lower-level facilities  
  • Inconsistent supply of commodities at antenatal clinics  
  • Poor quality of antenatal care service delivery, including negative attitude of health providers  
  • Knowledge of importance to attend antenatal care services and intermittent preventive treatment of malaria in pregnancy | • Community sensitization on importance of early booking and regular visits according to focused antenatal care guidelines, and improve male involvement  
  • Training reproductive and child health staff on importance of intermittent preventive treatment of malaria in pregnancy and friendly services  
  • Review and strengthen supply chain |
<table>
<thead>
<tr>
<th>Gaps and bottlenecks</th>
<th>Major causes and reasons</th>
<th>Programmatic response</th>
</tr>
</thead>
</table>
| Poor quality of malaria commodities | • Weak quality assurance and quality control of drugs and mRDT  
• Lack of tracking system  
• Poor storage conditions of commodities  
• Poor knowledge of personnel | • Reinforce quality control of commodities in collaboration with regulatory bodies and conduct routine monitoring  
• Strengthen stock management at facilities at all levels  
• Sensitize communities to check expiry of drugs  
• Train providers |
| Weak leadership, governance and commitment of council health management teams and regional health management teams | • Limited skills in leadership and management  
• Diminished morale and commitment and lack of incentives | • Training on leadership and effective management skills  
• Recognition and innovative strategies for rewarding |
| Weak capacity of health system and poor quality of services | • Inadequate human resources - trained, committed and motivated staff  
• Weak management of available resources  
• Weak supportive supervision | • Advocate recruitment of adequately skilled health workers  
• Training and retraining plus supportive supervision  
• Motivation of staff  
• Strengthen leadership and governance through tailor-made programmes |
| Availability of non-recommended drugs (including monotherapies) | • Weakness in enforcement of laws and regulations | • Strengthen enforcement of laws and regulations |
| Inadequate knowledge on antimalarial drug resistance | • Limited capacity for routine surveillance in selected sentinel sites | • Strengthen capacity and conduct routine therapeutic efficacy studies |

**Vector control**

| Behaviour changes of mosquitoes (from indoor to outdoor biting) | • Impact of vector control intensification | • Strengthening entomological surveillance  
• Map malaria vectors  
• Community sensitization of behavioural changes of mosquitoes |
| Emergence and spread of insecticide resistance | • Mutation of vectors and repeated use of same insecticide, raising concerns over insecticide resistance | • Intensification of resistance monitoring and implementation of plan for resistance mitigation |
| Lack of ITNs and LLINs in the private sector | • Lack of efforts to convince local manufacturers | • Government to negotiate with manufacturers (policy and legal issues) |
| Availability of untreated nets in the market | • Lack of efforts to convince local manufacturers | • Government to negotiate with manufacturers (policy and legal issues) |
| Sustainability of net campaigns | • Limited local funding  
• Donor dependence | • Develop resource mobilization plan |
<table>
<thead>
<tr>
<th>Gaps and bottlenecks</th>
<th>Major causes and reasons</th>
<th>Programmatic response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inappropriate and low use of ITNs and LLINs</td>
<td>• Limited knowledge on importance of LLINs in malaria control</td>
<td>• Conduct operational research</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Increase knowledge on importance of LLINs</td>
</tr>
<tr>
<td>Increasing human and land use activities that increase mosquito populations and resistance development</td>
<td>• Lack of collaboration and involvement of other key sectors in malaria control</td>
<td>• Advocacy, planning and implementation on multisectoral collaboration</td>
</tr>
<tr>
<td></td>
<td>• Advocacy and involvement of the community</td>
<td></td>
</tr>
<tr>
<td>Low coverage of indoor residual spraying and larviciding</td>
<td>• Inadequate funding</td>
<td>• Develop resource mobilization plan</td>
</tr>
<tr>
<td></td>
<td>• Advocacy and framework to guide integration of interventions</td>
<td>• Lobby for increased funding from the government</td>
</tr>
<tr>
<td>Overdependence on one vector control intervention (ITNs/LLINs)</td>
<td>• Limited funding to sustain and also scale up other vector control interventions</td>
<td>• Mobilize funds to sustain LLIN coverage</td>
</tr>
<tr>
<td></td>
<td>• Framework to guide integration with other vector control interventions such as indoor residual spraying</td>
<td>• Scale up indoor residual spraying in line with WHO recommendations</td>
</tr>
<tr>
<td>Surveillance, monitoring and evaluation</td>
<td></td>
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<tr>
<td>Inadequate number of human resource and skills sets to coordinate and manage surveillance, monitoring and evaluation</td>
<td>• Inadequate and inefficient advocacy to build case for the right skilled staff</td>
<td>• Advocacy and recruitment of key staff for surveillance, monitoring and evaluation</td>
</tr>
<tr>
<td>Delayed feedback to subnational levels</td>
<td>• Weak capacity for data analysis, interpretation and use of results</td>
<td>• Improve skills in data analysis, interpretation at all levels</td>
</tr>
<tr>
<td></td>
<td>• Weak communication</td>
<td>• Establish system for routine feedback</td>
</tr>
<tr>
<td>Incomplete routine reports, delays in reporting and inaccurate data</td>
<td>• Delays in reporting from health facilities to district level</td>
<td>• Improve capacity to manage data</td>
</tr>
<tr>
<td></td>
<td>• Lack of continuity in availability of health management information system registers</td>
<td>• Develop and roll out register to capture data on mRDT</td>
</tr>
<tr>
<td></td>
<td>• Lack of registers to capture data on malaria diagnostic performance at facility level</td>
<td>• Review and improve capacity to manage health management information system data at district level</td>
</tr>
<tr>
<td></td>
<td>• Low capacity to manage DHIS system at district level</td>
<td>• Strengthen routine supportive supervision and data auditing</td>
</tr>
<tr>
<td></td>
<td>• Limited human resources at facility level</td>
<td>• Implement innovative strategies to increase incentives to health workers</td>
</tr>
<tr>
<td>Failure to monitor the number of patients receiving artemisinin-based combination therapy (ACT) from public health facilities for programmatic monitoring and accounting to key partners</td>
<td>• Lack of system to capture the number of patients receiving ACT according to guidelines from public health facilities</td>
<td>• Develop dispensing register and associated tools, roll out countrywide and customize through existing electronic system</td>
</tr>
<tr>
<td>Gaps and bottlenecks</td>
<td>Major causes and reasons</td>
<td>Programmatic response</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Lack of malaria database at National Malaria Control Programme to effectively monitor performance of the programme and account for investment made | • Inadequate capacity to establish and manage database at National Malaria Control Programme  
• Weak coordination of implementing partners  
• Weak and delayed sharing of research data | • Support training of monitoring and evaluation staff on database  
• Recruit key staff to manage the database  
• Build capacity of National Malaria Control Programme to manage malaria data  
• Support establishment of malaria database  
• Strengthen coordination with implementing partners and researchers through routine coordination meetings |
| Weak collaboration and coordination for effective implementation of malaria control at borders | • Lack of cross-border collaboration and planning | • Mobilize funding to conduct meetings with neighbouring countries to advocate and develop plan for cross-border activities |
| Lack of continuous monitoring of malaria indicators from the community | • Lack of community information system | • Carry out an assessment to find out available community systems and include key malaria indicators |
| Insufficient dissemination of malaria best practices at local and global level | • Limited utilization of existing platforms, such as Ministry of Health and Social Welfare website  
• No National Malaria Control Programme website  
• Lack of malaria bulletins | • Develop a comprehensive dissemination plan  
• Establish National Malaria Control Programme website  
• Prepare bulletins  
• Conduct dissemination meetings  
• Participate in national and global forums to share best practices |
| Failure to monitor drugs dispensed in the private sector and number of patients treated with recommended drugs | • Lack of system for routine monitoring performance of ACT in private outlets  
• Lack of system to monitor patients dispensed with ACT and non-ACT in private outlets  
• Lack of knowledge and capacity to keep information on ACT and patients treated in private outlets | • Conduct periodic surveys  
• Build capacity on data management |
| Information, education and communication (IEC) and behaviour change communication (BCC) | | |
| Limited knowledge, attitude and practice of clients on malaria interventions | • Infrequent dissemination of messages to communities  
• Limited use of existing opportunities such as religious platforms to disseminate malaria messages  
• Limited reach in rural and remote households with malaria messages  
• Inadequate malaria messages and players to reach rural and remote areas with malaria messages  
• Limited funding | • Develop plan for dissemination of malaria messages  
• Mobilize funding to enable frequent mass media and rural engagement with malaria messages  
• Mobilize and build capacity of community-based organizations |
<table>
<thead>
<tr>
<th>Gaps and bottlenecks</th>
<th>Major causes and reasons</th>
<th>Programmatic response</th>
</tr>
</thead>
</table>
| Low uptake of intermittent preventive treatment in pregnancy                        | • Low knowledge and awareness on intermittent preventive treatment of malaria in pregnancy by pregnant women and the community  
• Limited capacity and perceptions of health providers  
• Frequent stock-outs                                                             | • Design appropriate messages and disseminate  
• Capacity-building of providers  
• Review issues related to supply chain mechanism and institute appropriate measures |
| Poor and delayed health-seeking behaviour                                            | • Low knowledge of importance of early health seeking  
• Limited access to and availability of health facilities                                     | • Design, develop and deliver quality BCC messages  
• Map hard-to-reach areas and explore integrated community case management          |
| Poor compliance with and misuse of recommended malaria interventions by the community | • Limited knowledge and poor perceptions                                                      | • Design, develop and deliver quality BCC messages  
• Build capacity of community workers                                                |
| Poor compliance of health providers with recommended malaria interventions           | • Lack of knowledge  
• Lack of supportive supervision                                                                  | • Design, develop and deliver quality BCC messages  
• Strengthen routine supportive supervision in both public and private facilities   |
| Uncoordinated implementation of IEC/ BCC activities at different levels             | • Inadequate collaboration and coordination with community-based and nongovernmental organizations and other groups at community and district levels | • Map existing community-based and nongovernmental organizations and other groups involved in BCC activities  
• Establish a mechanism for effective coordination                                  |
| Programme management                                                                |                                                                                          |                                                                                        |
| Limited capacity to manage the programme and coordination of all partners           | • Inadequate number and skills of human resources                                             | • Capacity-building in leadership and management skills  
• Advocate increased staffing                                                      |
| Limited funding and donor dependence                                                | • Low advocacy to mobilize local funding                                                       | • Develop resource mobilization plan                                                   |
| Poor implementation of malaria control at all levels                                 | • Inadequate capacity  
• Weak supportive supervision at all levels  
• Low commitment, underutilization of available resources and lack of innovation to use scarce resources to improve performance | • Review and strengthen capacity at all levels  
• Strengthen supportive supervision                                                 |
| Contribution of other sectors in malaria transmission                               | • Poor collaboration with and involvement of other sectors in malaria control                  | • Prepare a comprehensive analysis of key issues related to malaria transmission from each sector  
• Advocacy and development of sectoral plans                                          |
| Limited planning for malaria control within comprehensive council health plans      | • Low knowledge and awareness of comprehensive malaria control and planning  
• Limited funding                                                                       | • Advocate comprehensive planning for malaria control at district level  
• Capacity-building for planning and implementation                                      |
2.4.2 National Tuberculosis and Leprosy Control Programme

