TECHNICAL REPORT

Staff and Student Survey on Perceptions of the Integration of Quality Improvement into Pre-service Training at Three Medical Training Institutions in Kenya

JULY 2017

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DISCLAIMER

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For more information on the work of the USAID ASSIST Project, please visit www.usaidassist.org or write assist-info@urc-chs.com.

Recommended citation

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Acronyms

ART  Antiretroviral therapy
ASSIST  USAID Applying Science to Strengthen and Improve Systems Project
BBB  Bottlenecks and Best Buys
CPD  Continuous Professional Development
DHSQAR  Directorate of Health Standards, Quality Assurance and Regulation
FKP  FUNZO Kenya Project
IOM  Institute of Medicine
ISO  International Organization for Standardization
KeMU  Kenya Methodist University
KMTC  Kenya Medical Training College
KQMH  Kenya Quality Model for Health
MOH  Ministry of Health
OHA  USAID Office of HIV and AIDS
OHS  USAID Office of Health Systems
PST  Pre-service Training
QA  Quality Assurance
QI  Quality Improvement
QM-TWG  Quality Management Technical Working Group
RHTC  Rural Health Training Center
TIs  Training Institutions
URC  University Research Co, LLC
USAID  United States Agency for International Development
WHO  World Health Organization
I. INTRODUCTION

The limited competency of health care workers to continually improve the care they are providing contributes to problems, such as poor retention in HIV care and treatment or low uptake of antiretroviral therapy (ART) among pediatric HIV-infected population. Building a workforce that has the technical competence to innovate and address gaps in critical programs, such as HIV or maternal newborn health, is often overlooked as a strategy in most health assistance priorities. The best way to begin systematic competency building for continuous improvement is through integration in pre-service training curriculums. Developing the core competencies of health workers in improvement is a key contribution towards strengthening health systems. By preparing health care students to be able to continually improve HIV, maternal newborn health, and other services, they will achieve better outcomes once they are in practice and it will encourage them to develop a culture of quality early in their careers.

Common barriers to quality improvement (QI) implementation include lack of capacity in QI, inadequate resources, and context. These barriers also carry into the pre-service academic setting in which faculty need to have competency in QI and resources (time, materials) to be able to incorporate QI into classroom and practicum training. Before embarking on the integration of QI into existing pre-service curricula for health workers, it is important to get an understanding of the current situation and readiness of the institution to make the change based on evidence. This report provides an example of an initial assessment from Kenya at three medical training institutions with diverse contexts, which can provide lessons learned for other institutions and countries.

A. Kenya Background

In 2015, the USAID/Washington Office of HIV/AIDS (OHA) and Office of Health Systems (OHS) requested that the USAID Applying Science to Strengthen and Improve Health Systems (ASSIST) Project, managed by University Research Co., LLC, to work with health worker training institutions in one country to integrate improvement competencies into their existing pre-service curriculum. Kenya was chosen as a demonstration country as there was an ongoing Ministry of Health pre-service curriculum development committee under the Quality Management Technical Working Group (QM-TWG) supported by ASSIST, which included designing a quality improvement module for pre-service health care training institutions. However, the QM-TWG had not been able to progress much on this task. ASSIST teamed up with the Kenya Ministry of Health (MOH) Department of Health Standards, Quality Assurance and Regulation (DHSQAR) and the FUNZOKenya Project (FKP) to integrate improvement into the curricula of Kenyan health worker training institutions.

This activity provided additional technical assistance to begin the process of improvement module development in four pre-service medical training institutions: Kenya Medical Training College (KMTC), Moi University, Kenya Methodist University (KeMU), and University of Nairobi. KMTC trains over 80% of health workers in the country and the practicum site involved in this activity serves the county with the highest HIV prevalence, so integration of improvement in their curriculum would have a far-reaching impact on health workforce development and HIV care. The work built on existing collaboration between the MOH and ASSIST on the development of in-service training materials for the Kenya Quality Model for

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Survey on the Integration of Quality Improvement into Pre-service Training

Health (KQMH), but this course has not been mainstreamed at the national level or within pre-service training institutions. The activity also drew upon the East Africa Core Competency Framework for Quality Improvement, developed with stakeholders from across the region with support from USAID/East Africa through the Regional Center for Quality in Health Care, based in Uganda, and ASSIST.

One of the first steps in the process was to conduct a simple assessment at each of the participating training institutions on the perceptions of readiness, capacities, and needs for QI integration of training institutions. The survey was designed based on existing FKP assessment tools and the KQMH as a cross-sectional survey to generate information that would inform the design of capacity building interventions on improvement. This report documents the findings generated in the assessment in three of the four participating institutions: Kenya Medical Training College (KMTC), Moi University, and Kenya Methodist University (KeMU).

II. ASSESSMENT OBJECTIVES

The purpose of the assessment was to generate information based on student and staff perception and understanding of QI to inform the curriculum structure, content, and implementation approach, as well as the required capacity building for the institutions to facilitate successful implementation of a QI module. Through initial conversations with the institutions, it became clear that QI was not taught as a topic and therefore a systematic review of all curricula for QI was not necessary. The specific objectives were to:

1. Determine the perception of inclusion of quality improvement-related content and delivery in the participating training institutions’ curricula.
2. Determine the state of institutional resources and staff capacities to integrate QI into the existing curriculum and deliver the material.
3. Determine the state of readiness, including leadership and commitment to QI integration.

III. ASSESSMENT DESIGN AND METHODS

A. Survey Tools

The assessment was designed as a cross-sectional survey as the most appropriate design for an exploratory survey. The initial draft survey tool was developed by a consultant to the USAID ASSIST Project based on existing FKP frameworks and tools and the KQMH. FKP is the leading organization providing technical assistance to the MOH on curriculum review; therefore, ASSIST worked closely with them and utilized their MOH-approved approaches and tools. The tool was adapted from the FKP bottlenecks and best buys (BBB) tool which seeks to appraise nine thematic areas of medical education systems; three areas (curriculum, staff, and clinical practicum) were found relevant to the QI integration.

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5 The University of Nairobi participated in the activity as an observer for possible future integration, but did not participate in the survey.
The KQMH is the key policy on quality improvement in Kenya and therefore was the reference document for topics to be covered. The tool was designed to be used with students, faculty, and administrative staff at the training institutions and administered by a faculty member who was participating in the activity.

The tool was reviewed and refined by FKP, MoH, ASSIST, and faculty from the participating institutions during two workshops. The tool was pre-tested on a larger group of faculty attending a later workshop for the activity, who gave valuable inputs that were used to revise the tool. The tool was further pre-tested by the KeMU team at their practicum facility at Mbale Health Center. Mbale Health Center is the main referral facility for Vihiga County, which has an HIV prevalence of 5.8% among pregnant women and 4.7% among the general population, compared to the national HIV prevalence rate of 5.9%. The center was selected purposely as the main facility used by KeMU as its practicum site. Students are posted in administrative and clinical units that serve all patients, including those with HIV and related conditions and service needs. The resulting questionnaire that was used to collect data consisted of structured questions designed on a Likert scale along with some yes/no and open-ended questions (see Appendix I: Questionnaire).

