



TECHNICAL REPORT

Key Findings of the Assessment of Quality of Reproductive, Maternal, Newborn, Child, and Adolescent Health Care in Uganda and Kenya

APRIL 2020

This key findings report of the quality of care assessment of reproductive, maternal, newborn, child, and adolescent health services in Uganda and Kenya was prepared by University Research Co., LLC (URC) for review by the United States Agency for International Development (USAID) and authored by Nancy Fronczak, Tamar Chitashvili, Ekaterine Cherkezishvili, Peter Mutanda, Gorrette Nalwadda, and Sarah Kauder of URC. The report was produced under the USAID Applying Science to Strengthen and Improve Systems (ASSIST) Project, which is made possible by the generous support of the American people through USAID and its Office of Health Systems.

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Acronyms

ACS	Antenatal corticosteroids
ANC	Antenatal care
ART	Antiretroviral therapy
ARV	Antiretroviral
ASB	Asymptomatic bacteriuria
ASSIST	USAID Applying Science to Strengthen and Improve Systems Project
BEmONC	Basic emergency obstetric and newborn care
CEmONC	Comprehensive emergency obstetric and newborn care
CPAP	Continuous positive airway pressure
EB	Evidence-based
FP	Family planning
HIV	Human immunodeficiency virus
HMIS	Health management information system
HPV	Human papilloma virus
IMCI	Integrated management of childhood illness
IMNCI	Integrated management of newborn and childhood illness
IPT	Intermittent preventive treatment for malaria
IUD	Intrauterine device
KMC	Kangaroo mother care
L&D	Labor and delivery
LAM	Lactational amenorrhea
MCHN	Maternal child health and nutrition
MgSO ₄	Magnesium sulfate
MNC	Maternal and newborn care
MNCH	Maternal, newborn, and child health
NICU	Neonatal intensive care unit
OHA	Office of HIV/AIDS
OHS	Office of Health Systems

ORS	Oral rehydration salts
PPH	Post-partum hemorrhage
PCMD	Preventing Child and Maternal Death
PMTCT	Prevention of mother-to-child transmission of HIV
PSBI	Possible serious bacterial infection
QI	Quality improvement
RDS	Respiratory distress syndrome
RDT	Rapid diagnostic test
RMNC+A	Reproductive, maternal, newborn, and child and adolescent health
RR	Respiratory rate
RTI	Respiratory tract infection
SDG	Sustainable Development Goal
STI	Sexually transmitted infection
TT	Tetanus toxoid
USAID	United States Agency for International Development
VLBW	Very low birth weight
WHO	World Health Organization

I. BACKGROUND

The USAID Office of Health Systems (OHS) and USAID Office of HIV/AIDS (OHA) in Washington tasked the Applying Science to Strengthen and Improve Systems Project (ASSIST) team to develop a survey toolkit for assessing the quality of integrated Reproductive, Maternal, Newborn, Child, Adolescent Health (RMNC+A) including HIV services for pregnant women, exposed infants, sick children, and adolescents and to test the tools in 2-3 priority Preventing Child and Maternal Death (PCMD) and US President's Emergency Plan for AIDS Relief (PEPFAR) countries, as existing facility-based tools did not provide the information necessary for this type of assessment.

Uganda and Kenya have adopted World Health Organization (WHO) recommendations for RMNC+A services to varying degrees, with the degree to which adopted recommendations have been implemented unclear. The aim of this study was to describe the quality of RMNC+A health services and to gather evidence of the extent to which evidence-based (EB) practices and interventions are being implemented. Services of focus were antenatal care (ANC), delivery and newborn care, outpatient care of the sick child and young infant, adolescent health services, and patient-centered care. The content of the childbirth section of the assessment and supporting systems for quality improvement are largely based on the WHO Quality of Care Standards for Maternal and Newborn Care.¹

Additionally, Uganda and Kenya are identified as two of three countries in the world with the largest HIV epidemics. Both have adopted the main WHO recommended policies for integrated HIV services and for services for Prevention of Mother to Child Transmission (PMTCT). These services are explored in more detail in a separate HIV report.

II. METHODOLOGY

In 2017-2018, the survey toolkit was developed, and the tools tested and implemented in 10 selected facilities in Uganda and 11 facilities in Kenya. The data collection tools were based on existing tools, adapted to collect evidence of compliance with World Health Organization (WHO) EB clinical recommendations on essential RMNC+A services, and the presence of supporting systems to support services. The content of the tools was aligned with relevant measurement frameworks² for RMNC+A services. Information related to the assessed services was gathered from a) self-administered questionnaires for providers about their experience, knowledge, and opinions; b) individual patient record reviews for documentation of assessments, interventions, results, and information shared; c) observation of services being provided; d) interviews with clients; e) key informant interviews; and f) observations related to resources and systems at facility level.

Selection criteria included: PEPFAR/USAID-supported districts or counties, suggested by USAID field team, facilities with no on-going external Quality Improvement (QI) intervention in maternal or RMNC+A services; high volume and/or high maternal and <5 mortality facilities; facilities representing all levels of the health service delivery system that provide RMNC+A and HIV services within each selected district and are connected with referral linkages; and facilities where a similar assessment had not been recently performed. Data for this study were collected May 2017-February 2018. The majority (80%) of sample facilities in Uganda were Health Center level (38% Level 3 and 62% Level 4) while the majority in Kenya were Hospital level (73%). **Table 1** provides details on the samples for the various tools.

¹ Standards for improving quality of maternal and newborn care in health facilities. © World Health Organization 2016

² Every Newborn Action Plan (ENAP), WHO Quality of Care (QoC) Measures around childbirth, Ending Preventable Maternal Mortality (EPMM), WHO 100 (Indicators)

Table 1: Sample information

Sample category	Uganda	Kenya
Number of Facilities	10	11
Interviewed service providers (sum across all services)	71	104
Interviewed service providers by service ³		
Antenatal care (ANC)	21	30
Delivery care	31	20
Newborn care	30	22
Child Health	19	11
Adolescent health	30	22
Interviewed clients by service		
Interviewed ANC service clients	160	161
Interviewed maternal/newborn/postpartum care	105	80
Interviewed adolescents	95	13
Observed service provision by service		
ANC	137	144
Consultation for sick child ≥ 2 months	145	168
Consultation for sick child < 2 months	22	68
Services during intra and postpartum period	59	21
Retrospective register/client record reviews by services		
ANC	357	462
Labor and delivery	601	469
Sick child consultations	737	786

The findings from the various tools were triangulated to provide an overview of the strengths and weaknesses in practices, and adherence to WHO recommendations for best practices for the different services. The information was analyzed at the individual level (provider, client, observation, record review) and at the facility level (resources and systems). Individual level information is biased toward facilities with larger caseloads—which sometimes had larger representation in samples. In most cases these were hospitals.

III. RESULTS

It should be noted, that comparisons of results between countries in this report are used only to provide pictures of different levels of existing practices. Differences should not be used to imply that services in

³ Some providers may have responded to several services

one country are better than in the other as the facility sample was not selected to be representative of the country.