Reporting back to the plenary, the TB working group identified seven thematic areas where bottlenecks and gaps existed in programme implementation and delivery of services that have continued to have adverse impacts on access and service delivery (Table 3). The thematic areas were human and technical capacity, research networking and use of research findings, case detection and diagnosis, treatment, prevention, programme management, and funding. A total of 25 critical issues were noted under these themes, including inadequate numbers and skills mix of the health workforce for TB and leprosy control; inadequate infrastructure; limited programme coordination at all levels, including with the private sector; limited policy dialogue among key stakeholders; and inadequate funding.

The group provided reasons for the emergence and continued existence of these gaps and suggested possible strategies to mitigate their effects on access and delivery. Significantly, the group rated six of the seven thematic areas as high priorities to be addressed by government and partners. In the discussions that followed the presentation, participants highlighted the need to prioritize multidrug resistance as an emerging problem, strengthening systems to ensure compliance with treatment regimes, collaboration and possible integration of the TB surveillance system with the health management information system, and exploration of the possibility of local manufacture of TB medicines as a means of facilitating sustainability of the national control efforts.

Table 3. National Tuberculosis and Leprosy Programme gap analysis

<table>
<thead>
<tr>
<th>Thematic priority area</th>
<th>Gaps/bottlenecks</th>
<th>Programmatic response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human resources for health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size and composition</td>
<td>• Inadequate human resources at Tuberculosis and Leprosy Central Unit</td>
<td>• Government and stakeholders to support the system</td>
</tr>
<tr>
<td>Recruitment and retention</td>
<td>• Lack of focal person for operational research</td>
<td>• Strengthen the training capacity of institutions</td>
</tr>
<tr>
<td>Competencies</td>
<td>• Inadequate skills in undertaking operational research at regional and district levels</td>
<td></td>
</tr>
<tr>
<td>Education methods and curricula</td>
<td>• Ineffective recruitment and retention system</td>
<td></td>
</tr>
<tr>
<td>Case detection and diagnosis</td>
<td>• Not all diagnostic facilities perform TB diagnosis</td>
<td>• Develop inventory for equipment and strengthen the existing structures for diagnostic services (establishment of web-based database)</td>
</tr>
<tr>
<td>Coverage of interventions</td>
<td>• Not all laboratory staff can perform TB diagnosis</td>
<td>• Introduction of new diagnostic technologies</td>
</tr>
<tr>
<td>Adherence To treatment guidelines</td>
<td>• Inadequate refresher training for laboratory staff</td>
<td>• Regular monitoring and evaluation</td>
</tr>
<tr>
<td>Prescriptions and dispensing practices</td>
<td>• Inadequate infrastructure for TB diagnosis</td>
<td>• Strengthen public-private partnership to involve private sector in TB interventions</td>
</tr>
<tr>
<td>Integration of health services and systems</td>
<td>• Low TB-suspicious index among health care workers</td>
<td></td>
</tr>
<tr>
<td>Quality assurance</td>
<td>• Inadequate involvement of private facilities in TB diagnosis (10% of private facilities)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Inadequate mechanism in active case detection for close contacts</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Diagnosis delay of TB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Insufficient capacity for TB paediatric diagnosis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Inadequate infrastructure and funding</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Limited capacity of human resources, equipment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Lack of interest of private sector in TB programme</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Absence of memorandum of understanding between government and private sector</td>
<td></td>
</tr>
<tr>
<td>Thematic priority area</td>
<td>Gaps/bottlenecks</td>
<td>Programmatic response</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------</td>
<td>----------------------</td>
</tr>
<tr>
<td><strong>Treatment and prevention</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coverage of interventions</td>
<td>• Inadequate information to patients on treatment</td>
<td>• Comprehensive council health plans to include budgets for TB interventions</td>
</tr>
<tr>
<td>Adherence to treatment guidelines</td>
<td>• Not all TB/HIV coinfected patients are on antiretroviral therapy</td>
<td>• Capacity-building on communication skills, including refresher trainings</td>
</tr>
<tr>
<td>Prescriptions and dispensing practices</td>
<td>• Inefficient implementation of isoniazid preventive therapy</td>
<td>• Convene regular meetings between programmes to share and discuss programme issues</td>
</tr>
<tr>
<td>Integration of health services and systems</td>
<td>• Inadequate monitoring of drug efficacy</td>
<td>• Ensure constant supply of isoniazid</td>
</tr>
<tr>
<td>Quality assurance</td>
<td>• Self-administration of TB drugs</td>
<td>• Introduce new diagnostic technology</td>
</tr>
<tr>
<td></td>
<td>• Lack of paediatric formulation</td>
<td>• Institute initiative for local supply of paediatric formulation</td>
</tr>
<tr>
<td></td>
<td>• Inadequate supportive supervision</td>
<td>• Establish collaboration with research institutions working on vaccines</td>
</tr>
<tr>
<td></td>
<td>• Inadequate communication skills</td>
<td>• Establish and strengthen vaccine centres</td>
</tr>
<tr>
<td></td>
<td>• Integration between National AIDS Control Programme and National Tuberculosis and Leprosy Programme not well coordinated</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Irregular supply of isoniazid preventive therapy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Limited capacity to rule out active TB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Inadequate capacity of active TB screening in high-risk population</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Limited research capacity, including human resources and infrastructure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Absence of paediatric formulations in the market</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Lack of new vaccine for TB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Slow progress in the development of new vaccine</td>
<td></td>
</tr>
<tr>
<td><strong>Programme management</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization and governance</td>
<td>• Inadequate quality assurance</td>
<td>• Institute effective mechanisms for monitoring (annual, periodic)</td>
</tr>
<tr>
<td>Intergovernmental relationships and partnerships</td>
<td>• Limited programme coordination at different levels</td>
<td>• Expedite the possibility of integrating programmes in the existing system</td>
</tr>
<tr>
<td></td>
<td>• Monitoring and evaluation, including annual programme evaluation</td>
<td>• Recruit focal person and establish committee</td>
</tr>
<tr>
<td></td>
<td>• Existence of vertical programmes</td>
<td>• Develop plan, execute and evaluate</td>
</tr>
<tr>
<td></td>
<td>• Limited collaboration between National Tuberculosis and Leprosy Programme and research and academic institutions (national and regional)</td>
<td>• Develop plan for dissemination of research findings</td>
</tr>
<tr>
<td></td>
<td>• Limited policy dialogue between National Tuberculosis and Leprosy Programme and research and academic institutions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Absence of skilled focal person and research committee</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Lack of regular stakeholder meetings on research</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Lack of dissemination of research findings</td>
<td></td>
</tr>
<tr>
<td><strong>Funding</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financing levels and mechanisms</td>
<td>• Inadequate funding for programme activities, research, infrastructure</td>
<td>• Develop resource mobilization strategy</td>
</tr>
<tr>
<td></td>
<td>• Limited capacity to mobilize resources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Strategic plan not adequately implemented</td>
<td></td>
</tr>
</tbody>
</table>
2.4.3 Neglected Tropical Diseases Control Programme