The questionnaire covered general and demographic information, readiness and capacity variables, general quality domains, and some specific questions on quality improvement approaches and tools. The variables were clustered into thematic areas signifying different aspects of quality and potential association captured in an analysis framework with the aim of facilitating analysis (see Appendix II: Analysis Framework).

B. Assessment Sites

The assessment took place in three training institutions and associated practicum facilities as shown in Table 1.

<table>
<thead>
<tr>
<th>Training institution</th>
<th>Practicum facility</th>
<th>HIV situation</th>
</tr>
</thead>
<tbody>
<tr>
<td>KeMU</td>
<td>Mbale Sub-county Hospital</td>
<td>Mbale RHTC serves a population with HIV prevalence of 5.8% among women and 4.7% in general population</td>
</tr>
<tr>
<td>KMTC</td>
<td>Mbagathi County Hospital</td>
<td>Mbagathi Hospital serves a population with HIV prevalence of 7.6% among women and 6.1% in general population</td>
</tr>
<tr>
<td>Moi University</td>
<td>Mosoriot Sub-county Hospital</td>
<td>Mosoriot RHTC serves a population with HIV prevalence of 3.5% among women and 2.4% in general population</td>
</tr>
</tbody>
</table>

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Two of the practicum facilities served relatively high HIV prevalence populations (Mbagathi Hospital and Mbale Rural Health Training Center), while one served a relatively low HIV prevalence population (Mosoriot Rural Health Training Center). The students are posted to clinical areas, including outpatient, maternity, and general wards, all of which are expected to serve patients with HIV and related conditions.

C. Sampling and Sample Size

Four categories of respondents were assessed: Institutional or program heads/deans (administrators); faculty; practicum facility managers and clinical instructors (clinical instructors); students in third/final year of study. However, for the purposes of analysis, the respondents are grouped in two categories: 1. staff, including administrators, faculty, and clinical instructors (referred to as “staff”) and 2. students.

Students and staff were sampled purposefully with an effort to maintain equitable distribution between academic programs and maintain gender equity. Within these broad guidelines, the institutional technical teams generated a list of participants. Academic program leaders were limited to those who were available the day on which the survey was conducted. In practicum sites, all clinical personnel and unit heads were assumed to engage with students on practicum in some way and thus invited to participate.

In mobilizing staff and students, institutional teams were expected to consider the factors mentioned in the paragraph above. However, the selection criteria may not have been followed exactly due to administrative and logistical reasons. For example, the assessments were conducted during institutional board meetings and therefore engaged those who were available to attend. Students who were available were mobilized in 30-to-60-minute sessions, during which they completed the self-administered questionnaire in the presence of one of the survey team members.

The technical team sought to recruit about ten percent of students and staff each. In the event of encountering operational difficulty in obtaining the required sample size, the institutional teams were encouraged to aim for a minimum of 30-40 as recommended by Hogg et al. and Roscoe.8,9

D. Data Collection, Protection, and Analysis

All data forms and records collected during the assessment were held in a secure location for the duration of the assessment and subsequently sent via courier to ASSIST offices in Nairobi. Confidentiality of all respondents was assured by not including any personal information in the completed tools. Data from all sites were collated and entered in an Excel database by a data officer and subsequently imported into an SPSS database. Using SPSS 16.0, descriptive analysis and frequency runs were done and presented in graphs, which enabled comparison along different dimensions, between institutions, and between respondents. For simplicity in analysis, the five-point Likert scale (Strongly Agree=1, Agree=2, Neutral=3, Disagree=4, Strongly Disagree=5, Don’t Know=6) was condensed to three categories (Agree=1 and 2, Not Sure=3 and 6, Disagree=4 and 5). Most tables in this report will present the percent of positive, or agree, responses for a given question. Given that the administrative staff for analysis were few, they were grouped with faculty and analyzed together.

E. Ethics

Permission to conduct the survey was obtained from the Ministry of Health through the DHSQAR, as well as from the administrations of collaborating training institutions. The process of conducting the

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assessment conformed to standard research ethics and quality standards according to the principles of the Declaration of Helsinki.\(^{10}\)

**IV. SELECTED KEY RESULTS**

The results below are selected highlights of the survey results, which focus on the perception of quality improvement content in existing curriculums and inform the development of curriculum going forward. Each of the participating institutions and the MOH in Kenya received a more comprehensive, institution-specific analysis.

**A. Demographics**

The total number of staff respondents (administrators, faculty, and clinical instructors) was 99, with KMTC and Moi University accounting for 40 each, as shown in Table 2 below. This, by extrapolation, accounts for approximately 10% of total staff per establishment. The total number of student respondents was 316, with a good balance between males and females.

Moi University had a limited number of student respondents. At the time of the assessment, the majority of students were in the field for practicum. While they were asked to complete the assessment upon their return, at the time of compiling this report their completed tools had not yet been received.

**Table 2. Respondents by institution and gender**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Staff</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Females</td>
<td>Males</td>
</tr>
<tr>
<td>KeMU</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>KMTC</td>
<td>18</td>
<td>22</td>
</tr>
<tr>
<td>Moi Univ.</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

**B. Institutional Readiness for QI (Readiness Domain)**

This domain looked at institutional policies and practices and staff and student beliefs to determine whether the institution was ready to integrate QI into their curriculum.

1. **Pressure for QI integration**

This domain seeks to understand whether the institutions’ administration, faculty and students are open to and interested in integration of QI into their curriculum. Pressure for QI integration meant repeated calls for or advocacy to integrate QI. Respondents were asked if there is a perception that there is pressure for educational transformation to integrate QI. The majority of respondents agreed with this perception; with 84%, 83%, and 96% students at KEMU, KMTC, and Moi University, respectively, agreeing there was pressure to integrate quality improvement. Staff at the three institutions felt this pressure more strongly with 95% at KEMU responding "yes", 92.5% at KMTC and 97.5% at Moi University.

2. QI initiatives in the institution

Consistently, staff reported less awareness of existing QI initiatives at their institution than students. Less than half of staff were aware of QI initiatives in the institution. Moi University staff had the lowest responses, with only 15% of staff responding that they were aware of QI initiatives at the institution. However, 78.5% of students at Moi University responded that they were aware of QI initiatives. KeMU also reflected different perceptions with 36.8% of staff and 53.1% of students responding that they were aware of QI initiatives. At KMTC, 40% of staff and 50.6% of students were aware of QI initiatives within the institution. Those respondents who responded in the affirmative were asked to name the initiatives. Table 3 below shows that the most frequently cited initiatives were ISO certification and setting up of a QA department and systems. The lack of awareness of QI initiatives may reflect a lack of communication about the activities within the institution, rather than the absence of initiatives. Most of these initiatives were mentioned during introductory meetings with institutional leaders and program heads when institutions were being mobilized to participate.