A. Facility level resources, systems, and support for service providers

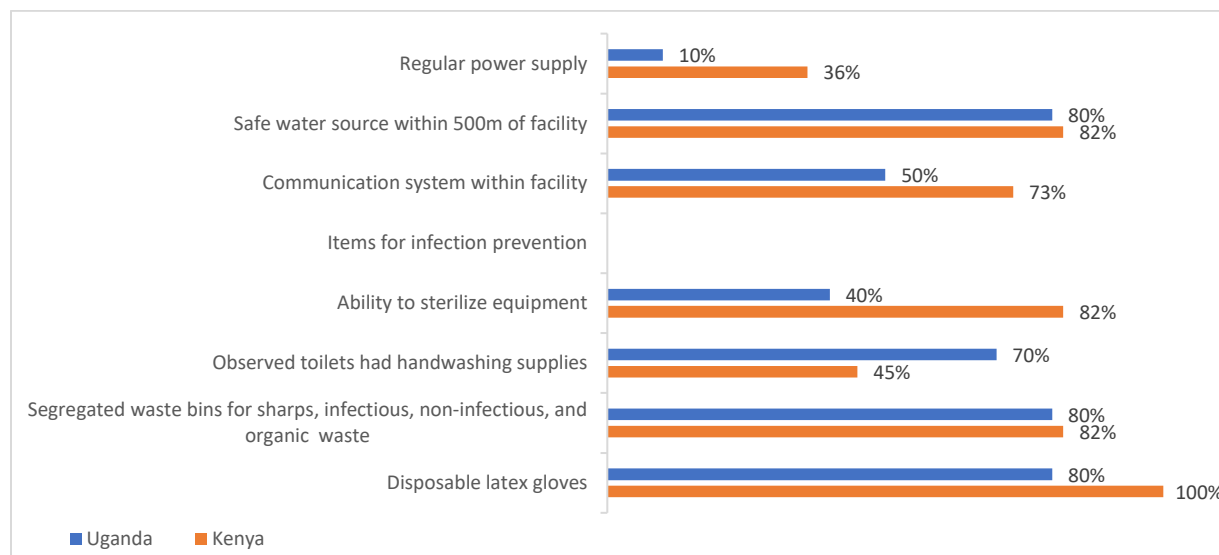
Basic infrastructure and resources

Utilities: Both countries had sample facilities without a regular electricity supply (a regular source that meets all facility needs, without no gap in availability during a normal month) or a functional emergency transportation vehicle. Most (80% for each country) had a safe water source, onsite. Around 70% of the facilities in each country had budgets to support functioning and maintenance of infrastructure systems.

Infection prevention and control: Hand hygiene practices (using soap and water or alcohol-based sanitizer to clean hands) prior to client examination were not consistently observed during service provision in either country despite almost universal availability of supplies for hand hygiene in all assessed service sites. Hand hygiene between clients was observed for less than half of the observed ANC consultations in both countries. There were facilities conducting deliveries that did not have the ability to sterilize equipment (60% Uganda and 18% Kenya), and facilities in Uganda where there were no stocked disposable latex gloves. Interviewed delivery clients mentioned having to purchase supplies that included gloves (64% Uganda and 5% Kenya). Toilets for clients that had handwashing supplies immediately adjacent were observed in 75% of Ugandan but only 45% of Kenyan facilities (see **Figure 1**).

Only 10% (Uganda) and 61% (Kenya) of interviewed respondents said they were satisfied with the infrastructure availability being sufficient for providing quality patient care, with around 1/3 from each country reporting they were dissatisfied.

Figure 1: Facility level information: Type of facility, basic infrastructure, and infection prevention findings for sample facilities (Uganda n=10, Kenya n=11)

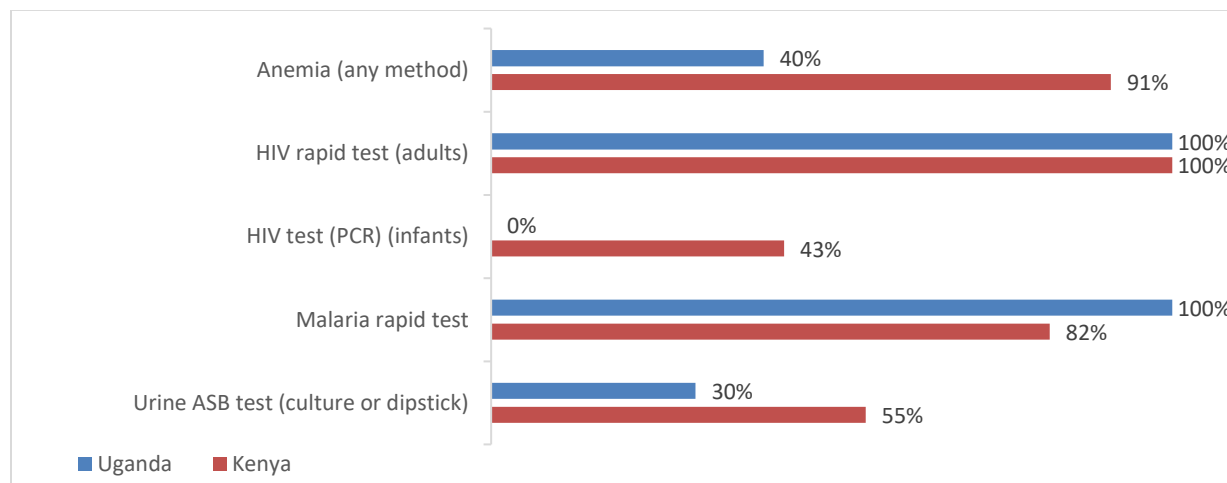


Diagnostics and pharmaceuticals: Uganda had lower availability of diagnostics and pharmaceuticals relevant to maternal, newborn, and child (MNC) preventive and treatment services, and less than half of facilities in each country (30% Uganda and 45% Kenya) had dedicated budgets for essential medicines, equipment (and its maintenance), and medical supplies for MNC.

Malaria rapid tests were available in all Ugandan and 82% of Kenyan facilities, and HIV rapid tests in all Ugandan and Kenyan facilities. Other rapid blood and urine tests relevant to MNC health services, however, were less available. These gaps were associated with weaknesses in screening or diagnosing

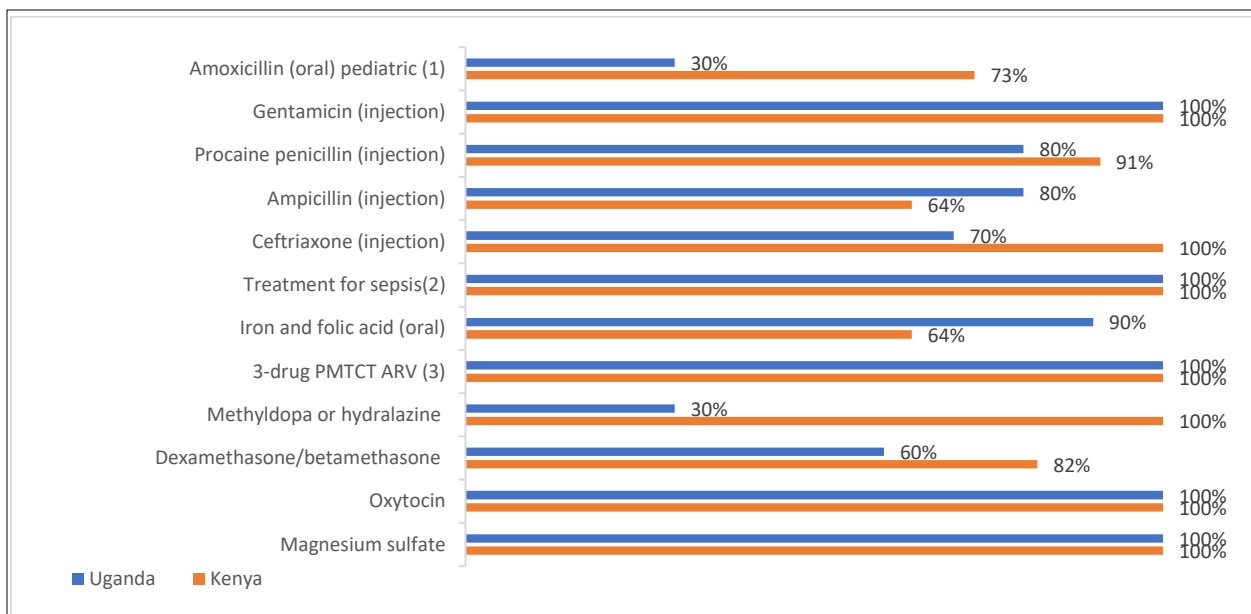
high burden conditions (e.g., pre-eclampsia/eclampsia, anemia, asymptomatic bacteriuria [ASB]) during pregnancy and childbirth (Figure 2).