The working group on NTDs identified gaps and bottlenecks in the areas of human resources for health, surveillance and monitoring and evaluation, programme management, and funding, and reported specific issues in 11 areas (Table 4). Placed as the highest priority is the challenge of poor data recording and management, for which the group proposed a strategy of rolling out the NTD management information system (electronic data capture and management system). The health workforce for the delivery of NTD interventions is a recurring challenge in terms of numbers, competences, recruitment and retention. Other highlighted issues included challenges with the surveillance, monitoring and evaluation system; procurement and supplies management; programme management; lack of coordination and collaboration with other community-based programmes; and limited funding. The causes of the bottlenecks were identified by the group, and strategies to mitigate their adverse effects proposed. Contributions from the plenary discussions emphasized strengthening of capacities across programmes for resource mobilization, the need for the development of policy guidelines and closer collaboration with other programmes.

Table 4. Neglected Tropical Diseases Control Programme gap analysis

<table>
<thead>
<tr>
<th>Gaps/bottlenecks</th>
<th>Reasons for the gap/bottlenecks</th>
<th>Programmatic response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low coverage of mass drug administration</td>
<td>• Low perception of risk among community members</td>
<td>• Risk perception survey</td>
</tr>
<tr>
<td></td>
<td>• Hard-to-reach areas</td>
<td>• Tailor-made messages to create awareness</td>
</tr>
<tr>
<td></td>
<td>• Inadequate supervision</td>
<td>• Enhance capacity for supervision</td>
</tr>
<tr>
<td></td>
<td>• Limited knowledge on NTDs and their risk among community drugs distributors (CDDs) and community members</td>
<td>• Sensitize community members on NTDs and their effects</td>
</tr>
<tr>
<td></td>
<td>• Inadequate incentives for CDDs</td>
<td>• Provide appropriate health education to CDDs and health workers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Motivate CDDs by raising their allowances</td>
</tr>
<tr>
<td>Inadequate training of CDDs and community-owned resource persons (CORPs)</td>
<td>• Training provided in cascade fashion, which results in distortion of the message</td>
<td>• Recruit and train more trainers at national level, using training of trainers methodology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Intensify sensitization and mobilization at the level of council health management team</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Establish NTD training of trainers teams at district level</td>
</tr>
<tr>
<td>Poor data recording and management</td>
<td>• Low capacity of health workers and CDDs to record and manage data</td>
<td>• Rolling out of the NTD management information system (electronic data capture and management)</td>
</tr>
<tr>
<td></td>
<td>• Long data flow chain</td>
<td>• Acquire server for data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Training of CDDs to use NTD management information system</td>
</tr>
<tr>
<td>Inadequate human resources</td>
<td>• Programme has only seven staff at national level</td>
<td>• Recruit and train more staff for NTD programme</td>
</tr>
<tr>
<td>Limited integration with other sectors and among NTDs</td>
<td>• For other sectors, health is not a priority</td>
<td>• Strengthen multisectoral collaboration with other sectors (training of extension officers on NTDs)</td>
</tr>
<tr>
<td></td>
<td>• Different disease control approaches</td>
<td>• Enhance intrasectoral collaboration among NTDs in the country</td>
</tr>
<tr>
<td></td>
<td>• Unwillingness to share resources between sectors</td>
<td>• Include NTD control in health training institutions’ curricula</td>
</tr>
<tr>
<td></td>
<td>• Lack of occupational health policy in all sectors</td>
<td></td>
</tr>
<tr>
<td>Gaps/bottlenecks</td>
<td>Reasons for the gap/bottlenecks</td>
<td>Programmatic response</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Inadequate monitoring and evaluation</td>
<td>• Lack of human resources • Lack of monitoring and evaluation working group for NTDs</td>
<td>• Build capacity on monitoring and evaluation for NTDs at regional and district level • Establishment of monitoring and evaluation working group for NTDs</td>
</tr>
<tr>
<td>Problems with drug supply chain</td>
<td>• Lack of communication between regional and district pharmacists and NTD focal persons</td>
<td>• Enhance communication • Engage regional and district pharmacists in drug ordering and distribution for use</td>
</tr>
<tr>
<td>Poor case detection and surveillance of some NTDs not requiring preventive chemotherapy (PCT)</td>
<td>• Inadequate capacity to detect non-PCT cases • Lack of funds for surveillance</td>
<td>• Strengthening capacity for case detection, surveillance and treatment of non-PCT NTDs (e.g. taeniasis, human African trypanosomiasis, tick-borne relapsing fever, rabies, plague) • Training of clinicians • Training of laboratory technicians • Include health education to prevent and control NTDs in health training institutions’ curricula • Solicit funds for surveillance</td>
</tr>
<tr>
<td>Limited resources for implementation of NTDs activities at district level</td>
<td>• Local governments do not budget for NTDs</td>
<td>• Lobby local governments on inclusion of NTDs in their budgets • Capacity strengthening at district level on NTD control and elimination</td>
</tr>
<tr>
<td>Inadequate responsibility and accountability from district level to lower levels</td>
<td>• Lack of community ownership of NTDs programme • Lack of communication and linkage between district local person and council health management team</td>
<td>• Strengthening community ownership • Empower community to be responsible and accountable • Engage community in needs identification and plans to tackle their own problems • Strengthen communication and linkage between district focal person and council health management team</td>
</tr>
<tr>
<td>Lack of integration with other community-based control programmes</td>
<td>• Different levels of operation • Different programmes target different populations • Types of interventions differ (complex versus simple interventions) • CDDs, CORPs and village health workers have low education levels and thus cannot handle or manage different cases</td>
<td>• Harmonize levels of operation • Establish integration with other community-based control programmes • Revise criteria for recruitment of CDDs, CORPs and village health workers • Revise roles and responsibilities of CDDs, CORPs and village health workers</td>
</tr>
</tbody>
</table>

### 2.5 Discussion

The gaps and bottlenecks identified by experts in the three control programmes in this workshop include areas of similarity with those identified in the previous research agenda-setting processes in the country, as well as important differences, reflecting persistence of uncertainties and newly emerging information needs in access to and delivery of services. The workshop has clearly brought to the fore the critical nature of the challenges of human resources for health in areas including enumeration, demand, supply and shortages, recruitment and retention, competences, and education methods and curricula. All three
groups noted that inadequacies in the health workforce compromised access to and delivery of critical interventions and services. Perhaps as important, but not coming out clearly in the discussions, is the organization and relationships among the different levels of government mandated to deliver services.