<table>
<thead>
<tr>
<th>Specific QI initiatives</th>
<th>Frequency of mention</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO certification</td>
<td>15</td>
</tr>
<tr>
<td>QA Department/structures/systems set up</td>
<td>12</td>
</tr>
<tr>
<td>Curricula review</td>
<td>9</td>
</tr>
<tr>
<td>CME/Grand rounds/Scientific conferences</td>
<td>10</td>
</tr>
<tr>
<td>University has a quality management standards and policies</td>
<td>9</td>
</tr>
<tr>
<td>QI training and team</td>
<td>5</td>
</tr>
<tr>
<td>Appraisals/evaluations</td>
<td>5</td>
</tr>
<tr>
<td>Innovations (e.g., information communication technology adoption)</td>
<td>5</td>
</tr>
<tr>
<td>Standards established</td>
<td>0</td>
</tr>
<tr>
<td>Timely documentation</td>
<td>0</td>
</tr>
<tr>
<td>Master’s program</td>
<td>0</td>
</tr>
<tr>
<td>Exit interviews</td>
<td>0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>6</td>
</tr>
</tbody>
</table>

3. QI content in current curriculum

A minority of staff respondents stated that the current curriculum does contain QI content (as defined by the six domains of effectiveness, safety, efficiency, timeliness, patient-centeredness, and equitable care used in the KQMH), with 42.1% of staff at KeMU, 45% at KMTC, and 40% at Moi University. Students were less likely to say that curriculum included QI content, with 15.6% of students at KeMU, 30% at KMTC, and 40% at Moi University.

4. Need for QI integration

A majority of respondents stated that there is a need for the integration of QI content into curricula. KeMU were unanimous about the need for integration as well as a majority at KMTC (90%) and at Moi University (92.5%). Student respondents in all the training institutions reflected the same need for integration (KeMU 93.7%, KMTC 98%, 100% Moi University).
5. QI-related indicators being tracked

Staff respondents were asked to check all measures of QI that were currently being tracked in their institutions in some way from a list. The list was generated from standard quality and QI frameworks and triangulated with those generated during introductory meetings with institutional academic leaders. It was assumed that the discussions with institutional teams were informed by academic management and program reports and that these indicators were tracked at the practicum facilities. Respondents identified educational programs, efficient use of resources, patient satisfaction, and adherence to clinical care protocols as the most frequently used measures. Error! Reference source not found.4 below shows the list of QI indicators being tracked by frequency of response (out of 99 respondents).

Table 4. QI-related indicators being tracked by the institution

<table>
<thead>
<tr>
<th>QI Indicators being tracked</th>
<th>Frequency (n=99)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeliness of care</td>
<td>43</td>
</tr>
<tr>
<td>Patient satisfaction</td>
<td>46</td>
</tr>
<tr>
<td>Equal quality of care to all patients</td>
<td>41</td>
</tr>
<tr>
<td>Efficient use of resources</td>
<td>51</td>
</tr>
<tr>
<td>Educational (academic) programs</td>
<td>67</td>
</tr>
<tr>
<td>Clinical care protocols</td>
<td>46</td>
</tr>
<tr>
<td>Facility mortality audit</td>
<td>25</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
</tr>
</tbody>
</table>

6. Additional readiness domains

There was variation in the perception of the readiness of different institutions for QI integration, which is shown in Error! Reference source not found.. The three graphics below present the range of answers between the institutions based on the staff perceptions. While students were also asked the same questions, the staff responses are more pertinent as they are more familiar with these domains than the students.
Table 5. Variables reflecting readiness for QI integration

<table>
<thead>
<tr>
<th>Sentence prompts for variables from questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is an information system which tracks QI indicators.</td>
</tr>
<tr>
<td>Motivation for change: There is pressure from key stakeholders calling for integrating QI into pre-service training (PST).</td>
</tr>
<tr>
<td>Our institution/unit has the right structures to implement the revised curriculum integrating QI into PST.</td>
</tr>
<tr>
<td>Our institution/unit has the right systems to implement the revised curriculum integrating QI into PST.</td>
</tr>
<tr>
<td>Our institution/unit has the right competencies to implement the revised curriculum integrating QI into PST.</td>
</tr>
<tr>
<td>The leadership of the institution has manifested commitment to integrating QI into pre-service curriculum.</td>
</tr>
<tr>
<td>The curriculum committee is fully functional to support the curriculum review process integrating QI into PST.</td>
</tr>
<tr>
<td>All faculty and staffs of affiliate institutions have personal responsibility for successful implementation of QI in PST.</td>
</tr>
<tr>
<td>The institution has adequate resources (funding, staff development) to affect the change.</td>
</tr>
<tr>
<td>The institution has mechanisms for motivating/incentivizing performance improvement.</td>
</tr>
<tr>
<td>The institution has a culture and history of effective consultation and communication on important changes such as QI integration into the curriculum.</td>
</tr>
</tbody>
</table>

KeMU

Among KeMU respondents, the domain that reflected the least readiness was in resources for implementing QI integration. As shown in Figure 1 below, only about 10% of staff believed that there were adequate resources for integrating QI into the curriculum. Other related variables with about a third or less affirmation were: performance motivation system, system for tracking QI indicators, and a committee for managing curriculum implementation. The respondents had relatively positive perceptions about QI competencies, manifested commitment of leadership, manifested commitment of staff at affiliated institutions, and having the right structures for integration.

Figure 1. KeMU staff responses to selected readiness domains
Among KMTC respondents, the largest gap in perception of readiness variables was motivation system, followed by resources for QI integration (see Figure 2). These mirrored the responses of KeMU staff, plus included gaps in QI committee and information system. The KMTC staff responded positively to having the right competencies, commitment of affiliated institutions, and right structures for QI integration.

**Figure 2. KMTC staff responses to selected readiness domains**

Like the other institutions, among Moi University staff respondents, the largest gap in perception of selected QI readiness-related variables was resources for QI integration, followed closely by performance motivation system (see Figure 3).

**Figure 3. Moi University staff responses to selected readiness domains**
7. Motivation for change: Source of greatest pressure for QI Integration

Staff were asked what or who they felt was the source of the greatest pressure (understood as repeated advocacy) acting as a driver for integrating QI into curriculums. The most frequent responses from staff to this question were academic program leadership and regulatory bodies (22 responses each), faculty (16), government (10), and public (10). Figure 4 below provides a breakdown of the perception of greatest pressure by institution.

Figure 4. Staff perception of greatest pressure to integrate QI into pre-service training

8. Potential barriers to QI integration implementation

Across the three participating institutions, staff respondents identified ten main barriers or challenges to effective implementation of QI into pre-service training. As shown in Figure 5 below, the three most often cited barriers or challenges were financial constraints, inadequate trained personnel, and infrastructure and equipment.

Figure 5. Staff perceptions of barriers or challenges to effective integration of QI into pre-service training (Number of times each barrier or challenge was mentioned)
9. Knowledge and understanding of QI

Respondents were asked to reflect on their general knowledge and understanding of some key concepts in quality improvement and the existence of key structures to support improvement. There were varied and diverse perceptions within and between the institutions and selected QI-related variables.

Table 6.6 below provides the percentage of respondents who answered positively that they had knowledge and skills for selected topics in QI. For the majority of variables, the percentage of respondents who felt they were knowledgeable about a given topic was less than half. For almost all variables and institutions, students self-report a higher level of knowledge and skills than staff.