Figure 2: Facility level availability of specific diagnostics (Uganda n=10 facilities, Kenya n=11 facilities)



Critical drugs for treating maternal infections and providing ART for PMTCT were available in all facilities. Other drugs, however, were less available in Ugandan facilities, particularly amoxicillin and a corticosteroid for treating premature labor (Figure 3).

Figure 3: Availability of selected essential medicines in health facilities (Uganda n=10 facilities, Kenya n=11 facilities)



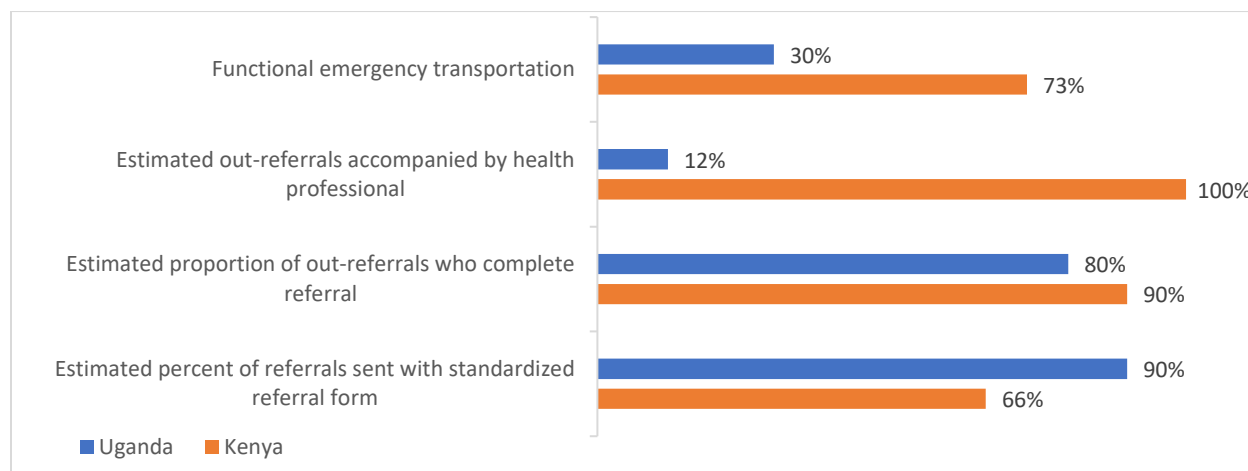
(1) Syrup or clavulanate (augmentin), (2) Gentamicin (either penicillin or ampicillin) or ceftriazone, (3) AZT/3TC/EFV or AZT/3TC/NVP

Referral systems: Facility-level key informants reported that 30% (Uganda) and 73% (Kenya) of facilities had a functional emergency transportation vehicle onsite⁴ and estimated that follow-through on referrals was high (80% Uganda and 90% Kenya) (**Figure 4**). Sub-optimal referral practices were identified by individual service providers who estimated that on average, 34% (Uganda) to 40% (Kenya) of referred mothers/infants could actually access an official vehicle when needed and that on average, 57% (Uganda) and 62% (Kenya) of infants/mothers who were referred were actually able to follow through on the referral, with the primary barrier identified by both countries as cost to the patient/families.

While almost all individual providers reported they send a referral note with patients referred out, half or fewer of these respondents reported that they routinely recorded any clinical findings, test results, or medicines provided on the referral note. This lack of information prevents identification of problems (delayed or late referrals, lack of follow-through on referral, whether the patient received the appropriate pre-referral intervention/treatment, and the outcome of referrals) that, if not addressed, may impact patient outcomes. Document reviews showed that pre-referral information for patients who were referred in for complicated deliveries was not documented in both countries, and over half of complicated deliveries reviewed arrived through in-referral. For example, the referral diagnosis was not documented for 50% (Uganda) and 42% (Kenya) of in-referrals, and pre-referral treatment was not documented for 50% (Uganda) and 66% (Kenya) of the reviewed records.

Facility level respondents estimated that on average, 19% (Uganda) and 7% (Kenya) of mothers and 13% (Uganda) and 16% (Kenya) of infants die during referrals to their facility. This may be associated with late referrals or inadequate pre-referral treatments. Further study is needed to justify key informants' estimation.

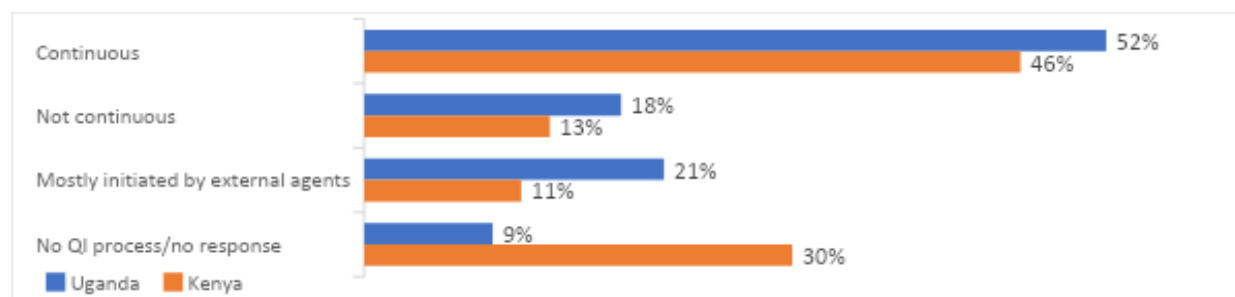
Figure 4: Facility level responses for patient referral systems (Uganda n=10, Kenya n=11)



Quality improvement activities: Most individual providers who were interviewed reported that their facility has some type of internal QI structure (91% Uganda and 70% Kenya) with around half from each country describing the system as continuous quality improvement (**Figure 5**). Around 2/3 of Kenyan and all Ugandan key informants at facility-level and around 80% or more of the individual provider respondents identified insufficient resources for implementing QI activities as an issue. Tracking and use of QI information was weak, with developing a written report based on QI results reported by 52% (Uganda) and 33% (Kenya) of providers, tracking and monitoring indicators by 48% (Uganda) and 42% (Kenya), and use of QI results for continuous learning and adaptation by 30% (Uganda) and 21% (Kenya).

⁴ Access to a vehicle may be higher if a system of calling for a centrally located vehicle (not assessed) is used.

