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Quality of clinical laboratory services in Rwanda

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Abstract

Introduction—The poor quality of health care is a serious silent public health problem worldwide, resulting in deaths, disabilities, and long hospital stays with unnecessary costs. It affects patients in all countries regardless of their level of development. Estimations show that 64 million DALYS are lost yearly worldwide due to unsafe health care and is one of the top 10 causes of mortality and disability in the world. Four out of 10 patients are harmed while getting health care in primary and outpatient healthcare services. Most of these unsafe cares are due to errors of diagnosis, prescriptions and use of medicines. Better management of patients would be accomplished with clearer diagnostics. The clinical laboratories play a central role in quality of healthcare when they provide accurate and reliable test results for timely and evidence-based diagnostic for management of patients, surveillance and control of diseases. The aim of this thesis was to study the quality of clinical laboratory services in Rwanda to contribute to the quality of health care in Rwanda and other similar settings.

Methods—This thesis is built on four sub-studies that used mainly primary data collected in five clinical referral laboratories and related hospitals as well as in 11 health centers (Paper I-IV). To assess the quality performance of laboratories, the WHO SLIPTA checklist was used to score laboratories and to analyze the trend in quality performance (Paper I). The factors explaining the status of quality performance of laboratories were explored using key informant interviews qualitative data with thematic analysis (Paper II). Physicians' satisfaction with laboratory services was conducted using structured questionnaire with Likert scale and open-ended question. All eligible physicians from four referral hospitals (N=507) were invited to participate in the study (Paper III) and 91% provided their feedback. Descriptive statistics and ordered logistic regression were performed and qualitative data were analyzed with thematic approach. To identify pathogenic viruses circulating in Rwanda with no available diagnosis, we sampled 11 health centers for febrile patients with acute infections that were malaria test negative (n=2313). Selected arboviruses were analyzed from blood samples using PCR (Paper IV).

Results—In 2017, only one referral laboratory scored the highest level, five stars, which was an increase from 4 stars in 2012. The other four laboratories had decreased in quality performance. The factors explaining the decrease were mainly insufficient coordination for continuous quality improvement, lack of mentorship, and regular external assessment of laboratory to identify and address the gaps. Only thirty-six percent of physicians were satisfied with laboratory services in referral hospitals. Seventy percent were satisfied with the reliability of test results, while only 19% were satisfied with the turnaround time, and improved virus diagnostics was sought after. In general, pediatricians, internists and more experienced physicians were less satisfied. Over 2000 samples from acute, febrile patients were sampled in 11 health centers from different provinces of Rwanda and are now stored in a unique biobank for future analysis. The results so far shows that o'nyong-nyong and Zika viruses are circulating in Rwanda.

Conclusion—Despite the improvement in quality performance with SLMTA program, most laboratories, decreased the performance in their follow-up assessments compared to their end lines. Resuming external assessments, investing in leadership and planning would lead to the good quality laboratory performance. For sustainability, the SLMTA program should be institutionalized and LQMS should be integrated in pre-service and CPD training. Extended diagnostics for infectious diseases should be considered. The achievement of quality of health care, the universal health coverage, and the global health security are not possible without quality of laboratory services that guide the pathway through accurate and reliable tests results.

Keywords: Quality of healthcare, SLMTA, laboratory, diagnostic, Quality management system, Rwanda.

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