Table 6. Percent of respondents who answered positively on self-assessed knowledge and skills in QI

<table>
<thead>
<tr>
<th>Knowledge and skills variables</th>
<th>Student</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>KeMU</td>
<td>KMTC</td>
</tr>
<tr>
<td>Six dimensions of QI</td>
<td>56%</td>
<td>55%</td>
</tr>
<tr>
<td>Key principles, concepts of QI</td>
<td>53%</td>
<td>32%</td>
</tr>
<tr>
<td>Key stakeholders in QI and their roles</td>
<td>41%</td>
<td>32%</td>
</tr>
<tr>
<td>Skills for QI prioritization</td>
<td>59%</td>
<td>55%</td>
</tr>
<tr>
<td>Skills to identify QI performance indicators</td>
<td>59%</td>
<td>59%</td>
</tr>
</tbody>
</table>

Table 7 presents the percentage of respondents who answered positively that there were key actions or structures in place in preparation for integration of QI in their institution. While students answered more favorably than staff, students would not be as aware of many of the variables. KMTC had especially low positive responses on whether faculty QI competency development (training) needs had been assessed (8%) and whether there was ongoing coaching and mentoring program for faculty for QI (5%). The highest positive responses from all groups agreed that the leadership and management provide a conducive environment and support for QI.

Table 7. Percentage of respondents who answered positively on key aspects of preparation for integration on QI in their institution

<table>
<thead>
<tr>
<th>Preparation for integration of QI</th>
<th>Student</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>KeMU</td>
<td>KMTC</td>
</tr>
<tr>
<td>Faculty QI competency development (training) needs assessed and known</td>
<td>31%</td>
<td>32%</td>
</tr>
<tr>
<td>Capacity building strategy for faculty QI competency</td>
<td>34%</td>
<td>45%</td>
</tr>
<tr>
<td>Ongoing coaching and mentorship program for faculty</td>
<td>16%</td>
<td>32%</td>
</tr>
<tr>
<td>Leadership and management provide conducive environment and support for QI</td>
<td>56%</td>
<td>51%</td>
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</table>
10. Other specific issues

The survey asked about other specific issues, such as the level to which practicum facilities address key QI domains and institutional structures and policies that may influence the integration of quality improvement into the curriculum.

Table 8. Percentage of respondents (administrative staff and faculty combined) who answered positively to the presence of selected domains of quality in practicum sites presents the percentage of respondents who answered positively to the presence of selected domains of quality in practicum sites. Students and staff are combined in this table as their response rates were similar. Practicum sites appear to do best at patient-centered care, with around 60% of all respondents feeling that this was present.

### Table 8. Percentage of respondents (administrative staff and faculty combined) who answered positively to the presence of selected domains of quality in practicum sites

<table>
<thead>
<tr>
<th>Selected domains of quality</th>
<th>KeMU</th>
<th>KMTC</th>
<th>Moi</th>
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</thead>
<tbody>
<tr>
<td>Practicum sites have patient-centered care</td>
<td>61%</td>
<td>60%</td>
<td>57%</td>
</tr>
<tr>
<td>Care at practicum sites is timely</td>
<td>55%</td>
<td>41%</td>
<td>26%</td>
</tr>
<tr>
<td>Care at practicum sites is efficient</td>
<td>43%</td>
<td>39%</td>
<td>20%</td>
</tr>
<tr>
<td>Care at practicum sites is equitable</td>
<td>49%</td>
<td>53%</td>
<td>51%</td>
</tr>
</tbody>
</table>

Staff and students were asked about whether their institutions had policies and practical functions in place currently related to teaching QI. Table 9 provides staff responses for some key readiness factors. As the students are less familiar with institutional policies and finances, their responses were not included. The first question asked whether the institution’s vision, mission, values and strategic plans make specific statements about QI and patient safety. The majority of respondents said that these key documents include statements of QI.

### Table 9. Percentage of positive responses from staff respondents on selected factors of institutional readiness for integration of QI

<table>
<thead>
<tr>
<th>Selected factors of institutional readiness for integration of QI</th>
<th>KeMU</th>
<th>KMTC</th>
<th>Moi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vision, mission, values and strategic plan make statements about QI</td>
<td>74%</td>
<td>68%</td>
<td>68%</td>
</tr>
<tr>
<td>Practicum sites have adequate resources for QI training</td>
<td>47%</td>
<td>44%</td>
<td>25%</td>
</tr>
<tr>
<td>Well-oriented and trained faculty on QI</td>
<td>53%</td>
<td>49%</td>
<td>48%</td>
</tr>
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</table>

V. DISCUSSION

Overall, there was agreement between the respondents that there is interest and openness to integration of QI content. Respondents more frequently cited academic program leadership and regulatory bodies as sources of pressure for this work, which implies that there is political will for integration to happen. More than half of respondents had positive perceptions that there is adequate leadership and staff commitment,
but there is a need for additional advocacy to convince management to secure resources and staff time, and avoid bureaucratic delays. The need for strong leadership to enable QI is well documented in the literature, including recommendations by Dixon-Woods et al.\textsuperscript{11} Before beginning the process of QI integration, there needs to be adequate sensitization of administration and faculty to generate support and buy-in.

Less than half of staff respondents in Moi University and KeMU, and only two out of 40 from KMTC, stated that their current curricula integrated QI topics. Most students across the three institutions were not aware of QI content in current curricula. These findings verify earlier discussions between ASSIST staff and the institutional leaders that QI content was not currently included.

For QI to be integrated into curriculum, faculty need to be competent to teach the subject, but there is some inconsistency with views on this. Seventy-two percent (72\%) of KeMU staff responded positively that on an institutional level there is adequate competency to teach QI. However, when staff self-assessed their knowledge and skills for specific aspects of QI, the positive responses ranged from 21\% to 47\%. KMTC staff responses were more comparable for the two questions, with 52.5\% positive responses for adequate institutional competency and self-assessed knowledge and skills ranging between 23\% and 42\%. Moi University staff also responded positively (72.5\%) for adequate competency to teach QI and had consistently higher positive responses to having knowledge and skills for QI than their counterparts, but these ranged from 28\% to 63\%, reflecting gaps in knowledge and skills. Adequately trained staff was the second most noted barrier to integration of QI into curriculums. In addition, there was concurrence among the three institutions that there was limited coaching and mentorship to support QI and that faculty competency development and training needs had not been assessed.

Inadequate infrastructures and equipment, lack of staff training in QI, and financial constraints were the top three commonly listed barriers to a QI integration intervention. These are also commonly documented challenges in health systems strengthening and international literature. Dixon-Wood et al. identify ten challenges, which include capacities and context.\textsuperscript{12} Chen Li-Wu et al. also identified barriers to QI implementation, including low capacity, knowledge gaps, and inadequate resources.\textsuperscript{13}

In addition to the integration of QI into curricula, there were questions about how QI could be incorporated into institutional culture and practice, especially at practicum sites. While a majority (75\%) of Moi University staff respondents were aware of QI initiatives in the institution, less than half of respondents in KeMU and KMTC were aware of QI initiatives. The majority of students in the three institutions were unaware of any QI initiatives. Different perspectives of what constitutes a QI initiative may contribute to this variation. It could also be due to inadequate induction and dissemination of QI intervention information.