In the area of service delivery, all three groups identified low coverage of some interventions, poor adherence to treatment guidelines (including inappropriate prescriptions and dispensing), and limited or no integration and linkage of health services. Infrastructure and logistic problems also cut across the three programmes, manifesting in poor laboratory services and supply chains, among other challenges. In the area of strategic information, weaknesses were noted in all three programmes in the routine information systems, with one programme having a parallel system in place. Programmes noted delays in reporting and incompleteness of reports from regions and districts, as well as limited or no information on the activities of the private sector.

Programme management issues reflected the challenges of capacities for coordination of the diverse activities undertaken by the wide spectrum of public and private stakeholders across the country, provision of guidance to lower levels and limited supportive supervision. Finally, in the health financing domain, there was universal concern about the paucity of funding for services and the attendant overdependence on external resources.

Going forward, the gaps and bottlenecks identified in the meeting can conveniently be grouped into the WHO health systems building blocks framework, with focus on health workforce, service delivery, information, financing, and leadership and governance.
CHAPTER 3

Formulation of research questions: stakeholders’ consultative workshop

3.1 Introduction

The control programmes workshop successfully identified gaps and bottlenecks that impact access to and efficient delivery of new technologies for health. The output from the workshop showed clearly that the gaps and bottlenecks could be grouped into five thematic areas: human resources for health; low coverage of interventions; health financing; limited or no integration of health systems; and infrastructure and logistic challenges leading to persistent shortage of supplies of certain diagnostic facilities and drugs. The report prepared from the workshop became a working document used during the stakeholders’ workshop.

The stakeholders’ consultative workshop was held on 3–4 July 2014 at the Gwami Hotel, Morogoro. The workshop was opened on behalf of the NIMR Director-General by the NIMR Director for Research Coordination and Promotion, who welcomed all participants to the workshop. This was followed by a briefing statement from the UNDP Access and Delivery Partnership focal person, who provided background information about the project. Another brief statement was delivered by an officer representing WHO TDR, who commended NIMR for starting to deliver results for pathway 2 of the Access and Delivery Partnership. Furthermore, the PATH country director briefed workshop participants about the organization’s involvement in the project. The director noted that some issues raised by the control programmes fell under pathways 4 and 5 of the Access and Delivery Partnership, which PATH was tasked to deliver. He thanked NIMR for extending the invitation to PATH, and commended NIMR for starting to deliver pathway 2 of the project.

The Access and Delivery Partnership coordinator at NIMR presented an overview of the partnership, workshop tasks and the expected deliverables. This was followed by presentations from the three control programmes: National Malaria Control Programme, National Tuberculosis and Leprosy Control Programme and Neglected Tropical Diseases Control Programme. Their presentations highlighted the gap analyses as well as some key issues identified during the first workshop (see Chapter 2). The presentations aimed at preparing workshop participants for the task of formulating research questions and defining a research agenda for the three diseases.

The workshop included 56 participants and experts drawn from various government ministries, departments and agencies, academic and research institutions, and partner agencies (Table 5). Specific institutions represented included the three control programmes (National Tuberculosis and Leprosy
Programme, National Malaria Control Programme and Neglected Tropical Diseases Control Programme); regional medical offices for Tanga, Tabora, Mwanza, Morogoro and Mbeya; Commission for Science and Technology; Ministry of Livestock Development and Fisheries; Food and Drugs Authority of the United Republic of Tanzania; and Medical Stores Department. From the academic and research institutes were representatives of the Muhimbili University of Health and Allied Sciences, University of Dar es Salaam, Mzumbe University, Ardhi University, Sokoine University of Agriculture, Catholic University of Health and Allied Sciences, Kilimanjaro Christian Medical College, Kilimanjaro Christian Research Institute, Tanzania Pesticide Research Institute, Vector Control Institute and NIMR. The development partners who attended the workshop included WHO, Sightsavers, IMA World Health, Amref Health Africa, PATH, UNDP, Research Triangle Institute, Population Services International and Johns Hopkins Program for International Education in Gynecology and Obstetrics (Annex 3).

**Table 5. Institutional distribution of workshop participants**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control programmes</td>
<td>7</td>
</tr>
<tr>
<td>Regional health management teams</td>
<td>5</td>
</tr>
<tr>
<td>Universities</td>
<td>7</td>
</tr>
<tr>
<td>Other government ministries, departments and agencies</td>
<td>5</td>
</tr>
<tr>
<td>National Institute for Medical Research</td>
<td>18</td>
</tr>
<tr>
<td>Other research institutes</td>
<td>4</td>
</tr>
<tr>
<td>Other partners</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>56</strong></td>
</tr>
</tbody>
</table>

3.2 Workshop objectives

The stakeholders’ consultative workshop was aimed to support the formulation of objectives:

- formulation of research questions for each or a group of identified gaps that mitigate access to and efficient delivery of new health technologies for TB, malaria and NTDs

3.3 Workshop deliverables

The stakeholders’ workshop was expected to deliver:

- research questions appropriate for each or a group of gaps and bottlenecks formulated;
- research questions prioritized based on immediate, medium-term and long-term solutions (1–3 ranking: 1 = immediate/high-priority, 2 = medium-term, 3 = long-term solution);
- working document or workshop report prepared and submitted to WHO/TDR.
3.4 Workshop methodology

The workshop process was guided by several basic principles established to ensure that priority research questions would be defined without undue personal, economic or political influence. First, the end users of public health systems research, represented by public health practitioners, should have a strong voice in establishing the research agenda. Specifically, the agenda should draw on gaps and bottlenecks identified by the control programmes that have led to the less than optimal levels of coverage of interventions, access and service delivery. Second, wide participation of interested parties should be ensured. Third, participants would be encouraged to propose research questions that are based on scientific needs and the priorities of practitioners, without regard for perceived political or financial feasibility. Finally, to ensure a consensus-based outcome, the research questions and thematic areas should be prioritized through a nominal group process, in which each participant is given the opportunity to vote on prioritizing each research theme following extensive group discussion.

In preparation for the stakeholders’ agenda-setting workshop, the NIMR secretariat noted that the gaps and bottlenecks identified by experts from the three control programmes included areas of similarity with those identified in the previous research agenda-setting processes in the country, as well as important differences, reflecting persistence of uncertainties and newly emerging information needs in access to and delivery of services. The secretariat then refined the outcome of the control programmes workshop and proposed a fit of the gaps and bottlenecks in new thematic areas along the lines of the health systems building blocks proposed by WHO,1 with a slight modification to include a thematic area named ‘infrastructure and logistics’.

The agenda was adopted by the workshop participants, and the meeting started with self-introduction by participants. The meeting was conducted mainly in plenary and breakout group sessions. To facilitate focused and in-depth discussions, it was agreed that the workshop deliberations at the breakout group sessions be structured according to, and led by, the disease control programmes and overseen by a facilitator. Consequently five groups, two each for malaria and neglected tropical diseases, and one for TB were constituted. Report-back sessions enabled the groups to make presentations in plenary, engendering cross-fertilization of ideas across groups and allowing critical discussions for the identification of main issues and recommendations.

Participants were provided with guidance on approaches to priority-setting and the process for ranking identified thematic areas. Specifically, participants were asked to consider the proposed questions arising from the group discussions in each thematic area in terms of their relevance, appropriateness, feasibility, impact and opportunity to strengthen collaboration with partners.