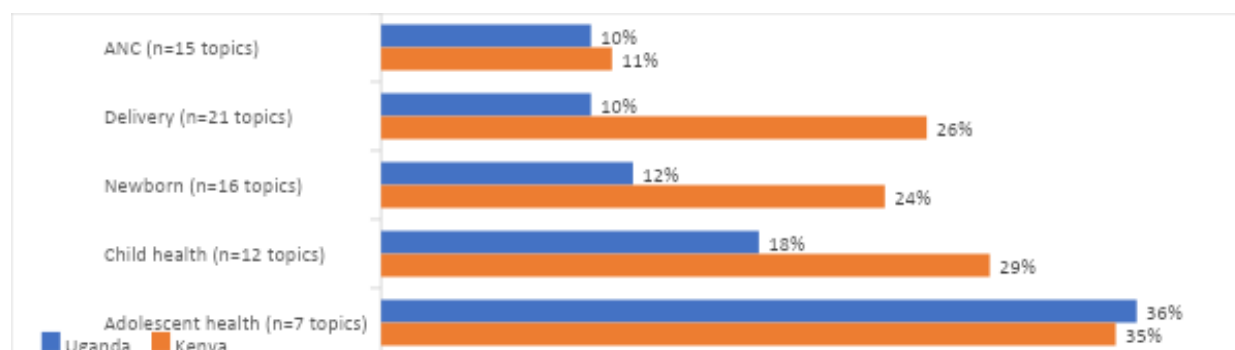
Figure 5: Individual provider description of type of quality improvement process in their facility (Uganda n=71), Kenya n=104)



Provider opinion on support they receive: Around 70% of interviewed providers from both countries described their working environment as collaborative and supportive, were satisfied with the level of support they received in their work environment (57% Uganda and 70% Kenya), and reported they feel valued by their employers. Although around half of providers reported they had met with a clinical supervisor in the prior 3 months, still 1/4 (Uganda) and 1/3 (Kenya) had not met with their supervisor in the prior 6 months.

Experience with in-service training: All respondents for general services were asked about recent training (within the past 12 months) for various MNCH topics, regardless of which specific services they provided. Most (82% Uganda and 73% Kenya) reported they had received clinical training in the past 12 months, with most providers of the clinical training identified as donors (50% Uganda 32% Kenya). The percentages reporting recent training were averaged to allow generalization about training practices. On average, 11% of Ugandan providers and 14% of Kenyan providers received training on any given topic. Additionally, however, providers of specific services were asked about training they had received related to those services. Training across the multiple topics assessed for each service was averaged to provide a picture of the extent to which providers of services had received recent training in the multiple relevant topics (**Figure 6**). For example, there are 21 service delivery training topics, but on average, the interviewed service delivery providers from Uganda reported having received training on 10% (2 of 21) and Kenyan providers reported having received training on 26% (5 of 21) in the last 12 months. Around 1/3 of respondents also reported that they desired more support (training, job aids, supportive supervision/coaching) to enable them to provide quality services.

Figure 6: Average percentage of topics for which providers of the indicated services reported receiving training in the last 12 months (number of respondents varied by service)



Supportive supervision: Supervision contacts were high (92% Uganda and 79% Kenya) although only around 2/3 or less of all respondents (66% Uganda and 46% Kenya) reported they were most recently supervised within the past three months, and 18% (Uganda) to 41% (Kenya) reporting no supervision in the past six months. Slightly more than 40% of respondents from each country reported they have a facility-based clinical supervisor for their individual performance, and higher levels (55% Uganda and 71%

Kenya) reported they had supervisors from outside the facility. The main provider of external supervision reported by all respondents were district clinical officers (32% Uganda and 24% Kenya) or persons from the central Ministry of Health (37% Uganda and 5% Kenya). Additionally, external supervision was reportedly received from professional associations (15% Uganda and 18% Kenya) and representatives from donor-funded projects (45% Uganda and 3% Kenya).

Among providers who reported being supervised, reported activities by supervisors were similar for external and internal supervisors. Observation of performance using anatomic models and activities to promote EB practices were reported by around 20% or fewer of providers from both countries who had received supervision, with higher levels of these activities reported conducted by external supervisors.

Sharing information on patients and patient follow-up: Both countries had similar responses about recording patient information. Although around half of providers were satisfied with patient information shared between providers during shift changes, around 1/3 were not satisfied. About 1/4 of respondents from each country reported they did not believe medical records provide sufficient information for evaluating care. Major issues identified with recording included difficulty in retrieving information from prior visits (identified as a service-specific issue), a lack of standardized medical information forms (17% Uganda and 12% Kenya), form stock-outs (25% Uganda and 34% Kenya), and standardized forms not being filled completely (32% for both countries) or accurately (42% Uganda and 25% Kenya). Record reviews for ANC, delivery, and consultation services for sick children supported the provider perception that recording was weak, with relevant patient history and patient symptoms and danger signs not well documented.

Where relevant, 42% of Ugandan and 63% of Kenyan respondents noted that patients (either after an outpatient visit or inpatient stay) are referred to specific outpatient clinics for long-term monitoring or follow-up with a written plan defined. When asked about patients who require follow-up visits, a follow-up visit appointment was reported to be scheduled prior to discharge by 45% and 59% of respondents from Uganda and Kenya, respectively. Among respondents who reported scheduled follow-up appointments in their health facilities, 52% in Uganda and 78% in Kenya noted that the facility has a system for tracking patients who do not keep their appointments.

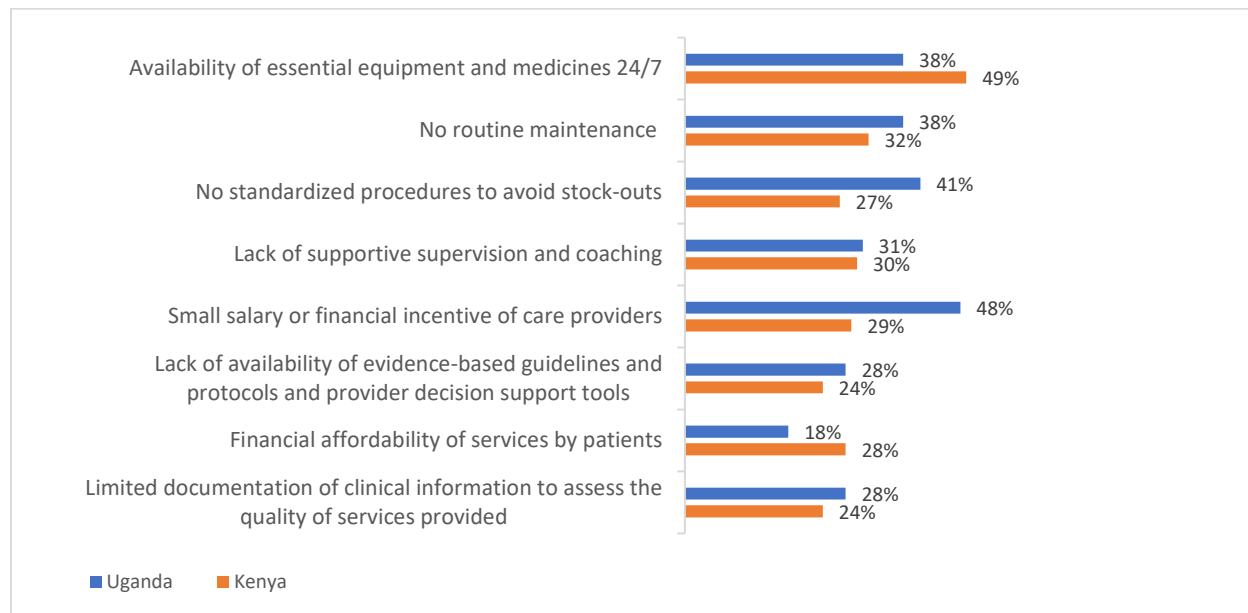
Around half of the respondents from each country reported working closely with existing community structures to meet patient needs, while an additional 31% (Uganda) and 24% (Kenya) reported they did some successful outreach, but this was not the norm. Similar to findings for all patients, linkages with community resources for support after delivery were reported by only around half of the delivery service providers from each country.