Respondents were asked about different facets of their institution, including structure/policy (vision/mission), inputs (resources), strategy (reward of performance), and outputs/outcomes (timeliness and equity), in addition to other variables not covered in this report. Most respondents across the three


\textsuperscript{13} Chen L, Nguyen A, Jacobson JJ, Ojha D, Palm D. Effectiveness and Challenges for Implementing Quality Improvement Activities in Nebraska's Local Health Departments. Front Public Health Serv Syst Res 2012; 1(3). Available at \url{http://uknowledge.uky.edu/cgi/viewcontent.cgi?article=1026&context=frontiersinphs sr}. Accessed on 12\textsuperscript{th} December 2016.
institutions stated that QI was integrated into institutional vision, mission, and strategy. On the other hand, four elements of quality stood out as areas where respondents had lowest perception: lack of reward for QI effort, efficiency, timeliness, and equity. These variables of QI at the institutional level are useful metrics for before and after measurements to gauge the effect of QI integration interventions and effects on the institution. There is a large amount of preparation that the institutions need to be able to integrate QI beyond the development of curriculum.

These findings were used to inform the implementation phase of the project and to inform capacity building of institutional teams to effectively review or develop curricula integrating, delivering, and monitoring and evaluating QI.

A. Limitations

The assessment had several limitations. The same survey tool was used for both staff and students as the technical working group suggested that different tools would become logistically more difficult to manage. This meant that the students were answering questions for which they were not qualified to answer, such as the competency of faculty in QI. (This report covers the most relevant results only.) The survey was not able to reach the number and categories of respondents that may have been desired due to limitations in time and resources, different academic schedules, and busy clinical schedules. Another challenge was related to what is referred to as “survey fatigue,” especially when the potential benefit of engaging in the activity is not immediately obvious. Initial conversations with staff revealed that QI concepts and principles were minimally included in curricula. Therefore, no desk review of curricula was conducted. The meaning of some survey questions remained vague after the pretest.

There is a possibility that the responses that students, faculty, and staff gave were biases, as individuals may have wanted to make the institutions appear to be doing well in all areas. The survey approach was not designed to address this potential bias.

Despite these limitations, as this was an exploratory study, any information generated is useful. The validity and generalizability of the findings was improved by comparing responses of related questions in different thematic areas of the questionnaire, and triangulating with findings during the group discussions, in the individual training institutions, and during two retreat workshops, which followed the assessment.

VI. CONCLUSION

The survey results reflect a large gap between the interest, which is high, and the readiness of the institutions to teach QI on a regular basis; an initiative that requires developing staff competency, setting up a mentoring system, developing classroom curriculum, and designing a practicum piece that allows students to further develop QI skills in practice. A clear plan for faculty professional development related to improvement needs to be designed in tandem with the curriculum. Institutional structures for QI, such as measurement systems, need to be strengthened to ensure that practicum experience with QI is effective and positive.

While much progress has been made in improving HIV care in Kenya over the past ten years, there are still service coverage and provision gaps which are in part a result of weak systems and processes that could be improved with QI interventions. The leadership of academic institutions are well positioned to advocate for QI. Practicum facilities, which by design are high-volume facilities, can spearhead such integration of QI into services. A clear policy gap is exposed in this survey given that institutional and

regulatory body visions, missions, and objectives are explicit about quality, yet curricula do not have QI topics in an examinable manner, and there is no compulsion to include them.

The findings of this assessment are consistent with a pilot study funded by USAID/Office of Health Systems and conducted by the USAID ASSIST Project, which surveyed 25 medical colleges in five sub-Saharan countries on knowledge and training in QI. This study showed that 45% of colleges teach some of the six domains of care and other quality-related topics, but that gaps remain in the curricula and competency of faculty for comprehensive QI training.

While the tools used for this survey need improvement and adaptation by other institutions and settings (see Recommendations below), an initial readiness assessment survey is a useful way to begin the process of integrating QI into pre-service training. Such as an assessment allows the leadership of the initiative to determine the status of faculty preparedness and gauge the level to which QI concepts are being taught, among other things. An institution wanting to undertake efforts to integrate QI into their curriculum should conduct a similar survey, combined with a desk review of curriculum and interviews with key stakeholders to compare findings.

While QI has become an essential part of USAID and PEPFAR programming, training for providers primarily takes place within the in-service setting. The results of this survey reflect an interest and willingness to integrate QI into pre-service training. The participating institutions were looking at integration of QI into core curriculum of their health professional training programs, as HIV is taught as an integrated subject. However, other institutions may find it more useful to integrate QI into one curriculum, such as HIV or infectious diseases, to test the curriculum and build staff capacity. An ASSIST activity in Nicaragua to revise HIV curricula in pre-service training programs also taught faculty QI methods and supported them to use QI to improve the quality of their teaching practice. This is an innovative way to build QI competency in faculty by practicing and building these skills using their daily work, which could also be adapted and incorporated into an institution’s plans for integrating QI into curriculum.

Conducting an initial readiness assessment of institutions is a necessary step in creating a baseline understanding when integrating QI into existing curriculum. This survey provided valuable information to guide all of the steps needed to develop and implement QI as part of the pre-service curriculum for these institutions and can serve as a model for similar institutions in the future.

VII. RECOMMENDATIONS

While this assessment was carried out in the specific context of Kenya, and three medical training institutions there, there are several recommendations that emerge from this experience which could guide other countries and medical training institutions who wish to undertake revisions to curricula to include quality improvement. In general, conducting an initial assessment of the readiness of institutions, their administration, faculty, and students is recommended as it can provide baseline data and information, and serve as guidance for realistic planning. One of the lessons learned from this assessment was that an additional review of other sources of information would have added value to the findings. Specifically, future assessments could include some or all of the following: reviewing indicators collected by the institutions to see if they included QI content; conducting interviews or desk reviews of institutions' documents to determine whether there are QI initiatives, including additional knowledge assessment for faculty who would teach QI; or reviewing curriculum identified as containing some QI content.

The recommendations below provide guidance for other institutions wishing to conduct a similar assessment:

________________________________________

Survey tools: The survey tools in Appendix I were developed using Kenya-specific tools, such as the KQMH and FKP frameworks. However, many of the questions and domains would be similar for any institution wishing to assess the readiness of the institution for integrating QI into their existing curricula and to determine a baseline for institutional factors that influence this decision. The bottlenecks and best buys (BBB) tool that informs the FKP framework has been piloted in several other African countries. There are several recommendations for modification of the tool used in this survey:

- Determine the specific QI policies for the given country context and adapt content in the survey tool to reflect those policies.
- Review the tools (developed after this assessment tool) for the Pilot Study of Quality of Care Training and Knowledge in Sub-Saharan African Medical Schools16 (referenced earlier) to see how these can be combined for a more comprehensive tool.
- Through focus group discussions, develop common contextual understanding of key QI terms.
- Provide a short paragraph at the beginning of the survey that defines “quality improvement” in the specific context in order to provide some common understanding for respondents.
- Develop at least two versions of the survey for staff and students. These groups have different perspectives and knowledge and all questions may not be appropriate for both groups.
- Clarify in the tools the questions which pertain to integration of QI concepts, approaches, etc. into curricula and which pertain to institutional use of QI (vision, mission, rewards for quality improvement).
- Assess QI knowledge and skills by including question on topics such as problem identification, developing and testing solutions, and monitoring for improvement.