The groups were mandated to define research questions and priorities for each of the six thematic areas – human resources for health, service delivery, infrastructure and logistics, information, governance and leadership, and health financing – after a critical review of the gaps and bottlenecks and possible strategies for addressing them. Participants were encouraged to come up with the critical research questions that would generate the required evidence to address the identified gaps and bottlenecks. The groups were then requested to subject the collated questions to a ranking procedure in which each member would consider each question and then give a nominal score of between 1 and 5, with 5 indicating the highest priority.

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3.5 Workshop proceedings

It became apparent as the groups commenced the elaboration of questions that the attempt to generate critical research questions for each of the gaps and bottlenecks would lead to a large number of questions. Even with specific guidance from the facilitators that one research question could be generated to address a combination of gaps and bottlenecks, all groups came up with very many questions that the secretariat refined to remove duplications and obvious overlaps. Following the revision, the malaria groups ended up with 34 questions, the NTDs groups had 38 questions, while the TB group had 22 research questions (Tables 6–8). The initial intention for each participant to rank the research questions was set aside because of the large numbers of questions and time constraints. Participants were rather requested to rank the questions nominally in terms of ‘high’, ‘medium’ or ‘low’ priority. A nominal group process then followed in which each participant was asked to vote for the six thematic areas that they considered a priority, given adequate consideration to the research questions that had been defined in each area.

3.5.1 National Malaria Control Programme

The two malaria groups presented a total of 34 questions in their report back to plenary. The service delivery thematic area had the most number of proposed research questions (11), followed by leadership and governance (8) and information (7) (Table 6). Among the critical research questions proposed by the groups was: What are the major causes of current inadequacy of human resources and skills for malaria control in the country? On the side of clients and patients, the groups posed the question: What can be done to improve compliance and reduce misuse of recommended malaria interventions? In the area of information, the groups also proposed to investigate: What are the factors causing incompleteness in data, delays in reporting and inaccurate data? Similar incisive research questions were proposed in all the other thematic areas.

Participants in the groups ranked 67% of the proposed questions as high priority, with the remaining 33% equally split in the medium and low priority categories. With respect to the ranking of the six thematic areas, although both sub-groups provided different rankings, the combined ranking scores placed the six thematic areas in the following order: service delivery, information, human resources for health, leadership and governance, infrastructure and logistics, and health financing.

Table 6. Formulation of research questions from National Malaria Control Programme gap analysis

<table>
<thead>
<tr>
<th>Thematic priority area</th>
<th>Gaps/bottlenecks</th>
<th>Research questions</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human resources for health</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size and composition</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Recruitment and retention</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Competences</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education methods and curricula</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inadequate number of human resources and skills sets to coordinate and manage interventions</td>
<td></td>
<td>1. What are the human resource needs for effective coordination and management of malaria control interventions?</td>
<td>3</td>
</tr>
<tr>
<td>Limited human resources at facility level</td>
<td></td>
<td>2. What are the major causes of current inadequacy of human resources and skills for malaria control in the country?</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>3. What policies and implementation strategies should be put in place to address the inadequacy of human resources for malaria control in the country?</td>
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</tbody>
</table>

The malaria groups came up with 59 questions, the NTDs groups had 41 questions, while TB group developed 23 research questions.
<table>
<thead>
<tr>
<th>Thematic priority area</th>
<th>Gaps/bottlenecks</th>
<th>Research questions</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service delivery</td>
<td>Poor diagnosis of malaria in the government and private sector</td>
<td>1. What should be done to enhance the quality of malaria diagnostic and treatment services at all levels?</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Failure to monitor drugs dispensed in the private sector and the number of patients treated with recommended drugs</td>
<td>2. How can we improve the current mechanisms of monitoring dispensing of ACTs in private health facilities?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Limited knowledge, attitude and practice of clients on malaria interventions</td>
<td>3. What are the knowledge, attitudes, practices and skills for service providers in the public sector on monitoring and accounting of ACTs prescribed to patients?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low uptake of intermittent preventive treatment in pregnancy</td>
<td>4. What are the factors that influence knowledge, attitudes and practices of clients on malaria interventions?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poor and delayed health-seeking behaviour</td>
<td>5. What are the innovative strategies to improve knowledge, attitudes and practices of clients on malaria interventions?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Limited uptake, poor compliance and misuse of recommended malaria interventions by the community</td>
<td>6. What measures should be put in place to improve uptake of intermittent preventive treatment of malaria in pregnancy?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poor adherence to treatment guidelines in the management of uncomplicated malaria in the public and private sector</td>
<td>7. What are the innovative strategies to improve health-seeking behaviour for malaria control interventions?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Limited access to universal malaria diagnostic facilities in hard-to-reach areas and private sector</td>
<td>8. What can be done to improve uptake, use and compliance to recommended malaria interventions at the community level?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Self-medication</td>
<td>9. What are the factors contributing to poor compliance in malaria interventions?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of ITNs/LLINs in private sector</td>
<td>10. What innovative measures can be put in place to improve access to universal malaria diagnostic facilities in hard-to-reach areas and the private sector?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Availability of untreated nets in the market</td>
<td>11. What can be done to overcome drivers for self-medication and misuse of ITNs/LLINs?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overdependence on one vector control intervention (ITNs/LLINs)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thematic priority area</td>
<td>Gaps/bottlenecks</td>
<td>Research questions</td>
<td>Rank</td>
</tr>
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<td>----------------------------------</td>
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</tr>
</tbody>
</table>
| **Infrastructure and logistics** | **Laboratory and diagnostic services**  
Supply chain management | Commodities (drugs and diagnostics) frequently out of stock at health facility level despite improved procurement  
Poor diagnostic facilities for malaria in the government and private sector  
Poor quality of malaria commodities  
Weak capacity of health system and poor quality of services | 1. What measures should be put in place to overcome the supply chain and other management system barriers for effective delivery of malarial commodities to targeted users?  
2. How can we enhance supply and use of ITNs/LLINs through the private sector? | 5    |
| **Leadership and governance**    | **Organization and governance**  
Intergovernmental relationships and partnerships | Limited capacity to manage the programme and coordination of all partners  
Poor implementation of malaria control at all levels  
Weak leadership, governance and commitment of council health management teams and regional health management teams  
Contribution of other sectors in malaria transmission  
Livelihood activities and increase of mosquito breeding areas  
Uncoordinated implementation of IEC/BCC activities at different levels  
Weak collaboration and coordination for effective implementation of malaria control at borders | 1. What measures can be put in place to improve capacity to manage the programme and coordination of all partners?  
2. How can we improve leadership, governance skills and commitment of council health management teams and regional health management teams?  
3. What factors are responsible for the weakness and inadequacy of the current mechanisms for coordination and implementation of IEC/BCC malaria activities at all levels?  
4. What strategies should be put in place to achieve effective coordination of implementation of IEC/BCC activities at different levels?  
5. What strategies and policies are required to enhance coordination and collaboration for malaria control at the borders?  
6. What measures should be put in place to improve livelihood activities without increasing mosquito breeding areas?  
7. How can the regulatory capacity be enhanced to overcome the availability of non-recommended drugs and untreated nets in private outlets?  
8. What mechanisms are in place and what are the deficiencies of such mechanisms in monitoring of the programme performance and accounting for investment made? | 4    |
<table>
<thead>
<tr>
<th>Thematic priority area</th>
<th>Gaps/bottlenecks</th>
<th>Research questions</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information</strong></td>
<td>Incomplete routine reports, inaccurate data and delays in reporting and feedback to all levels</td>
<td>1. What are the mechanisms and weakness of the existing structure for data collection, collation and transmission?</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Failure to monitor the number of patients receiving ACT from public health facilities for programmatic monitoring and accounting to the key partners</td>
<td>2. What are the factors causing incompleteness, inaccurate data, and delays in reporting and feedback?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of malaria database at the National Malaria Control Programme to effectively monitor performance of the programme and account for investment made</td>
<td>3. How can we improve the current mechanisms for sharing information at all levels?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of continuous monitoring of malaria indicators from the community</td>
<td>4. How can the current mechanisms of monitoring dispensing of ACTs in public health facilities be improved?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Insufficient dissemination of malaria best practices at local and global level</td>
<td>5. What are the factors that contribute to the lack of a malaria database?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Delayed feedback to all levels</td>
<td>6. What strategies should be put in place to enhance and improve documentation and dissemination of malaria best practices?</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>7. What options are available for the incorporation of data management in the training curricula of health workers at all levels?</td>
<td></td>
</tr>
<tr>
<td><strong>Health financing</strong></td>
<td>Limited funding and donor dependence</td>
<td>1. What can be done to sustain improved malaria control activities while reducing donor dependence?</td>
<td>6</td>
</tr>
<tr>
<td>Financing levels and mechanisms</td>
<td>Limited planning and funding for malaria control within comprehensive council health plans</td>
<td>2. What measures should be put in place to enhance effective planning and funding for malaria control within comprehensive council health plans?</td>
<td></td>
</tr>
<tr>
<td>Costs, performance and outcomes</td>
<td>Limited funding to sustain and also scale up other vector control interventions</td>
<td>3. What possible mechanisms can be employed to raise funds for sustaining the gains of malaria control?</td>
<td></td>
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<tr>
<td></td>
<td>Sustainability of nets campaigns</td>
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</tbody>
</table>
3.5.2 National Tuberculosis and Leprosy Programme