Barriers to providing quality services: Barriers to providing quality services other than those related to skills that were identified by interviewed providers were similar for both countries, including availability of essential equipment and medicines (38% Uganda and 49% Kenya) and the need for improved equipment maintenance (38% Uganda and 32% Kenya) and systems to prevent drug stock-outs (41% Uganda and 27% Kenya). Additionally, providers identified issues related to working conditions such as lack of supportive supervision (31% Uganda and 30% Kenya), lack of sufficient salary or financial incentives (48% Uganda and 29% Kenya), and weaknesses in documentation of information useful for assessing quality of care (28% Uganda and 24% Kenya) (**Figure 7**).

Client-centered/respectful care: Despite some gaps in actual practices that are expected to support respectful and considerate care, such as use of informed consent forms and client knowledge of complaint boxes, findings consistently supported that providers had awareness of the importance of treating clients with respect and maintaining client privacy, although knowledge about actual policies related to mistreatment of patients were not known by most providers. Most interviewed clients felt that the services they received were of good quality and that they were respected by the facility staff. General explanations about the care provided and discharge follow-up seemed to be commonly provided by health workers and understood by clients. Sharing information about specific issues, however, such as

counseling for danger signs, family planning (FP) and explanations of specific provider actions, and actively seeking questions from clients, were identified by clients and through service observations as weak.

Figure 7: Provider responses to perceived barriers for providing quality services (Uganda n=71 providers, Kenya n=104 providers)

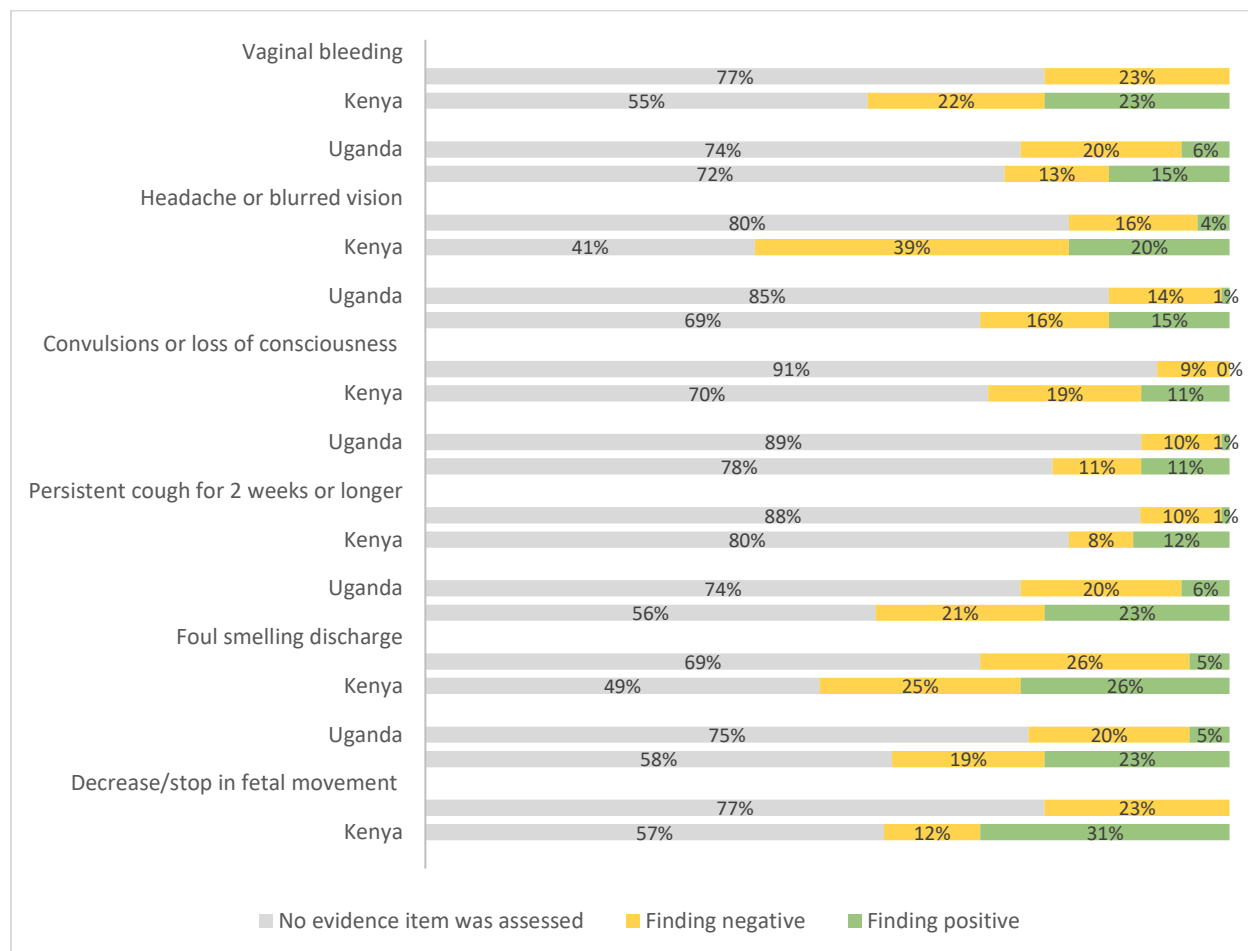


B. Antenatal care

Information for antenatal care was gathered from self-administered provider questionnaires, observation of ANC services, client interviews, and record reviews. Records for review were selected to provide evidence of care for hypertension and HIV-positive women as well as general ANC services. Assessment of ANC through review of documents maintained at the facility was limited because facilities do not consistently maintain longitudinal records for ANC clients.

Screening for risk history, current risk, or other symptoms: There was evidence across all data collection methods that assessment of risk based on prior pregnancy history or current pregnancy signs and symptoms was carried out inconsistently for both. Record reviews showed a high proportion of positive to negative findings, with no evidence of assessment of most problems (**Figure 8**). This might have been a recording weakness, except that the observation noted evidence of a general question being asked about any problems experienced for 76% (Ugandan) and 24% (Kenyan) of observed ANC clients, without a systematic assessment of the presence or absence of specific problems. It appeared that while a few most common risk signs might be asked about more commonly than others, in general, problems were likely identified throughout the course of the ANC care, with identification prompted if a topic arose, such as during counseling or if the woman had particular concerns. This risks a problem being forgotten, or not mentioned by the woman if it had occurred but was not currently a problem, or if she felt it was minor. If current pregnancy symptoms are not assessed every ANC visit, there is risk that identification early in the pregnancy (when a symptom is less severe) will be missed.

Figure 8: Observed (or documented in the individual ANC card) results for assessment of signs and symptoms for risk during current pregnancy (Uganda n=137, Kenya n=144)



Client assessment: Providers reported they provide specific routine assessment practices at similar (in some cases slightly higher) levels than was observed or found in the records of observed clients for most activities (see **Figures 9, 10, and 11**). The largest discrepancies were noted for routine measurement of blood pressure, urine protein, and checking for iron deficiency (in Uganda), and checking for gestational diabetes and syphilis testing (both countries).

Checking anemia was mostly noted to be conducted using physical assessment of conjunctiva. Tests for blood or urine glucose (for gestational diabetes) was rarely conducted, with providers reporting low levels of comfort in managing gestational diabetes and reported use of guidelines almost non-existent (none in Uganda and 20% in Kenya).

Assessment for asymptomatic bacteriuria was rarely reported (or found) to be a common routine practice and, in fact, laboratory testing for this was lacking. Provider responses, however, showed that providers had knowledge that this was an important condition that required treatment.

Temperature was rarely recorded, and all data collection methods also consistently showed that the blood pressure is not routinely measured every visit, particularly for Ugandan clients.