Desk review: The survey tools could be enhanced by conducting a desk review of existing curricula to look for key QI concepts, principles, and approaches that are already woven in. For this project, the faculty did this as part of a curriculum review and development workshop (held after this survey). The three training institutions each brought and worked on their own curricula. KMTC and KeMU focused on their health services management (HSM) curricula, while Moi University’s College of Health Sciences focused on their community-based education services (COBES) program. However, a more systematic review of potentially relevant curricula could make integration of QI topics more seamless. In addition, it could promote cross-referencing of material to strengthen knowledge and skills.

Comprehensive planning: The assessment results clearly show that integration of QI into curricula goes beyond simple curriculum development, but also requires support structures and resources, especially staff time. There are several recommendations for steps for successful integration:

- Obtain buy-in of key stakeholders and undertake advocacy with institutional leadership. While it is important to get buy-in from all stakeholders, it would be important to gain the buy-in of key stakeholders, such as academic program leaders, professional organizations, and management, first. Agreement is needed from thought leaders, to

16 Ibid.
obtain their commitment not only for the concept, but for the amount of time, effort, and resources that they are able and willing to commit to make the integration happen.

- Conduct a readiness assessment, curriculum review (desk review), and staff training needs assessment to determine existing attitudes, content, and competencies to develop appropriate plans for addressing gaps.

- Hold institution-wide consultation and planning with relevant stakeholders from leadership and management, faculty, and practicum staff. In addition to the development of a QI curriculum or modules, institutions need to prepare a more comprehensive plan that includes development of staff competency and resource allocation for mentoring students during practicum. This could also serve as a forum for discussion of institutional changes that would support a culture of QI, but the two are not mutually exclusive.

- Develop specific modules for incorporating quality improvement into the ongoing curriculum, including content, teaching methods, and evaluation. It is recommended that this module include both classroom training and hands-on learning at the practicum site through a simple QI project.

- Undertake capacity building for faculty who will teach quality improvement modules and provide practicum site mentoring. Capacity building for faculty should include hands-on learning through their own QI projects. As part of this activity, a Faculty Self-Study Guide was developed by ASSIST as a first introduction to both practical information and theory of QI.

- Provide coaching and follow-up for faculty and students to practice QI approaches in their practicum site.

- **Pilot curriculum**: As the topic of QI will be new for many faculty, one recommendation is to pilot the curriculum with one practicum area, such as in HIV or infectious diseases clinics, to determine what needs to be refined in the content, teaching methods, and practicum. The curriculum can be refined and the original faculty can then also serve as mentors to others.

- **Policy Action**: Review institutional and regulatory policies, and develop or review accordingly, followed by an implementation framework that ensures that there is no gap between known evidence-based practices and their consistent implementation.

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APPENDIX I: QUESTIONNAIRE

Situation analysis of variables relevant to quality improvement interventions in health professional training (Respondents: deans, heads, and faculty; students)

A. General Information

1. Gender of respondent: 1=Female 2=Male
2. Age in years: 
   - 1=>65, □
   - 2=55-64, □
   - 3=45-54, □
   - 4=35-44, □
   - 5=25-34, □
   - 6=20-24 □
   - 7=15-19 □
3. What is/are your role(s)/Responsibility (ies) in the institution? 1=Institutional head/Principal 2=Unit head/Dean 3=Program head/HOD 4=Faculty member 5=Student 6=Administration Staff
4. What is the total number of years served in your position in this institution (Student Respondents: Write year of study) ……………………………

B. Readiness Domains

1. Transformation in health training and care, calls for integration of Quality Improvement (QI) into Pre-service Training 1=Strongly Agree, 2=Agree, 3=Neutral, 4=Disagree, 5=Strongly Disagree 6=Don't know
2. Are you aware of Continuous QI Initiatives within the institution? 1=Yes 2=No 3=Not sure
   If yes, specify……………………………………………………
3. Does your curriculum include a QI topics 1=Yes 2=No 3=Not sure
4. Given the prevailing state of health professional training there is need to include more about quality improvement in training of health professionals? 1=Strongly Agree, 2=Agree, 3=Neutral, 4=Disagree, 5=Strongly Disagree 6=Don't know
5. Which of the following QI indicators are tracked by your institution? (Tick/mark X on all that apply)
   a. Timeliness of Care □
   b. Patient Satisfaction □
   c. Equal quality of Care to all patients □
   d. Efficient use of resources □
   e. Educational programs □
   f. Clinical care protocols □
   g. Facility Mortality audit □
   h. Any other (Specify) ………………………………………………………………………

| Regarding the following QI elements, Tick/mark X on only one of the responses which is closest to the graded levels of agreement: 1=Strongly Agree, 2=Agree, 3=Neutral, 4=Disagree, 5=Strongly Disagree, 6=Don't know |
|---------------------------------------------------------------|-----|-----|-----|-----|-----|-----|
| 6. There is an information system which tracks QI indicators. |     |     |     |     |     |
| 7. Motivation for Change: There is pressure from key stakeholders calling for integrating QI into Pre Service Training (PST). |     |     |     |     |     |
| 8. Our institution/Unit has the right structures to implement the revised curriculum integrating QI into PST |     |     |     |     |     |
9. (a) Our institution/Unit has the right; systems to implement the revised curriculum integrating QI into PST  
(b) Our institution/Unit has the right; Competencies to implement the revised curriculum integrating QI into PST

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10. The Leadership of the institution has manifested commitment to integrating QI into Pre-service curriculum

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11. The curriculum committee is fully functional to support the curriculum review process integrating QI into PST

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12. All Faculty and staffs of affiliate institutions have personal responsibility for successful implementation of QI in PST

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13. The institution has adequate resources (Funding, Staff Development) to effect the change

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14. The institution has mechanisms for motivating/incentivizing performance improvement

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15. The institution has a culture and history of effective consultation and communication on important changes such QI integration into the curriculum

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16. Motivation for Change: Where is the greatest pressure for integrating QI into PST coming from: 
1=Student, 2=Faculty, 3=Academic Program Leadership, 4=Government, 5=Regulatory bodies, 6=Employers, 7=Public

17. List at most three challenges that you foresee as barriers to effective QI integration into PST

a. ………………
b. ………………
c. ……………………………

Assessable Variables relevant to Quality Improvement interventions in Health Professional training settings

Please mark the option which is closest to your response to the written statements

C. General Knowledge and Understanding of Quality Improvement

1. The six Dimensions of QI (Effectiveness, Efficiency, Safety, Equitable, Timeliness, Patient Centered) are well known and understood 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

2. The key principles (Total Quality Management, Evidence Based Decision making), approaches (Plan Do Study Act, Lean, Sigma six), techniques (Collaborative) and tools (Assessment tools, capacity tools) are well known and understood 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

