

Finding the best examples of healthcare quality improvement in Sub-Saharan Africa

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ABSTRACT

Background The purpose of this study was to summarise the current state of healthcare quality improvement literature focusing on sub-Saharan Africa.

Methods Conventional methods of searching the literature were quickly found to be inadequate or inappropriate, given the different needs of practitioners in sub-Saharan Africa, and the inaccessibility of the literature.

Results The group derived a core list of what were deemed exemplary quality improvement articles, based on consensus and a search into the “grey” literature of quality improvement.

Conclusions Quality improvement articles from sub-Saharan Africa are difficult to find, and suffer from a lack of centrality and organisation of literature. Efforts to address this are critical to fostering the growth of quality improvement literature in developing country settings.

INTRODUCTION

The objective of this study was to review the body of literature focused on healthcare quality improvement (QI) projects in sub-Saharan Africa. This article describes the process we developed to find, evaluate and select a list of articles that represent the type of QI work being conducted and published in sub-Saharan Africa. The process described offers strategies for QI researchers in developing country settings.

This review of QI projects in sub-Saharan Africa arose from a larger project that was aimed at identifying exemplary health services research studies to serve as the foundation for a curriculum of HSR research in Sub-Saharan Africa, to identify gaps in knowledge and to generate ideas for future research. During this process, our research group developed the initial consensus view that good health services research in Sub-Saharan Africa should:

- ▶ Focus on the immediate improvement of local problems;
- ▶ Use meaningful measures that can be used to track and demonstrate the effectiveness of an intervention; and
- ▶ Be written in such a way that interventions are replicable, measurement methods are clear, and results are comparable (box 1).

As these are all characteristics of QI literature, our research agenda was changed to focus specifically on QI, an approach that is suited to studying health in developing countries, where simple, direct methods of identifying problems and practical solutions are a part of the daily practice of healthcare workers.

Box 1 The priorities of the practitioners of quality improvement in sub-Saharan Africa

His Excellency Vice President of Uganda Gilbert Bahenya, a physician with a PhD in epidemiology, told our group that he was interested in research that focussed on improvement, rather than mere description of problems. The view was echoed by one of our group members, Dr Joseph Babigumira of Uganda, who remarked that, ‘In my country, we know that there are problems. We need solutions.’

The resulting list provides a basis for understanding the breadth and types of QI research being conducted in Sub-Saharan Africa, while the lessons learnt from our process of searching for and selecting these articles provide perspective on the current state of research. Overall, this process highlights the unique qualities of QI literature, challenges of studying and potential changes necessary to strengthen QI research in Sub-Saharan Africa.

METHODS

The research group that developed the protocol and selected the list of exemplary articles was open, self-selected and diverse, including faculty and students from medical and health services research, and including several physicians from Uganda. This diversity of backgrounds invited a diversity of perspectives that benefited the review.

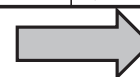
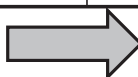
Our protocol originally began with conventional search strategies, including a review of leading journals, attendance at major meetings, contacting elite researchers, extensive literature review utilising PubMed and the evaluation of other articles referenced by these publications. As the work progressed, it became quickly apparent that these traditional approaches to literature review were limited in their ability to identify QI literature from sub-Saharan Africa.

These limitations were the result of the lack of a central mechanism that could catalogue such literature: we found no journals, societies or large meetings related specifically to QI in sub-Saharan Africa. QI literature from sub-Saharan Africa was often unpublished, or appeared only in the ‘grey literature’ of theses, dissertations, government and non-governmental organisation (NGO) reports. This is consistent with another of our group’s

Figure 1 The strategies for reviewing quality improvement articles from sub-Saharan Africa changed based on limitations of the availability of and access to literature.