In the report back to plenary, the TB group presented 22 research questions for the six thematic areas, with the service delivery block having the most questions (7) (Table 7). Although most of the questions addressed issues on the supply side, there were a couple of questions on the demand side, focusing on the role clients or patients play in accessing services. In addition, there were questions focused on the problem of HIV/TB coinfection and multidrug resistance. Among the research questions proposed in the infrastructure and logistics area, for example, was: What factors affect the supply chain management for optimal functioning of the National Tuberculosis and Leprosy Programme? The group also proposed to investigate: What factors can enhance synergistic functioning of interministerial and intergovernmental agencies?

The majority of the proposed research questions (78%) were considered to be of high priority, with the remaining (22%) were ranked as medium priority. None of the proposed research questions was placed in the low priority category. In the ranking of the six thematic areas, the TB group placed service delivery as the most important priority, with human resources for health, infrastructure and logistics, leadership and governance, health financing and information following in that order.

Table 7. Formulation of research questions from National Tuberculosis and Leprosy Programme gap analysis

<table>
<thead>
<tr>
<th>Thematic priority area</th>
<th>Gaps/bottlenecks</th>
<th>Research questions</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human resources for health</td>
<td>Size and composition</td>
<td>Inadequate human capacity for TB diagnosis</td>
<td>1. What policy measures can be put in place to ensure the recruitment, deployment and retention of an adequate number of health workers for TB and leprosy control in the country?</td>
</tr>
<tr>
<td></td>
<td>Recruitment and retention</td>
<td>Inadequate refresher trainings for laboratory staff</td>
<td>2. How can the competences and skills sets of TB and leprosy control workers be kept up to date?</td>
</tr>
<tr>
<td></td>
<td>Competences</td>
<td>Inadequate skills in undertaking operational research at regional and district levels</td>
<td>3. How can the capacity to coordinate and implement operational research in the programme across all levels be strengthened?</td>
</tr>
<tr>
<td></td>
<td>Education methods and curricula</td>
<td>Absence of focal person for coordination of operational research at Tuberculosis and Leprosy Central Unit</td>
<td></td>
</tr>
<tr>
<td>Service delivery</td>
<td>Coverage of interventions</td>
<td>Not all diagnostic facilities perform TB diagnosis</td>
<td>1. What barriers hinder optimal health service delivery with respect to TB detection, treatment and prevention?</td>
</tr>
<tr>
<td></td>
<td>Adherence to treatment guidelines</td>
<td>Low multidrug resistance case detection</td>
<td>2. How can multidrug resistance case detection be enhanced?</td>
</tr>
<tr>
<td></td>
<td>Prescriptions and dispensing practices</td>
<td>Outdated drug resistance surveillance data</td>
<td>3. What factors enhance timely drug resistance surveillance?</td>
</tr>
<tr>
<td></td>
<td>Integration of health services and systems</td>
<td>Low TB-suspicious index among health care workers</td>
<td>4. What factors hinder the provision of TB services in private health facilities?</td>
</tr>
<tr>
<td></td>
<td>Quality assurance</td>
<td>Inadequate involvement of private facilities in TB diagnosis (only 10% of private facilities)</td>
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<tr>
<td></td>
<td></td>
<td>Inadequate mechanism in active case detection for close contacts</td>
<td></td>
</tr>
<tr>
<td>Thematic priority area</td>
<td>Gaps/bottlenecks</td>
<td>Research questions</td>
<td>Priority</td>
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<td>------------------------</td>
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<tr>
<td>Difficulty in paediatric TB diagnosis</td>
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<tr>
<td>Inadequate information to patients on treatment</td>
<td></td>
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<td>M</td>
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<tr>
<td>Delay of patients in seeking TB care</td>
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<tr>
<td>Not all TB/HIV coinfected patients are on antiretroviral therapy</td>
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<tr>
<td>Inefficient implementation of isoniazid preventive therapy</td>
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<tr>
<td>Inadequate monitoring of drug use and efficacy</td>
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<tr>
<td>Self-administration of TB drugs</td>
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<tr>
<td>Lack of paediatric formulation</td>
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<tr>
<td>Lack of new vaccine for TB</td>
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<tr>
<td>Weak collaboration between National Tuberculosis and Leprosy Programme and National AIDS Control Programme</td>
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<tr>
<td>Inadequate facilities integrating TB/HIV services under one roof</td>
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<tr>
<td>Lack of interministerial collaboration on TB prevention activities</td>
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<tr>
<td>Inefficient monitoring and evaluation</td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Infrastructure and logistics</strong></td>
<td></td>
<td></td>
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<tr>
<td>Laboratory and diagnostic services</td>
<td>Inadequate infrastructure for TB diagnostic services</td>
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<td>H</td>
</tr>
<tr>
<td>Supply chain management</td>
<td>Lack of active case finding in high-risk settings (e.g. prisons, mining sites)</td>
<td></td>
<td>H</td>
</tr>
<tr>
<td>Transportation of multidrug-resistant patients and specimens</td>
<td>Inadequate drug storage facilities</td>
<td></td>
<td>H</td>
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<tr>
<td></td>
<td>Limited number of health facilities that provide TB/HIV services under one roof</td>
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<td></td>
<td>Interrupted supply of isoniazid</td>
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<td></td>
<td>Delayed clearing of TB drugs at the port of entry</td>
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<td></td>
<td>Inadequate transport for multidrug-resistant patients to Kibong’oto hospital</td>
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<tr>
<td>1. How can we improve infrastructure and logistic needs for efficient implementation of the TB programme?</td>
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<tr>
<td>2. What factors affect the supply chain management for optimal functioning of the National Tuberculosis and Leprosy Programme?</td>
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<tr>
<td>3. What are the possibilities of enhancing detection rates for multidrug-resistant TB and establishment of zonal referral hospitals for multidrug resistance in the country?</td>
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<td>H</td>
</tr>
<tr>
<td>Thematic priority area</td>
<td>Gaps/bottlenecks</td>
<td>Research questions</td>
<td>Priority</td>
</tr>
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<td>-----------------------</td>
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<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
</tbody>
</table>
| **Leadership and governance** | Limited programme coordination at different levels  
Limited collaboration between National Tuberculosis and Leprosy Programme and research and academic institutions (national and regional)  
Limited policy dialogue between National Tuberculosis and Leprosy Programme and research and academic institutions  
Limited synergistic leadership between interministerial and intergovernmental agencies | 1. How can coordination within programme levels be optimized?  
2. What mechanisms can enhance collaboration between the National Tuberculosis and Leprosy Programme and research and academic institutions (national and regional)?  
3. What mechanisms can enhance policy dialogue between the National Tuberculosis and Leprosy Programme and research and academic institutions?  
4. What factors can enhance synergistic functioning of interministerial and intergovernmental agencies? | H  
M  
M  
H |
| **Health financing** | Inadequate funding for programme activities, research, infrastructure  
Lack of strategic methods in resource mobilization | 1. How can the National Tuberculosis and Leprosy Programme strengthen its capacity to mobilize sustainable funding for programme activities, research and infrastructure?  
2. How can the National Tuberculosis and Leprosy Programme ensure value for money for its interventions and services? | H  
H |
| **Information** | Inefficient implementation of health management information system  
Uncoordinated translation and dissemination of research-tested public health strategies between related institutions | 1. How can the health management information systems be strengthened to capture, transfer and utilize data for efficient implementation of TB programme?  
2. How can the use of evidence-based data and information from research (across research agencies) be prioritized to enhance efficient implementation of the programme?  
3. How can we efficiently implement active surveillance among high-risk populations? | H  
H  
H |