3. Key stakeholders and their roles are well known and appreciated 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

4. Faculty, residents/registrars and clinical rotation students have skills to analyze and prioritize QI areas and design appropriate intervention 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

5. Faculty, residents/registrars, clinical rotation students have knowledge to identify performance indicators and develop relevant assessment, monitoring and evaluation tools 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

6. Faculty’s’ competency development need for QI integration has been assessed and identified 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know
7. There is a strategy for Capacity building of the requisite faculty competency 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know
8. There is adequate ongoing coaching and mentoring on QI 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know
9. Leadership and management provides conducive environment and support for QI 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know
10. There is adequate Understanding of the complexities of health systems 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know
11. There is adequate provision of Continuity of care 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

D. Effective Communication
1. Patients and carers are involved fully as partners in health care 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know
2. Health Care Risks are adequately Communicated to patients by health workers 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know
3. There is adequate and honest Communication with patients after an adverse event (open disclosure): 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know
4. Informed consent of patient/client is always obtained when necessary 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know
5. Students are taught and guided to be culturally respectful and knowledgeable (Cultural Competence). 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

E. Identifying, Preventing, and Managing Adverse Events and Near Misses
1. Students are taught how to recognize, report and manage adverse events and near misses. 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know
2. Students are taught principles and practical applications in Managing Clinical Care Risks 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know
3. Students have adequate Understanding of health-care errors 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know
4. Students know how to Manage complaints in health care settings 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know
5. There is an anonymous/confidential system of reporting medical errors 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

F. Using Evidence and Information
1. Quality improvement teaching, training, mentorship in your institution and affiliated practicum facilities are documented in scientific publication, and well disseminated 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know
2. Clinical care in the practicum facilities is effective because it is always based on scientific evidence. 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know
3. The institution/practicum facilities have all the required clinical care protocols 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

4. The Standard Operating Procedures for ten most important clinical conditions incl. HCT, ART, PMTCT, EMOC, MNCH, FP, TB, are readily accessible 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

5. There is optimum use of ICT to enhance learning and practice of QI and patient safety 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

6. There is regular (at least annual) patient/client satisfaction survey 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

G. Working Safely

1. The clinical placement facilities have a culture of quality improvement and patient safety 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

2. The training institution has a culture of quality improvement 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

3. Teamwork and leadership for safety is taught, encouraged and supported 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

4. There is adequate Understanding of human factors in quality and safety 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

5. All Clinical instructors and supervisors always ensure that all students on clinical practicum only make decisions and undertake actions that are appropriate at their levels, and receive appropriate supervision 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

6. Students and faculty are taught and supported to Manage Fatigue and Stress 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

7. Patients in practicum facilities have none or very low level of unintended injuries or adverse effects of treatment and care: 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

H. Professionalism

1. Students and faculty are taught, encouraged and supported to Maintain good health and physical fitness to work or practice 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

2. Students and faculty are taught, encouraged and supported to establish and maintain Ethical behaviour and practice 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

I. Continuing Learning

1. Students/Faculty are encouraged and supported to develop a culture of Lifelong Learning 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know

2. Faculty have a regularized Continuous Professional Development (CPD) program, and regularly engage in it at least three occasions annually 1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree 6=Don't know
J. Specific Issues
1. Students know and understand how to Prevent or avoid wrong site, wrong procedure and wrong patient treatment
   1=Strongly Agree  2=Agree  3=Neutral  4=Disagree
   5=Strongly Disagree  6=Don't know
2. Students have adequate understanding of Medication safety
   1=Strongly Agree  2=Agree  3=Neutral  4=Disagree
   5=Strongly Disagree  6=Don't know
3. Students have adequate understanding and practice of Infection prevention and control
   1=Strongly Agree  2=Agree  3=Neutral  4=Disagree  5=Strongly Disagree  6=Don't know
4. Clinical treatment and care in practicum facilities is Patient-centered: providing care that is respectful and responsive to individual patient preferences, needs and values
   1=Strongly Agree  2=Agree  3=Neutral  4=Disagree
   5=Strongly Disagree  6=Don't know
5. Patients in practicum facilities always receive treatment and care without potentially harmful delays (Timely)
   1=Strongly Agree  2=Agree  3=Neutral  4=Disagree  5=Strongly Disagree  6=Don't know
6. The treatment and care in practicum facilities is Efficient, and avoids waste of resources (Human, supplies/medical products, equipment, infrastructure)
   1=Strongly Agree  2=Agree  3=Neutral  4=Disagree
   5=Strongly Disagree  6=Don't know
7. The treatment and care in practicum facilities is Equitable, with every patient receiving appropriate care irrespective of person characteristics such as age, gender, ethnicity, geographic location and socioeconomic status.
   1=Strongly Agree  2=Agree  3=Neutral
   4=Disagree  5=Strongly Disagree  6=Don't know
8. The institution has a committee or unit in charge of quality standards of curriculum: If in agreement, name the committee or unit
   1=Strongly Agree  2=Agree  3=Neutral
   4=Disagree  5=Strongly Disagree  6=Don't know
9. The vision and mission of the institution include statement about quality of curriculum and or delivery of teaching and training?
   1=Strongly Agree  2=Agree  3=Neutral
   4=Disagree  5=Strongly Disagree  6=Don't know
10. The current strategic plan include specific objective and or target of quality improvement of curriculum and education/training
    1=Strongly Agree  2=Agree  3=Neutral
    4=Disagree  5=Strongly Disagree  6=Don't know
11. The clinical placements facilities and resources are appropriate and adequate for delivering quality improvement training:
    1=Strongly Agree  2=Agree  3=Neutral
    4=Disagree  5=Strongly Disagree  6=Don't know
12. The organizational vision, mission, values, strategic plan make specific statements on quality improvement and patient safety
    1=Strongly Agree  2=Agree  3=Neutral
    4=Disagree  5=Strongly Disagree  6=Don't know
13. Faculty are well-oriented and trained on quality improvement concepts and applications in improving student training
    1=Strongly Agree  2=Agree  3=Neutral
    4=Disagree  5=Strongly Disagree  6=Don't know

K. Miscellaneous
1. What is the average number of total hours that Clinical instructors work during an average week period? ……
   1= 20 Hrs or less  2= 21-40 Hrs  3= 41-60 Hrs  4=61-80 Hrs
   5=>80 Hrs  99=No information
2. The institution recognizes and rewards Quality improvement efforts
   1=Strongly Agree  2=Agree  3=Neutral
   4=Disagree  5=Strongly Disagree  6=Don't know
APPENDIX II: ANALYSIS FRAMEWORK

A. General Information
1. Summary of demographic characteristics of respondent: Disaggregated by Gender, Age, Roles, Years of service

   Perform Frequency tables and descriptive statistics as appropriate, preferably using SPSS 16.0

