

Existing capacity to manage pharmaceuticals and related commodities in East Africa: an assessment with specific reference to antiretroviral therapy

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Abstract

Background

East African countries have in the recent past experienced a tremendous increase in the volume of antiretroviral drugs (ARVs). Capacity to manage these medicines in the region remains limited. Makerere University, with technical assistance from the Rational Pharmaceutical Management Plus (RPM Plus) programme of Management Sciences for Health (MSH), supported by the United States Agency for International Development (USAID), established a network of academic institutions to build capacity for pharmaceutical management in the East Africa region. The initiative includes institutions from Kenya, Rwanda, Tanzania and Uganda and aims to improve access to safe, effective and quality-assured medicines for the treatment of HIV/AIDS, TB and malaria through spearheading in-country capacity. The initiative conducted a regional assessment to determine the existing capacity for the management of antiretroviral drugs and related commodities.

Methods

Heads and implementing workers of 50 HIV/AIDS programmes and institutions accredited to offer antiretroviral services in Kenya, Rwanda, Tanzania and Uganda were key informants in face-to-face interviews guided by structured questionnaires. The assessment explored categories of health workers involved in the management of ARVs; their knowledge and practices in selection, quantification, distribution and use of ARVs; and the nature of existing training programmes, training preferences and resources for capacity building.

Results

Inadequate human resource capacity, including the inability to select, quantify and distribute ARVs and related commodities, and irrational prescribing and dispensing were some of the problems identified. A competence gap existed in all four countries with a variety of health care professionals involved in the supply and distribution of ARVs. Training opportunities and resources for capacity development were limited, particularly for workers in remote facilities. On-the-job training and short courses were the preferred modes of training.

Conclusions

There is inadequate capacity for managing medicines and related commodities in East Africa. The need for training is urgent. The preferred modes of capacity building are activities that do not take health care workers from their places of work.

Background

Over the past few years, East African countries have experienced a tremendous increase in the volume of antiretroviral drugs (ARVs). This is a direct result of the commendable global initiatives towards improving access to effective treatment of HIV/AIDS [1, 2]. Lack of adequate human resources to support scale-up of treatment programmes has been a major constraint to treatment programmes. In particular, pharmaceutical supply management systems are notably weak [3]. Effective pharmaceutical supply management systems are crucial for scale-up of treatment programmes [4, 5].

To build in-country and regional capacity in pharmaceutical management, Uganda's Makerere University, with technical assistance from the Rational Pharmaceutical Management Plus (RPM Plus) programme of Management Sciences for Health (MSH), supported by the United States Agency for International Development (USAID), established the Regional Technical Resource Collaboration (RTRC), a network of academic institutions to build capacity for pharmaceutical management.

The initiative [6], which includes institutions from Kenya, Rwanda, Tanzania and Uganda, aims to improve access to safe, effective and quality-assured medicines for the treatment of HIV/AIDS, TB and malaria through spearheading in-country capacity building and operational research activities. To identify specific human resources constraints for pharmaceutical supply management, an assessment was carried out in each of the four countries. The specific objective of the assessment was to determine the existing capacity of the health care system to select, quantify, distribute and use ARVs; determine the categories of health workers involved in the supply management of ARVs and assess their knowledge and practice with regard to management and use of ARVs; document the nature of current training programmes for antiretroviral therapy (ART) commodities supply management; and identify knowledge gaps and suggest necessary intervention to redress the constraints.

Methods

A cross-sectional survey of 50 governmental and nongovernmental institutions accredited to provide ART services in the four countries was conducted in the months of February and March 2005. One researcher from Makerere University and one in-country collaborator carried out the assessment. The assessment used a qualitative research methodology that included interviewing key informants, in-depth interviews of health care workers and a survey of health facilities and programmes.

Setting and sampling

The survey covered both urban and rural areas and looked at different facets of health care provision, including the public, private-for-profit and private not-for-profit sectors. By convenience sampling, a minimum of 10 facilities were targeted in each country and at least three health care workers from each facility were interviewed.

The assessment process

The assessment was standardized across the participating countries through a planning workshop, which brought together collaborators from Makerere University, Harvard Centre for International Health, Management Sciences for Health and two representatives of the

AIDS Control Programme from each of the four countries. The workshop reviewed the data collection tools, discussed the assessment logistics and process and agreed on time lines.

Data collection tools were pilot-tested at three health facilities and two programmes in Uganda and their validity and reliability ascertained. These institutions were later excluded from the main study. Permission to carry out the survey was obtained from the national HIV/AIDS control programmes of the respective countries. Appointments with heads of the facilities and respondents were made by personnel from the national AIDS control programme in each country.