Figure 9: Provider responses for items they screen for at least once when providing ANC (Uganda n=21, Kenya n=30)

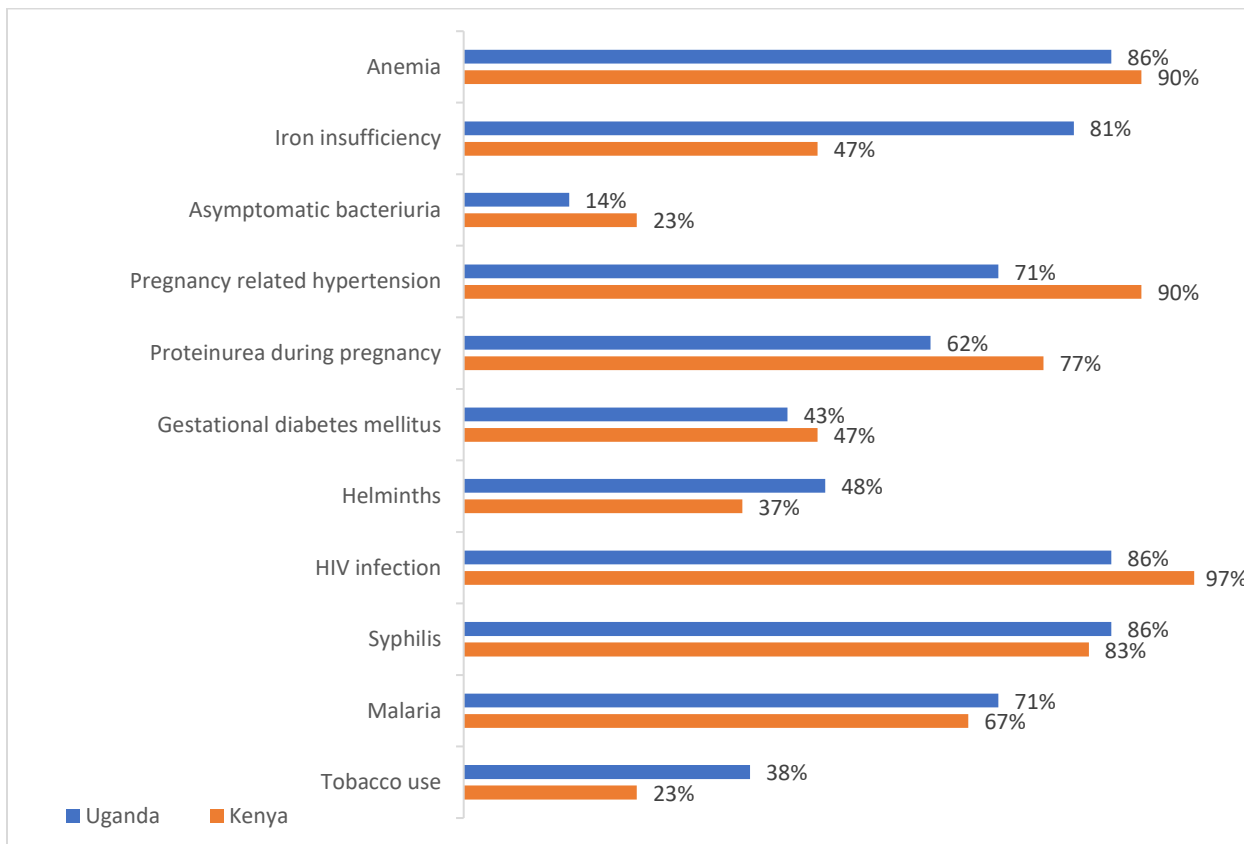


Figure 10: Observed physical examination during ANC visit (Uganda n=137, Kenya n=144)

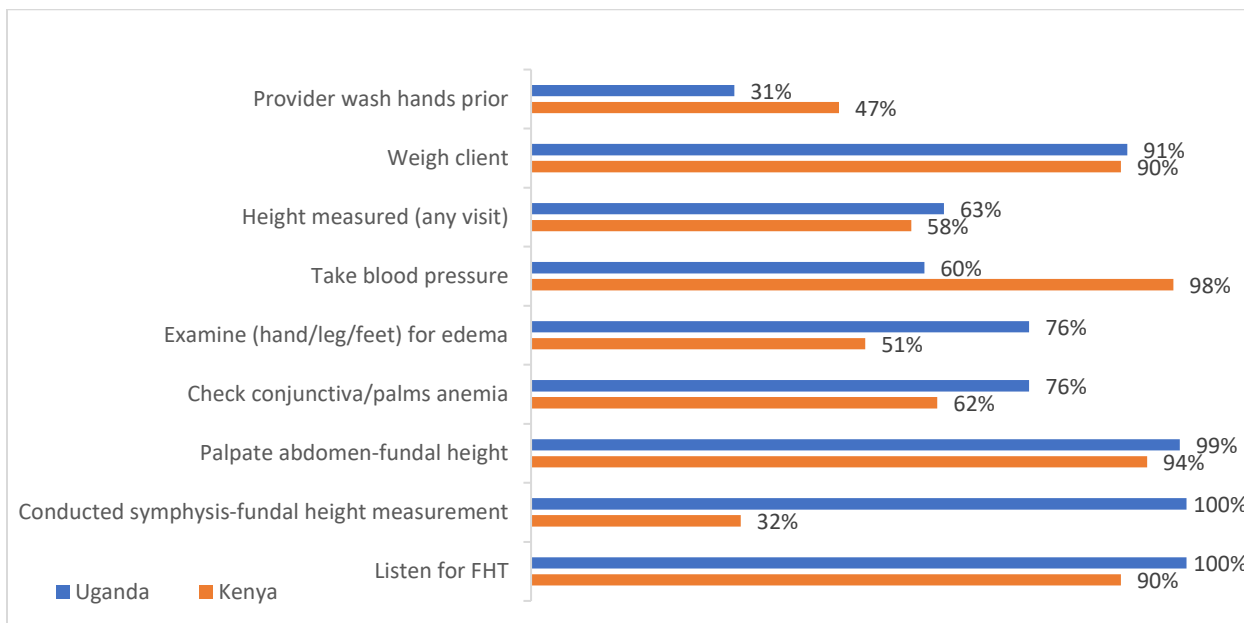
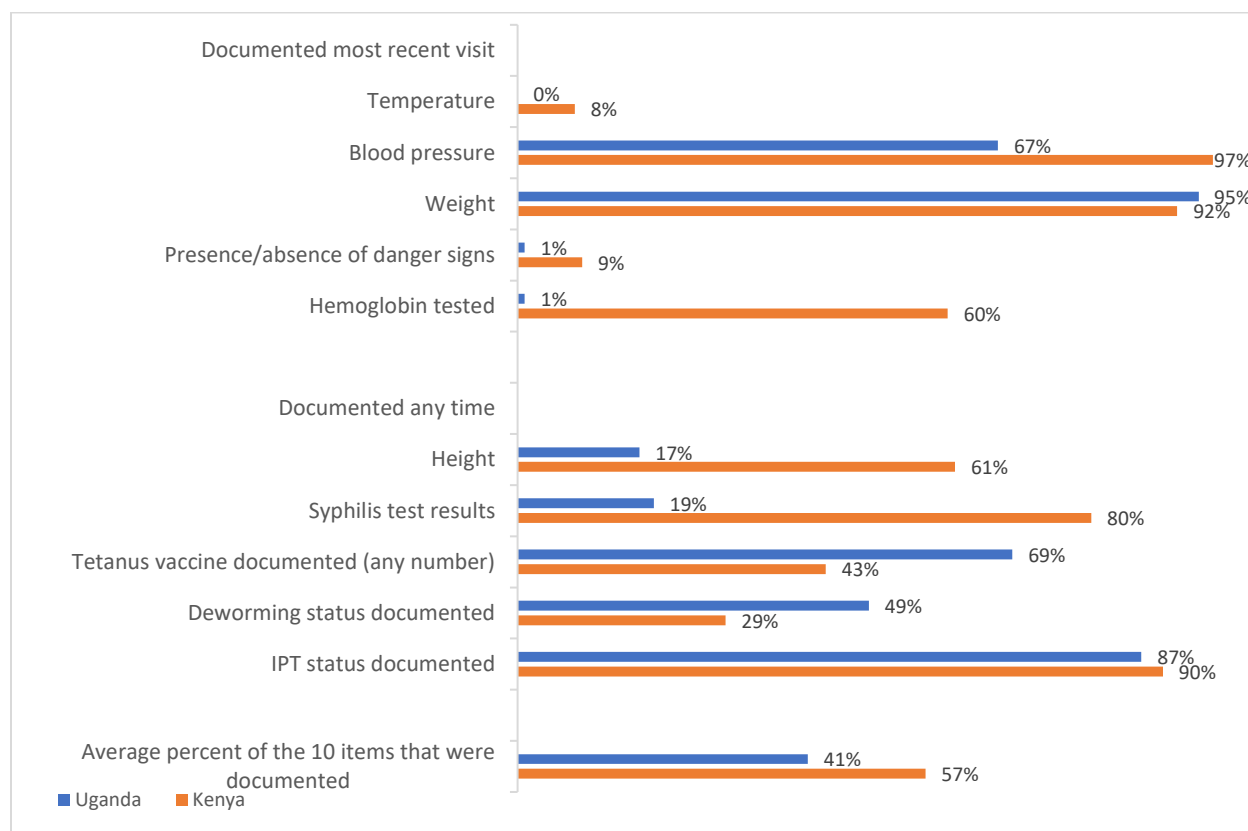