Evolution of strategy and selection of quality improvement articles from sub-Saharan Africa

Original Strategy Based on Conventional Search Strategies	Contextual factors that limit the utility of conventional search strategies in Sub-Saharan literature	Modified Search Strategy
Search of PubMed	QI literature is frequently not published through conventional journals	In addition to utilizing conventional search strategies: <ul style="list-style-type: none"> •Expand search strategy to include results from the “gray literature”. •Search information clearinghouses of QI information made available by NGO’s and Foundations websites.
Review leading QI journals	There are no prominent journals with a focus on QI in Sub-Saharan Africa	
Attend major QI meetings, contact members of QI associations	There are no major QI meetings or associations related specifically to QI in Sub-Saharan Africa	
Contact researchers for references, mine citations of existing literature	Researchers know work performed in their region, but not beyond	
Conventional Strategy to Select Best Quality Improvement Articles	Evolution of strategy based on group consensus	Modified Evaluation Strategy
Usual criteria for “good” research may focus on methodological rigor and research design.	Criteria for “good research” should emphasize: relevance, applicability, utility of improvement, context, and authorship.	Articles were chosen based on consensus, following guidelines that include an emphasis on relevance, reproducibility, results and authorship by an African author.



observations during the review, that elite researchers in this field were frequently unaware of work beyond their own and that of their students and close colleagues. We thus expanded our search to include the ‘grey literature’ of the internet, with a particular focus on information available from NGO projects that was otherwise unpublished (figure 1).

Furthermore, as we developed our strategy for evaluating the articles that resulted from our search, our group came to the consensus that our list of research articles should provide emphasis on relevance, applicability, ease of replication and usefulness, even more so than methodological rigour and research design, as demanded by some scholarly journals. The group also came to the view that representation of local perspectives is important; thus, our evaluation came to emphasise authorship and topic. Our evaluation of QI from Sub-Saharan Africa was therefore based on the following criteria. Articles must:

- ▶ Demonstrate improvement; improvements of health outcome were preferred over process improvements;
- ▶ Provide a clear description of the intervention so that it can be replicated;
- ▶ Describe outcome measures;
- ▶ Have at least one African co-author;
- ▶ As a body, cover a range of health issues reflecting important regional diseases (tuberculosis, malaria, HIV/AIDS, etc) and health conditions such as maternal and child health.
- ▶ As a body, represent intervention in a variety of countries.

Just as goals and evaluation criteria changed, our actual research strategy evolved over time, beginning with a search of PubMed. We used ‘Health Services Research’ instead of ‘QI’ as our search term of choice so as to identify articles that qualify as QI according to our definition but are not labelled as such. The term, ‘Health Services Research,’ combined with the term, ‘Sub-Saharan Africa,’ or with a specific country name (eg, Ghana), in total yielded over 1300 citations. We excluded epidemiological or descriptive studies based on a review of titles. Additional articles were identified through NGO and foundation websites, and

through enquiries sent through our contacts. We extended the review into the francophone literature, which is important for French-speaking countries in sub-Saharan Africa.

This search resulted in a total of 50 or so articles. Given the paucity of articles, we chose not to invoke a structured approach using checklists, Delphi methods, formal criteria development and voting. We instead developed our list through a process of group consensus and discussion that benefited from a diversity of viewpoints within the group and from repeated reference to our basic criteria for evaluating QI literature in sub-Saharan Africa. The voice of the African members prevailed in case of disagreement.

Once a relevant title was found and the abstract reviewed, we found it frequently difficult to access the full text of an article. Some journals were not available to us in any electronic or paper form, even through our institution’s generous access to journals, both online and in hard copy. We believe that the difficulties in searching for QI literature in developing countries are additionally compounded by a lack of resources, including high-speed computer access.

RESULTS AND DISCUSSION

This search resulted in the following list of articles that our group believes is the best of QI literature that exists in Sub-Saharan Africa in the last 10 years. The list is short, which we believe reflects not to much on a lack of progress in the field of QI over the decades but rather the difficulties in finding that work that we reflected on earlier. We know already of multiple examples of successful interventions in sub-Saharan Africa: in the last few decades, vaccine programmes have led to the elimination or near-elimination of smallpox, polio and measles.^{1,2} HIV/AIDS is increasingly regarded as a chronic, rather than terminal, illness. River blindness (onchocerciasis), hepatitis B, leprosy, neonatal tetanus and iodine deficiency are manageable.³ Despite such extraordinary advances, it was difficult to find published reports of these improvements in the research literature reviewed.

RECOMMENDED TEXTBOOKS AND RESOURCES

Background reading

For background reading, two recommended textbooks are edited by Dean Jamison: *Diseases and Mortality in Sub-Saharan Africa* 2nd edition⁴ and *Disease Control Priorities in Developing Countries* 2nd edition.⁵ The latter textbook is organised by disease.