Interview of key informants

The heads of the National AIDS Control Programmes, Ministry of Health Pharmacy Services and HIV treatment programmes were identified as key informants. By means of the data collection tool, information on the general features of the country's ARV supply system (accessibility, availability, funding, monitoring and supervision), qualification and training of health care workers involved in supply management of ARVs and related commodities, and the training needs for the supply management of pharmaceuticals was sought in a face-to-face interview.

Survey of health facilities and programmes

The heads of the facilities providing ART services in the four countries were the key informants at the programme level. The survey looked at the types of HIV/AIDS services provided, the existence of guidelines for management of ARVs and related commodities, the qualifications of health care workers managing the supply of pharmaceuticals, existence of any ongoing skill-building activities, and areas covered in ongoing training programmes.

In-depth interviews of health care workers

Structured in-depth interviews of health care providers were held with physicians, pharmacists, pharmacy assistants, nurses and clinical officers. Information was sought on training background, knowledge of ARV supply management systems and the quality of the service provided.

Data analysis

At the end of each survey, questionnaires were checked for completeness, accuracy and consistency. At the end of each assessment, analysis of the data involved discussion with various in-country stakeholders for more in-depth interpretation of perceptions and opinions on possible interventions to address identified problems. Quantitative data were analysed by means of EPI INFO Version 3.3, while qualitative data were coded and manually analysed. No statistical comparisons were made, as this was a situational analysis survey without sufficient power for such analysis.

Results

ART treatment programmes in the four countries

National AIDS control programmes were responsible for the development and implementation of HIV/AIDS treatment policies in all four countries. Public, private-not-for

profit and private-for-profit institutions were involved in HIV/AIDS treatment and care in all the four countries. In the public institutions, HIV/AIDS treatment was limited to district-level facilities or higher at the time of the assessment.

A total of 54 facilities involved in ART services were surveyed in the four countries, comprising 27 public, 18 private not-for-profit, 5 private-for-profit and 4 academic institutions (Table 1). The majority of facilities were located in urban or periurban areas. A total of 110 health workers were interviewed, the majority of whom were pharmacists (32) followed by nurses/midwives (27), doctors (20), pharmacy technicians (20), social workers (9), clinical officer (1) and “other” (1) (Table 2).

Generally health care workers involved in the pharmaceutical management of ARVs included pharmacists, nurses/midwives, pharmacy technicians, pharmacy assistants, social workers and administrative staff. In some countries, not all categories of health workers were involved in the supply management of ARVs. In Uganda the supply management of HIV/AIDS pharmaceuticals is dealt with mainly by lower to mid-level health workers (Fig. 1).

Guidelines for the supply management of HIV/AIDS existed in all the countries but were not always available at treatment centres. Such guidelines varied from country to country, however..

HIV/AIDS pharmaceutical management training

Training in HIV/AIDS focused mainly on clinical management. Very few programmes included pharmaceutical supply management in their training. Respondents indicated that there was a critical need for training in HIV/AIDS pharmaceutical supply management. Specific areas of HIV/AIDS pharmaceutical supply management where training was needed included the selection of medicines, procurement procedures, quantification of needs, distribution, inventory control/storage and rational prescribing and dispensing. Table 3 shows the areas in HIV/AIDS pharmaceutical management in which skill building was required, the perceived cause of the problem and possible interventions. On-the-job training and short workshops were the training modes preferred by respondents.

Discussion and recommendations

Numerous problems were identified in the four countries with regard to HIV/AIDS pharmaceutical supply management, as was earlier reviewed in sub-Saharan Africa [7]. In this study the major problems pertained to various facets of human resource constraints, including inadequate numbers of personnel being involved in the supply chain, staff being inadequately trained and staff being inadequately remunerated. Lessons from other countries such as Brazil and Thailand would be helpful to improve management of ARVs [8]. However, local and appropriate interventions are necessary to address the human resource constraints in the supply chain of pharmaceuticals.

The study further showed that few workers had received training in HIV/AIDS pharmaceutical management. The assessment showed a need for training in ARV supply management and use in the four countries. In addition to training, there is a need to develop clear and concise guidelines on the supply management and use of ARVs. Training methods that draw health workers away from their workplaces for long periods are unpopular. On-the-job training and short in-country workshops with regular follow-up have been reported as effective elsewhere [9].

When the assessment was conducted, the World Bank and the World Health Organization (WHO) in collaboration with the Joint United National Programme on HIV/AIDS (UNAIDS), the United Nations Children's Fund (UNICEF) and the Global Fund for AIDS, Tuberculosis and Malaria (GFATM) were delivering a series of training courses on managing procurement and logistics of HIV/AIDS drugs and related supplies [10]. The target audience, however, were mainly senior staff from governments, donor agencies, international organizations and NGOs responsible for the procurement and/or distribution of ARVs, and not facility-level health care workers. The country assessments indicated the need for training with emphasis on health care workers involved with pharmaceutical supply management at the facilities. Collaboration between international organizations with local groups such as academic institutions is likely to produce more sustainable results.