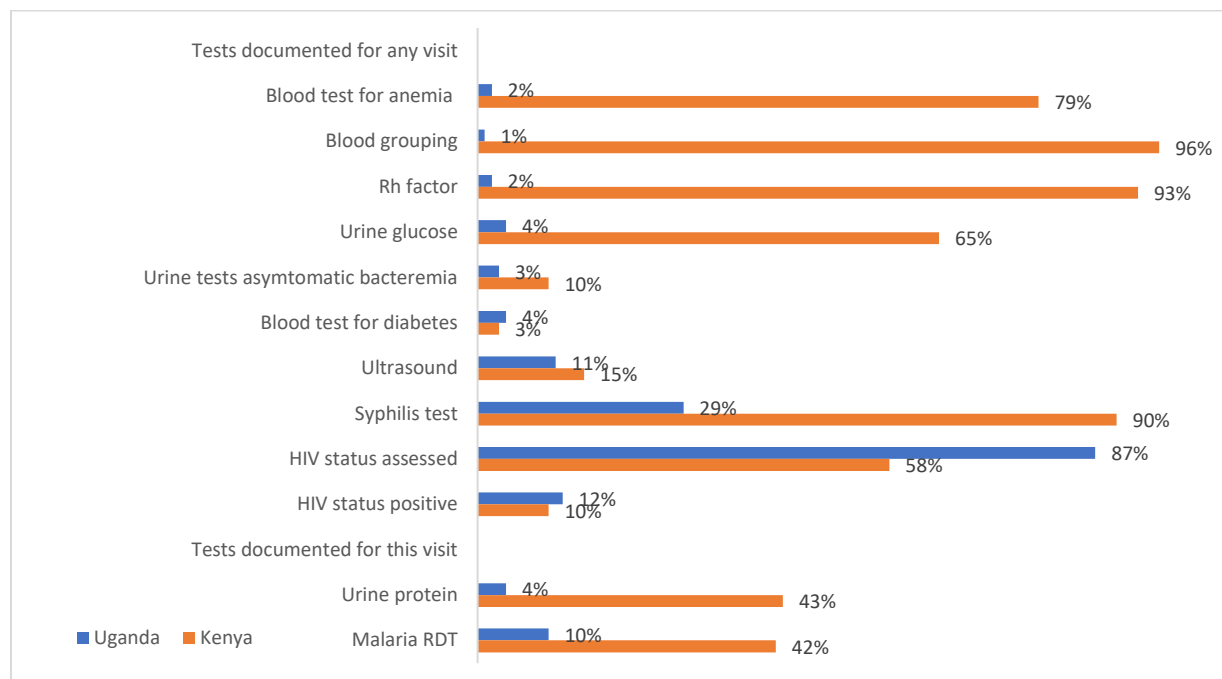
Figure 11: Record review documentation of monitoring and testing/treatment status in records (Uganda n=357, Kenya n=462)



Record reviews (where information was primarily available in the ANC register) showed the Ugandan ANC clients had on average, 41% of the 10 assessed screening measures and preventive interventions documented, and the Kenyans, on average, 57% (**Figure 11**). In general, Kenya records, observations, and client reports showed more consistent screening using laboratory diagnostics than Uganda (**Figure 12**), and facility-level information showed that higher percentages of Kenyan facilities had testing capacity for hemoglobin/hematocrit (40% Uganda and 91% Kenya) and testing for ASB, (30% Uganda and 55% Kenya).

General prevention and treatment: With the exception of provision of iron and folic acid (consistently confirmed by record review, observation, and client interview) other preventive assessments and treatments were not consistently provided. Deworming was documented in only 49% (Uganda) and 29% (Kenya) of ANC records reviewed and was observed for only around half of ANC clients (49% Uganda and 54% Kenya). Syphilis test results were rarely noted for Ugandan clients (**Figure 12**) and treatment for the few positive syphilis cases from both countries was not consistently documented. Although provider responses about recommended Tetanus Toxoid (TT) practices for ANC were not correct for many respondents, observation of ANC services and client interviews supported that TT immunization is consistently assessed/provided. Although provider interview responses indicated that providers recognized the importance of addressing physiological symptoms associated with pregnancy (e.g., back pain, constipation, heartburn), providers were not generally familiar with best practice recommendations for managing these symptoms. Client responses also indicated that, although they experienced these symptoms, they did not believe they symptoms were important enough to be reported or did not think the provider could do anything about them.

Figure 12: Observed (or documented in the individual ANC card) diagnostic tests performed at any time during this pregnancy (Uganda n=137, Kenya n=144)



Pre-eclampsia and hypertension: Interventions for hypertension and preventive calcium and aspirin for women at risk or with diagnosed pre-eclampsia were rarely recorded and were not widely reported by ANC service providers as services they provide. Few providers (14% Uganda and 13% Kenya) reported recent training in management of pre-eclampsia and reported comfort levels in managing pre-eclampsia/hypertension were low, although higher for Kenyan providers (around 60%) than Ugandan (30%). Ugandan providers, however, did report using guidelines more often than those from Kenya (around half versus one-third). As noted, blood pressure and urine protein—both key diagnostic measures for pre-eclampsia, were not routinely measured or recorded, although urine protein was more consistently checked for hypertensive women than others.

Only around 2/3 (57%, Uganda and 60%, Kenya) of interviewed providers reported they provide the initial treatment for hypertensive disorder, with most (62%) Ugandan and many (40%) of Kenyan providers reporting they refer hypertensive ANC clients for treatment. Among records that were reviewed for treatments for ANC clients with documented or diagnosed hypertension, treatment for hypertension was not recorded for any Ugandan women and was documented for less than half of eligible Kenyan women. Even if clients are referred for treatment, the result of the referral should be documented in the ANC card for follow-up.