**3.5.3 Neglected Tropical Diseases Control Programme**

Reporting back to plenary, the two NTDs sub-groups proposed a total of 38 research questions for the six thematic areas. The information area had the highest number of proposed research questions (10)
followed by service delivery (9) and human resources for health (8) (Table 8). More than any other group, the NTDs group came up with innovative questions such as: Would the use of motorbikes (boda-boda) play a role in enhancing delivery of mass drug administration, supervision and reporting of side-effects? Would partnership with mobile phone companies play a role to enhance knowledge and perceptions? Concerns over the low status of the programme at the implementation level caused the groups to propose such questions as: How can the council health management team supervisory visits be reoriented to include NTDs activities? Is it feasible to integrate simple and complex interventions at the community level? Critical questions were proposed addressing the role of the private sector and communities in the control of NTDs as well as in financing the programme, where for example the group proposed: What are the efficient alternative funding and payment options to support front-line NTDs activities (e.g. training of CDDs and drug delivery)?

Participants in the two subgroups ranked most of the proposed research questions (83%) in the high priority category, with the remaining (17%) in the medium priority category. The service delivery thematic area was ranked topmost by the participants when the rankings from the individual sub-groups were combined. In a reversal from the ranking of the two other major programmes, the combined NTD group ranked the health financing thematic area as the second most important priority, followed by human resources for health; information; infrastructure and logistics; and leadership and governance.

**Table 8. Formulation of research questions from Neglected Tropical Diseases Control Programme gap analysis**

<table>
<thead>
<tr>
<th>Thematic priority area</th>
<th>Gaps/bottlenecks</th>
<th>Research questions</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human resources for health</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size and composition</td>
<td>CDDs, CORPs and village health workers have limited knowledge to manage different cases</td>
<td>1. Does formal education among CDDs, CORPs and village health workers contribute towards improved NTDs control and elimination?</td>
<td>1</td>
</tr>
<tr>
<td>Recruitment and retention</td>
<td>Limited skilled staff to implement the programme activities</td>
<td>2. Are staff at this level sufficiently skilled and knowledgeable regarding the implementation of NTDs control in their area of operation?</td>
<td></td>
</tr>
<tr>
<td>Competences</td>
<td>Poorly motivated CDDs</td>
<td>3. Will long-term formal training among CDDs, CORPs and village health workers improve the outcome of NTDs control and elimination?</td>
<td></td>
</tr>
<tr>
<td>Education methods and curricula</td>
<td>The programme at the national level is understaffed</td>
<td>4. What are the non-monetary motivational factors among CDDs, CORPs and village health workers that will assist improving their performance?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of proper linkages from the cascade areas to the district level</td>
<td>5. What are the synergistic ways to work with existing partners (e.g. the private sector) to address the existing human resources for health gap?</td>
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<td></td>
<td></td>
<td>6. How best can zonal health training centres enhance quality training and upgrade training methods and curricula?</td>
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<td></td>
<td></td>
<td>7. What are the opportunities to enhance NTDs knowledge at early school levels?</td>
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<td></td>
<td></td>
<td>8. What should be the entrance level for introducing NTDs in schools?</td>
<td></td>
</tr>
<tr>
<td>Thematic priority area</td>
<td>Gaps/bottlenecks</td>
<td>Research questions</td>
<td>Rank</td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Service delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interventions coverage</td>
<td>Diseases have different control approaches (complex versus simple interventions)</td>
<td>1. How will community ownership, empowerment and engagement be improved for NTDs control and elimination?</td>
<td>2</td>
</tr>
<tr>
<td>Adherence to treatment guidelines</td>
<td>Lack of community ownership of the NTDs programme</td>
<td>2. Can bottom-up planning, proper selection of CDDs, and advocacy awareness creation help to strengthen community ownership of the NTDs programme?</td>
<td></td>
</tr>
<tr>
<td>Prescriptions and dispensing practices</td>
<td>Different levels of operation</td>
<td>3. How can supervisory visits by council health management teams be reoriented to include NTDs activities?</td>
<td></td>
</tr>
<tr>
<td>Integration of health services</td>
<td>Lack of communication and linkage between district focal person and council health management team</td>
<td>4. Is it feasible to integrate simple and complex interventions at the community level?</td>
<td></td>
</tr>
<tr>
<td>Vertically imposed NTDs programme</td>
<td>Different programmes target different populations</td>
<td>5. What are the barriers to the uptake of NTDs control interventions?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low perception of risk of disease and benefits of mass drug administration among community members</td>
<td>6. What are the barriers to community participation in NTDs control interventions?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inadequate supervision</td>
<td>7. What are the best strategies and tools to encourage communities to change health-seeking behaviour in relation to risk of disease and mass drug administration?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Limited knowledge on NTDs and risk among CDDs and community members</td>
<td>8. Would partnership with mobile phone companies play a role to enhance knowledge and perceptions?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inadequate incentives for CDDs</td>
<td>9. Would the use of motorbikes (boda-boda) play a role to enhance delivery of mass drug administration, supervision and reporting of side-effects?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fear of side-effects of commonly used drugs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hard-to-reach areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information</td>
<td>Poor data capturing and management</td>
<td>1. How can the utilization of available NTDs data be strengthened to inform programme developers and policy-makers in a timely manner?</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Low capacity of health workers and CDDs to record and manage data</td>
<td>2. Can use of e-data technology improve completeness, reliability and timeliness in the NTDs control programme?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Difficulties in estimating the denominator</td>
<td>3. What are the cost implications of electronic data capture (e.g. mobile phones) versus paper-based systems?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inadequate support to roll out appropriate technology to facilitate data flow chain</td>
<td>4. What is the best option for determining the appropriate population for coverage estimations?</td>
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<tr>
<td></td>
<td>Lack of information on the impact of intervention for other diseases on NTDs</td>
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<tr>
<td></td>
<td>Inadequate supervision</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Inadequate feedback and utilization of outputs or evidence-based plans and actions</td>
<td></td>
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<tr>
<td>Thematic priority area</td>
<td>Gaps/bottlenecks</td>
<td>Research questions</td>
<td>Rank</td>
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<tr>
<td>------------------------</td>
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</tr>
<tr>
<td><strong>Infrastructure and logistics</strong></td>
<td>Poor inventory management and information flow</td>
<td>5. What is the impact of other interventions (indoor residual spraying, WASH, ITNs, PHAST, etc.) on NTDs?</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Inadequate capacity to detect non-PCT cases</td>
<td>6. What innovative approaches will enhance effective supportive supervision for best outcomes?</td>
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<tr>
<td></td>
<td>Lack of mechanisms for quality control and assurance in existing health facility laboratories</td>
<td>7. What are the best ways of improving data management and utilization at point of collection?</td>
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<tr>
<td></td>
<td>Lack of established surveillance protocols for NTDs</td>
<td>8. How can existing district statistical capacity (district executive director’s office) support health NTDs data management?</td>
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<tr>
<td></td>
<td></td>
<td>9. How can the inventory management and flow of information be strengthened between regional, district and lower-level health facilities?</td>
<td></td>
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<tr>
<td></td>
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<td>10. What are the effective and appropriate surveillance protocols suitable for different NTDs?</td>
<td></td>
</tr>
<tr>
<td><strong>Laboratory and diagnostic services</strong></td>
<td>For other sectors, (human) health is not a priority</td>
<td>1. What are the effective and appropriate diagnostic technologies suitable for case detection at different levels?</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Unwillingness to share resources between sectors</td>
<td>2. What are the alternative strategies for strengthening supply chain management of NTDs commodities?</td>
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</tr>
<tr>
<td></td>
<td>Lack of intersectoral approach in disease control and prevention</td>
<td></td>
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<tr>
<td></td>
<td>Inadequate communication and linkage between district focal person and council health management team</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of proper sectoral linkages at district level to support skills transfer to lower levels</td>
<td></td>
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</tr>
<tr>
<td><strong>Leadership and governance</strong></td>
<td></td>
<td>1. How can multisectoral collaboration be strengthened in implementing the NTDs programme activities?</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. How are local government authorities taking responsibility for coordinating the NTDs programme activities?</td>
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<td></td>
<td></td>
<td>3. What are the obstacles that hinder proper functioning of monitoring systems at district level?</td>
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<td></td>
<td></td>
<td>4. To what extent is a sustainability strategy being reinforced at district level?</td>
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<tr>
<td></td>
<td></td>
<td>5. How best can private sector and civil society organizations participate in NTDs control interventions?</td>
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</tr>
</tbody>
</table>
### 3.6 Discussion