Even though retail pharmacy outlets dispensed ARVs in Kenya, Tanzania and Uganda, clinical training programmes on ART seldom included them. Future training initiative should include private pharmacies. In Kenya, policy-makers believe that professional bodies such as the Kenya Pharmaceutical Society could contribute significantly to the training of community pharmacists providing ART services.

Conclusions

Capacity for ARVs supply management in Kenya, Rwanda, Tanzania and Uganda were found to be limited, due many problems. These problems included poor human resource with inadequate skills and capacity to select, quantify and distribute the drugs, with irrational prescribing and dispensing. There is thus a need to provide training in drug supply management in all four countries. Training processes that include local institutions are more sustainable and likely to cover wider geographical areas. The preferred modes of training are on-the-job training and short courses that do not draw participants away from their workplaces.

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Figure legend

Figure 1. Distribution of health care workers managing HIV/AIDS pharmaceuticals in Uganda

Tables

Table 1. Category of institutions surveyed in the four countries

Category of Institution	Kenya	Rwanda	Tanzania	Uganda	Total
Public Institutions	6	7	8	6	27
Private not-for-profits	5	3	3	7	18
Private for profit	2	1	-	2	5
Academic institutions	-	1	1	2	4
Total	13	12	12	17	54

Table 2. Health care workers interviewed on the supply management of HIV/AIDS pharmaceuticals in Kenya, Rwanda, Tanzania and Uganda

Profession	Kenya	Rwanda	Tanzania	Uganda	Total
Doctors	9	1	2	8	20
Pharmacists	18	6	3	5	32
Nurses/Midwives		8	9	10	27
Pharmacy Technicians	7		2	11	20
Clinical officers				1	1
Social workers		9			9
Others	-	-	1	-	1
Total	34	24	17	35	110

Table 3. Identified human resource-related problems, perceived causes and suggested interventions

Identified problem	Perceived cause	Suggested intervention
Inefficient selection of medicines	<ul style="list-style-type: none"> • Lack of training on selection methods 	<ul style="list-style-type: none"> • Training on selection
Drug shortages/ Expiries	<ul style="list-style-type: none"> • Inappropriate quantification methods • Poor inventory management practices 	<ul style="list-style-type: none"> • Training on quantification methods • Training on inventory management
Inappropriate prescribing	<ul style="list-style-type: none"> • Inadequate training • Insufficient number of prescribers 	<ul style="list-style-type: none"> • Training on appropriate prescribing • Training more prescribers • Review prescribing laws and regulations to allow more health care cadres to prescribe
Inappropriate dispensing	<ul style="list-style-type: none"> • Inadequate training 	<ul style="list-style-type: none"> • Training health care workers on appropriate dispensing practices
Non-adherence to ART	<ul style="list-style-type: none"> • Inadequate counseling • Inadequate monitoring and reporting 	<ul style="list-style-type: none"> • Build skills on appropriate counseling techniques • Training on monitoring and reporting
Inadequate levels of staffing	<ul style="list-style-type: none"> • Limited funding for training and education • Poor remuneration and working conditions 	<ul style="list-style-type: none"> • Mobilization of more funding for training and education • Improve remuneration and working conditions
Geographical staffing inequity	<ul style="list-style-type: none"> • Preference for working in certain geographical locations, such as cities 	<ul style="list-style-type: none"> • Introduce incentives for working in non-attractive areas

Distribution of healthcare workers managing medicines in Uganda

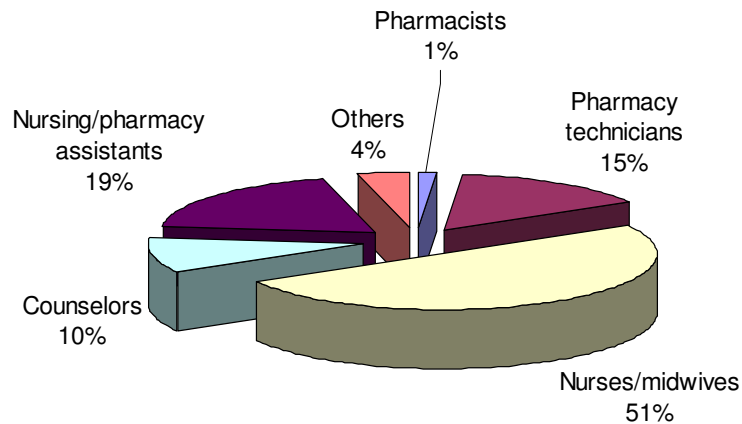


Figure 1