For advice about practical work at the village level, see Oxfam's *Field Directors Handbook*⁶ and David Werner et al's *Where There is No Doctor: A Village Health Care Handbook*.⁷

The following websites are useful:

- ▶ Africa Journals online (<http://www.ajol.info/>): this covers the current literature across many fields.
- ▶ Institute for Healthcare Improvement (<http://www.ihl.org/>): the Institute for Healthcare Improvement site has a section on their African improvement projects.
- ▶ The Quality Assurance Project of USAID (<http://www.gaproject.org/>): this repository of information, sponsored by USAID, was the most extensive source of QI reports found online. The website makes publications behind the method of QI available, as well as project reports from Benin, Kenya, Malawi, Mali, Rwanda, South Africa, Tanzania, Uganda, Zambia and Zimbabwe.

Articles

The following articles are our group's preferred examples of QI in Sub-Saharan Africa (table 1).

DISCUSSION

The approach to finding QI articles from sub-Saharan Africa resulted in a list of articles that exemplify the breadth and scope of QI in sub-Saharan Africa. We made a number of observations that relate to the structural and organisational barriers to the development of QI in sub-Saharan Africa.

First, QI articles from sub-Saharan Africa are difficult to find, which we believe to be a universal problem (see box 2).

This is in part because QI articles from all regions of the world, not just sub-Saharan Africa, are difficult to find, partly because change agents are too busy to write up their work, and also because academics who are engaged in the publishing of research are often untrained in the hands-on, in-the-fieldwork of improvement. However, the QI and HSR literature of sub-Saharan Africa is even less centrally organised than QI research from other countries. Regional meetings, societies, dedicated journals and funding agencies do not exist to support QI as they

Table 1 Preferred examples of quality improvement in Sub-Saharan Africa

Citation	Description
Articles from USAID quality improvement projects	
(1) Lin Y. Quality in action in Rwanda: case studies. Bethesda (MD): published for the US Agency for International Development (USAID) by the Quality Assurance Project (QAP), 2003.	Eighteen staff members from two hospitals and four health centres assessed family planning services at each other's facilities. Interesting insights describe team-based problem solving, service reorganisation to reduce waiting times, and attitude change. Activities/tools: Five data-collection instruments are described, a client-flow data compilation form is pictured, and two examples of assessments are shown' (from the website).
(2) Assessing the quality of facility-level family planning services in Malawi: http://www.qaproject.org/pubs/PDFs/malawicasestudy.pdf	This page lists the quality assurance projects that come from Niger.
(3) Reports from the USAID quality improvement projects in Nigeria: http://www.qaproject.org/pubs/pubscountryindex.html#niger	This article described the development of CMMs, informational handouts that were meant to guide healthcare providers in the treatment of patients. Each patient was provided with their own condition-related CMM, which was maintained in the patient's chart or on the wall near the patient's hospital bed to inform providers of the treatment protocol, what treatment was provided when and by whom, and what to do in the case of a critical event occur. This report described a study that implemented two CMMs, introduced about a year apart in a 500-bed hospital where such job aids had not previously been used. The process of planning and implementing the CMMs, the results from this particular implementation, and recommendations for further use of CMMs in developing countries was discussed. Appendices included two CMMs; one for pregnancy-induced hypertensive disorders, and the other is for postpartum haemorrhage.
(4) Improving the management of obstetric emergencies through case management maps: http://www.qaproject.org/pubs/PDFs/UgandaCMMs.pdf	This article is a comprehensive review of a multisite QI initiative by non-profit, NGO Association for Voluntary Surgical Contraception International and its local partners. Their results suggested how a centrally organised QI effort builds capacity that creates ideal conditions for QI, and how generic tools can be adapted to suit local needs and conditions.
Other articles	Mock <i>et al</i> represents a strategy that improved an existing informal emergency transport service network in Accra, Ghana. The strategy used to identify gaps in knowledge and to demonstrate improvements highlights some of the challenges in evaluation that similar studies might confront.
Dohlie MB , Mielke E, Mumba FK, <i>et al</i> . Using practical quality improvement approaches and tools in reproductive health services in east Africa. <i>Jt Comm J Qual Improv</i> 1999; 25 :574–87.	The introduction of manual vacuum aspiration proved to be a simple and effective solution for improving care of the victims of illegal abortions. Clear outcomes related to patient care (such as wait times), and clinical operations are listed.
Mock CN , Tiska M, Adu-Ampofo M, <i>et al</i> . Improvements in prehospital trauma care in an African country with no formal emergency medical services. <i>J Trauma</i> 2002; 53 :90–7.	These two articles represent two stages of a QI project to address tuberculosis control in Senegal. The first article describes qualitative efforts to identify specific barriers to tuberculosis treatment. The second article describes a randomised control study that used quantitative measures to evaluate the success of the designed intervention.
Bradley J, Sikazwe N, Healy J. Improving abortion care in Zambia. <i>Stud Fam Plann</i> 1991; 22 :391–4.	A checklist of structure and process good practices was used to make improvements in 304 TB clinics.
Hane F , Thiam S, Fall AS, <i>et al</i> . Identifying barriers to effective tuberculosis control in Senegal: an anthropological approach. <i>Int J Tuberc Lung Dis</i> 2007; 11 :539–43.	This study evaluated the implementation of a tuberculosis control intervention in an NGO hospital in Malawi. The success of the intervention is evaluated by a set of outcomes explicitly explained in the article.
Thiam S , LeFevre AM, Hane F, <i>et al</i> . Effectiveness of a strategy to improve adherence to tuberculosis treatment in a resource-poor setting: a cluster randomized controlled trial. <i>JAMA</i> 2007; 297 :380–6.	
Aziz M , Bretzel G. Use of a standardized checklist to assess peripheral sputum smear microscopy laboratories for tuberculosis in Uganda. <i>Int J Tuberc Lung Dis</i> 2002; 6 :340e9.	
Kelly , Paul M. Local problems, local solutions: improving tuberculosis control at the district level in Malawi. <i>Bull World Health Organ</i> 2001; 79 :11117. TB cure rates for treatment survivors rose from 29% in 1990–1991 to 92% in 1992–1993.	