B. Readiness Domains

1. Readiness perception: Pressure of educational transformation: Pressure of stakeholders (Score 1-5, separate 6)
2. Awareness of institutional QI initiatives (Score 1-2, separate 3)
3. QI Content in available curriculum (Score 1-2, separate 3)
4. Need for improved QI integration (Score 1-5, separate 6)
5. QI Indicators being tracked (No Score)
6. Knowledge of Information system for tracking QI indicators (Score 1-5, separate 6)
7. Knowledge of Right structures (Score 1-5, separate 6)
8. Knowledge of Right Systems (Score 1-5, separate 6)
9. Knowledge of Competencies (Score 1-5, separate 6)
10. Manifested commitment of Leaders (Score 1-5, separate 6)
11. Curriculum committee (Score 1-5, separate 6)
12. Personal responsibilities of staffs on QI (Score 1-5, separate 6)
13. Adequate resources (Score 1-5, separate 6)
14. Motivation mechanism (Score 1-5, separate 6)
15. History of effective communication (Score 1-5, separate 6)
16. Source of greatest pressure for integration (Score 1-5, separate 6)
17. Three Challenges most frequently cited challenges to implementation (No scores)

C. General Knowledge and Understanding of Quality Improvement

1. Knowledge of the six Dimensions of QI (Score 1-5, separate 6)
2. Knowledge and understanding of the key principles, approaches, techniques and tools (Score 1-5, separate 6)
3. Key stakeholders and their roles known and appreciated (Score 1-5, separate 6)
4. Skills to analyze and prioritize QI areas and design appropriate intervention (Score 1-5, separate 6)
5. Knowledge to identify performance indicators and develop relevant assessment, monitoring and evaluation tools (Score 1-5, separate 6)
6. Faculty’s’ competency development need for QI integration has been assessed and identified (Score 1-5, separate 6)
7. Available strategy for Capacity building of the requisite faculty competency (Score 1-5, separate 6)
8. Available adequate ongoing coaching and mentoring on QI (Score 1-5, separate 6)
9. Leadership and management provides conducive environment and support for QI (Score 1-5, separate 6)
10. Adequate Understanding of the complexities of health systems (Score 1-5, separate 6)
11. Adequate provision of Continuity of care (Score 1-5, separate 6)

D. Effective Communication

6. Patients and carers are involved fully as partners in health care (Score 1-5, separate 6)
7. Health Care Risks are adequately Communicated to patients by health workers (Score 1-5, separate 6)
8. There is adequate and honest Communication with patients after an adverse event (open disclosure) (Score 1-5, separate 6)

9. Informed consent of patient/client is always obtained when necessary (Score 1-5, separate 6)

10. Students are taught and guided to be culturally respectful and knowledgeable (Cultural Competence). (Score 1-5, separate 6)

E. Identifying, Preventing, and Managing Adverse Events and Near Misses

6. Students are taught how to recognize, report and manage adverse events and near misses. (Score 1-5, separate 6)

7. Students are taught principles and practical applications in Managing Clinical Care Risks (Score 1-5, separate 6)

8. Students have adequate Understanding of health-care errors (Score 1-5, separate 6)

9. Students know how to Manage complaints in health care settings (Score 1-5, separate 6)

10. There is an anonymous/confidential system of reporting medical errors (Score 1-5, separate 6)

F. Using Evidence and Information

7. Quality improvement teaching, training, mentorship in your institution and affiliated practicum facilities are documented in scientific publication, and well disseminated (Score 1-5, separate 6)

8. Clinical care in the practicum facilities is effective because it is always based on scientific evidence. (Score 1-5, separate 6)

9. The institution/practicum facilities have all the required clinical care protocols (Score 1-5, separate 6)

10. The Standard Operating Procedures for ten most important clinical conditions Incl. HCT, ART, PMTCT, EMOC, MNCH, FP, TB, are readily accessible 1=Strongly Agree (Score 1-5, separate 6)

11. There is optimum use of ICT to enhance learning and practice of QI and patient safety (Score 1-5, separate 6)

12. There is regular (at least annual) patient/client satisfaction survey (Score 1-5, separate 6)

G. Working Safely

8. The clinical placement facilities have a culture of quality improvement and patient safety (Score 1-5, separate 6)

9. The training institution has a culture of quality improvement (Score 1-5, separate 6)

10. Teamwork and leadership for safety is taught, encouraged and supported (Score 1-5, separate 6)

11. There is adequate Understanding of human factors in quality and safety (Score 1-5, separate 6)

12. All Clinical instructors and supervisors always ensure that all students on clinical practicum only make decisions and undertake actions that are appropriate at their levels, and receive appropriate supervision (Score 1-5, separate 6)

13. Students and faculty are taught and supported to Manage Fatigue and Stress (Score 1-5, separate 6)

14. Patients in practicum facilities have none or very low level of unintended injuries or adverse effects of treatment and care (Score 1-5, separate 6)

H. Professionalism

3. Students and faculty are taught, encouraged and supported to Maintain good health and physical fitness to work or practice (Score 1-5, separate 6)

4. Students and faculty are taught, encouraged and supported to establish and maintain Ethical behaviour and practice (Score 1-5, separate 6)
I. **Continuing Learning**
3. Students/Faculty are encouraged and supported to develop a culture of Lifelong Learning (Score 1-5, separate 6)
4. Faculty have a regularized Continuous Professional Development (CPD) program, and regularly engage in it at least three occasions annually (Score 1-5, separate 6)

J. **Specific Issues**
14. Students know and understand how to prevent or avoid wrong site, wrong procedure and wrong patient treatment (Score 1-5, separate 6)
15. Students have adequate understanding of Medication safety (Score 1-5, separate 6)
16. Students have adequate understanding and practice of Infection prevention and control (Score 1-5, separate 6)
17. Clinical treatment and care in practicum facilities is Patient-centered: providing care that is respectful and responsive to individual patient preferences, needs and values (Score 1-5, separate 6)
18. Patients in practicum facilities always receive treatment and care without potentially harmful delays (Timely) (Score 1-5, separate 6)
19. The treatment and care in practicum facilities is Efficient, and avoids waste of resources (Human, supplies/medical products, equipment, infrastructure) (Score 1-5, separate 6)
20. The treatment and care in practicum facilities is Equitable, with every patient receiving appropriate care irrespective of person characteristics such as age, gender, ethnicity, geographic location and socioeconomic status. (Score 1-5, separate 6)
21. The institution has a committee or unit in charge of quality standards of curriculum: If in agreement, name the committee or unit (Score 1-5, separate 6)
22. The vision and mission of the institution include statement about quality of curriculum and or delivery of teaching and training? (Score 1-5, separate 6)
23. The current strategic plan includes specific objective and or target of quality improvement of curriculum and education/training (Score 1-5, separate 6)
24. The clinical placements facilities and resources are appropriate and adequate for delivering quality improvement training: (Score 1-5, separate 6)
25. The organizational vision, mission, values, strategic plan make specific statements on quality improvement and patient safety (Score 1-5, separate 6)
26. Faculty are well-oriented and trained on quality improvement concepts and applications in improving student training (Score 1-5, separate 6)

K. **Miscellaneous**
1. What is the average number of total hours that clinical instructors work during an average week period?
2. The institution recognizes and rewards quality improvement efforts (Score 1-5, separate 6)
USAID APPLYING SCIENCE TO STRENGTHEN AND IMPROVE SYSTEMS PROJECT

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