Following a review of the submissions from the groups, the secretariat was able to revise, rephrase, combine, delete and amend, as appropriate, the proposed research questions, and came up with a total of 94 questions that defined the priorities that should engage the attention of the public health research community in the United Republic of Tanzania in the immediate future to address the key gaps and bottlenecks impinging on access to and delivery of new health technologies in the areas of malaria (34 questions in Table 6), TB (22 questions in Table 7) and NTDs (38 questions in Table 8).

When the rankings across the five groups were combined, the service delivery thematic area had the highest number of votes, with the individual research questions therein also mostly ranked as high priority. As examples, participants posed such questions as: What can be done to improve uptake, use and compliance to recommended malaria interventions at the community level? And: What are the patient, community and health worker factors that hinder effective implementation of DOTS? The stakeholders also proposed research questions outside the conventional box that will require generating evidence on the active collaboration between the public and private sectors to push the boundaries of service delivery and expand access to services. All three programmes proposed research questions that addressed not only the supply side of service delivery but also the demand side. The consensus from the stakeholders was that more and urgent research is needed to provide evidence on why service delivery was not optimal in the country.

The human resources for health thematic area was ranked second in the listing of priorities from the votes of the participants collated from the groups. The proposed research questions covered holistically the critical policy issues of human resources management, including recruitment, retention, motivation and competences. Stakeholders raised questions at both the pre- and in-service levels that will ensure adequacy of skills of the health workers. Participants proposed as high priority such research questions as: What are the non-monetary motivational factors among CDDs, CORPs and village health workers that will assist improving their performance? And: What policies and implementation strategies should be put in place to address the inadequacy of human resources for malaria control in the country?

Next on the list of priorities as determined by the votes of the stakeholders was the infrastructure and logistics thematic area, with participants requesting research into, among others, the questions of: What factors affect the supply chain management for optimal functioning of the National Tuberculosis and Leprosy Programme, and what measures should be put in place to overcome the supply chain and other management system barriers for effective delivery of malarial commodities to targeted users?
Stakeholders saw the possibilities of synergies in the collaboration between the public and private sectors and proposed research questions to generate evidence on the possibilities and potentials for such collaboration.

The importance of the thematic area of information as the top priority by one of the five working groups underscores the importance attached to the issues of data management in the three programmes. Stakeholders proposed questions to generate evidence on the causes of incomplete and inaccurate data, delays in feedback and possibilities for incorporating training on data management at the pre-service level for all health workers.

Finally, in the thematic areas of leadership and governance and health financing, stakeholders were interested in researchers coming up with evidence on how programmes could be better managed, coordinated and financed, particularly at the service delivery level, and proposed succinct research questions to that effect.

3.7 Conclusions

The two-day stakeholders’ consultation identified a total of 94 research questions in six thematic areas that should engage the attention of practitioners and partners as efforts are geared towards addressing the barriers to access to and delivery of malaria, NTDs and TB services in the United Republic of Tanzania. Participants at this unprecedented gathering of practitioners, researchers, academicians, policy-makers and service providers pointed to the areas of service delivery and human resources for health as the topmost priorities for research in the country.

Going forward, these research questions will be provided to the control programmes and partners for validation. Once validated and confirmed as representing the consensus of practitioners and partners, this list will form the basis of the next stage of the project, which will involve the solicitation of research proposals along the lines of the identified priorities and the mobilization of funding, locally and from external partners, for conducting the necessary researches.

With a significant number of the questions related to actual implementation issues, it is envisaged that there will be a need to conduct training and refresher workshops for the in-country researchers on implementation research.
ANNEX 1 Access and Delivery Partnership

The United Republic of TANZANIA Workplan

Pathway 2: Enhanced capacity to identify and address country specific health system needs for effective access to and delivery of new health technologies

The focus for pathway 2 is on strengthening national capacities to use epidemiological data to identify needs and enhance target populations’ access to new health technologies. The overall objective is to strengthen capacity in operations /implementation research, to scale up as well as improve access to and delivery new interventions. Three related activities were identified as fundamental and programmed for sequential implementation under pathway 2. The rational and objectives for these activities are briefly described below:

A. An analysis of national capacity for operations/implementation research.

Given the fact that there are well established health research institutions and systems in the United Republic of Tanzania, this pathway will primarily support and build on the existing capacity for health research in the United Republic of Tanzania. Led by the NIMR, the analysis will involve the Ministry of Health and Social Welfare disease control programmes. The analysis will articulate the gaps and implementation bottle necks limiting effective implementation of efforts to effectively control malaria, TB and NTDs. The results will form the basis of the next activity - a stakeholder’s consultation to formulate research questions and plans for training and action.

B. Stakeholders consultations to formulate research questions and plans for capacity strengthening and action.

A consultation involving key control programmes staff (Malaria, TB and NTDs), researchers and academia (COSTECH, Ifakara Health Institute, Muhimibili University of Health and Allied Sciences (MUHAS), Kilimanjaro Christian Medical Center (KCMC), Kilimanjaro Medical Research Institute (KCRI), Catholic University of Health and Allied Sciences (CUHAS) will be organized by NIMR. The objective will be to formulate research questions and plans of action to address the gaps and implementation bottle necks identified during the analysis. The group will also prepare a framework for training and strengthening capacity for OR/IR within the NIMR network and disease control programmes on the mainland and Zanzibar over a 36 months period.

C. Capacity Strengthening

The action plan and training will be implemented simultaneously in order to strengthen capacity for conducting studies aimed at improving access to and delivery of interventions within the national health and research systems. TDR will make available a training tool (http://who.int/tdr/publications/topics/ir-toolkit/en/) to facilitate the training. The NIMR will lead and manage this activity.
<table>
<thead>
<tr>
<th>Pathway 2: Activities</th>
<th>Timelines</th>
<th>Gap/Priority issue addressed</th>
<th>Lead and participating agencies</th>
</tr>
</thead>
</table>
| Stakeholder consultations | May – June 2014 | Mapping gaps and implementation bottlenecks limiting effective implementation of disease control efforts | • National Institute for Medical Research (NIMR)  
• Ministry of Health (NTDCP, NMCP & NTBCP) |
|                      | June – July 2014 | Research questions and plans of action (OR/IR) to address the gaps and implementation bottlenecks | • National Institute for Medical Research (NIMR)  
• Ministry of Health (NTDCP, NMCP & NTBCP)  
• Ifakara Health Institute  
• Academia (MUHAS, KCMC)  
• COSTECH |
| Capacity strengthening | August 2014 – June 2015 | Strengthened capacity for OR/IR to improve access to and delivery of interventions at the district level | • National Institute for Medical Research (NIMR)  
• Ministry of Health (NTDCP, NMCP & NTLP)  
• Ifakara Health Institute  
• Academia (MUHAS, KCMC, CUHAS)  
• COSTECH |
ANNEX 2 Access and Delivery Partnership

National Control Programmes Workshop
27 – 28 May 2014 – Morogoro

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ANNEX 3 Access and Delivery Partnership

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