CMMs, case management maps; NGO, non-governmental organisation; QI, quality improvement; USAID, US Agency for International Development.

Box 2 The experience of our group informed our conclusion that inaccessibility directly influences the utility of quality improvement articles from sub-Saharan Africa, and that centralisation and better infrastructure for such literature is a critical step towards strengthening this body of work

- ▶ Our advisory group received this email in April, 2007, representative of the difficulty of accessing quality improvement (QI) research.

Dear Dr Katamba:

One of our staff members in the World Health Organization (WHO) Regional Office for South-East Asia is very much interested in your article, entitled 'Patients perceived stigma associated with community-based observed therapy of tuberculosis in Uganda,' published in the 2005 issue of *East African Journal of Medicine*:82337–42. After trying to acquire it from our sources without any success, we are requesting you to kindly share it with us if possible.

Awaiting your reply.

Regards,

Ms AC

World Health Organization

Regional Office New Delhi, India.

- ▶ Even with appropriate access to the internet, a location in a large city with reasonable proximity to academic institutions, and the backing of a major international organisation, Ms AC was unable to access an article in one of East Africa's major journals. Studies from sub-Saharan Africa are not only difficult to find, they are difficult to access.

do in North America. QI research tends to appear in disease-specific journals, while researchers are more likely to attend disease-specific instead of QI or HSR-specific conferences. We observed, too, that local researchers appear to often work in relative isolation from other QI practitioners in this region. For

example, co-authorship, when it occurs, takes place between researchers from sub-Saharan Africa and a European or North American country. Co-authorship between researchers from different sub-Saharan Africa countries is infrequent, unless the project in question is multicountry in its funding and design.

Given the lack of centrality and organisation described, and given the difficulty in identifying QI research in the broader disease-specific literature and the grey literature, it is likely that this list of articles is incomplete and that there are more good QI studies of which we are unaware. It is possible, too, that there is QI research unknown to us that has not yet been written and published. Our group made efforts to overcome these limitations in searching the literature, including distributing advertising our activities through a handout at the American Public Health Association, in an attempt to solicit feedback, and to encourage others to inform us of work we had failed to include. We also have attempted to establish a web presence (<http://epbiwww.case.edu/hsrssa>), where a working list of QI articles was posted, and where our group could be found and contacted. Thus far, there have been no replies beyond those we solicited ourselves. Whether this lack of response is because we have indeed achieved a relatively complete list of good QI research in sub-Saharan Africa or because the list has not been distributed broadly enough, comments and additions are welcome.

Competing interests None.

Provenance and peer review Not commissioned; externally peer reviewed.

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