Intermittent preventive treatment (IPT) for malaria: Provider knowledge of recommended IPT practices was high for both countries, and IPT status was recorded for most (87% Uganda and 90% Kenya) clients whose documentation was reviewed, with clients reporting they had received the IPT drug. Although almost all eligible⁵ ANC clients had received at least one IPT dose, the full IPT course was rarely found to have been provided even where the number of visits indicated the client was eligible for having completed the regimen. Delays in provision where women met eligibility criteria were noted, particularly in Kenya,

⁵ Women are eligible for IPT at any time after the 12th week of pregnancy and should receive 3 doses of the IPT drug (usually sulfadoxine and pyrimethamine) with each dose one month apart. Women who are on cotrimoxazole for HIV positive preventive treatment are also usually considered ineligible.

where only 79% of the eligible women had documentation of an IPT dose their first visit. Availability/use of guidelines for IPT by Kenyan providers was lower than for Ugandan providers. Distribution of long-lasting insecticide-treated bednets (LLINs) was reported by 81% (Uganda) and 60% (Kenya) of interviewed providers, and client interviews indicated higher proportions (81% Uganda and 97% Kenya) had LLINs at home, however, only 37% of the Ugandan (compared with 90% of Kenyan) women reported they received their LLIN from the facility.

Most respondents reported screening for HIV infection, with the HIV status recorded in 99% (Uganda) and 82% (Kenya) of ANC records reviewed retrospectively. Essentially all (over 90%) of the interviewed ANC women who were HIV positive omen reported ART (either preventive or life-long) was started. All facilities had the three-drug recommended ARV regimen available. Partner counseling about HIV and assessing the HIV status was weak, recorded in only 32% of Ugandan and 11% of Kenyan retrospectively reviewed ANC records. (Details on management of HIV-positive women are provided in the companion report on assessment of quality of integrated RMNC+A and HIV care in Uganda and Kenya).

Counseling: All data collection methods supported findings that although providers know topics of importance for ANC counseling, counseling on some key topics (breastfeeding, birth spacing, or FP) is not occurring systematically. The observation information from both countries showed evidence that counseling on risk signs during pregnancy is higher than documentation would indicate. The most common maternal risk factor that was counseled about and that women knew of, was vaginal bleeding. Counseling on breastfeeding and FP were provided to only 1/4 or fewer women in each country (except Kenya where FP counseling was 37%).

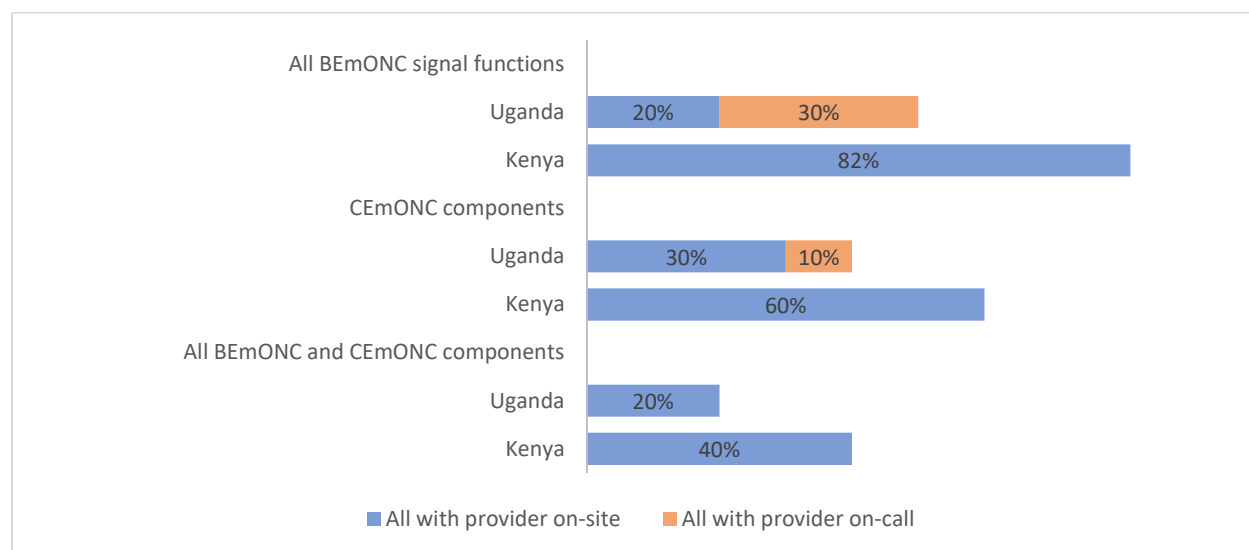
In general, the services where providers described recent training and use of guidelines (IPT, PMTCT, general ANC care) the related services were more consistently provided, and where guideline use and recent training were low, related services were weaker (preterm labor, various topics related to pre-eclampsia). Provision of interventions for complications and risk were low in both countries, but higher in Kenya than Uganda, likely reflecting the higher level of facility and provider qualifications of those who were assessed in Kenya. Although providers showed knowledge of symptoms and interventions for various risk signs and physiological conditions, they also reported older practices that are not currently WHO recommendations for best practices for conditions. This was particularly noted for physiological conditions and management for women with symptoms of pre-eclampsia.

C. Labor, delivery and postpartum care

All basic emergency obstetric and newborn care (BEmONC) signal functions (parenteral oxytocic drugs for pregnancy-related hemorrhage, parenteral anticonvulsants for pregnancy-related hypertension, parenteral antibiotics for pregnancy-related infections, manual removal of placenta, manual removal of retained products of conception, newborn resuscitation, and assisted deliveries using forceps or vacuum extractor) were available in 50% of Ugandan (with some signal functions only available in 30% of Ugandan facilities by on-call staff) and 82% of Kenyan facilities. Comprehensive emergency obstetric and newborn care (CEmONC) components (blood transfusion or caesarean section) were available in 20% (Uganda) and 40% (Kenya) of all assessed facilities (**Figure 13**).

On the day of the data collection all sample facilities in both countries had the drugs to treat maternal and infant sepsis, to provide postpartum oxytocin, and to provide MgSo4 for eclampsia. However, respondents reported knowing of cases requiring MgSo4 when it was not available in the facility because of a stock-out (43% Uganda and 11% Kenya) and of cases requiring a caesarean section who did not receive it because of lack of staff or resources (56% Uganda and 41% Kenya). This could include providers who refer patients for caesarean where timely transportation was not available. Provider responses for the services they provide are in keeping with the levels of services indicated by key informants at the facility level.

Figure 13: Availability of BEmONC and CEmONC components in surveyed facilities (Uganda n=10 facilities, Kenya=11 facilities)



Routine delivery and postpartum care

Client-centered services: Reported practices, observations, and client responses indicate that there is an awareness and actual follow-through in practice to involve the client in decisions and to provide treatment respectfully. In general, clients were content with the way they were treated, their level of involvement in decisions, and the degree of privacy that they had. Generalized informed consents and consents for caesarean sections were widely reported to be practiced. Practices that are not confirmed best practices and that may discomfort women (e.g., pubic shaving, enemas) were reported by 20-30% of providers from Uganda and around 60% of Kenyan providers, but observation and client interviews showed these were actually rarely carried out.

Encouraging the presence of birth companions was described by most providers as a common practice, and interviewed clients reported they had birth companions with them at different stages of the delivery process. This was more often encouraged and practiced among observed clients in Uganda than in Kenya. Among the observed women for labor and delivery services, around 90% of Ugandan and 8-14% of Kenyan women were accompanied by a companion at different points in the delivery process.

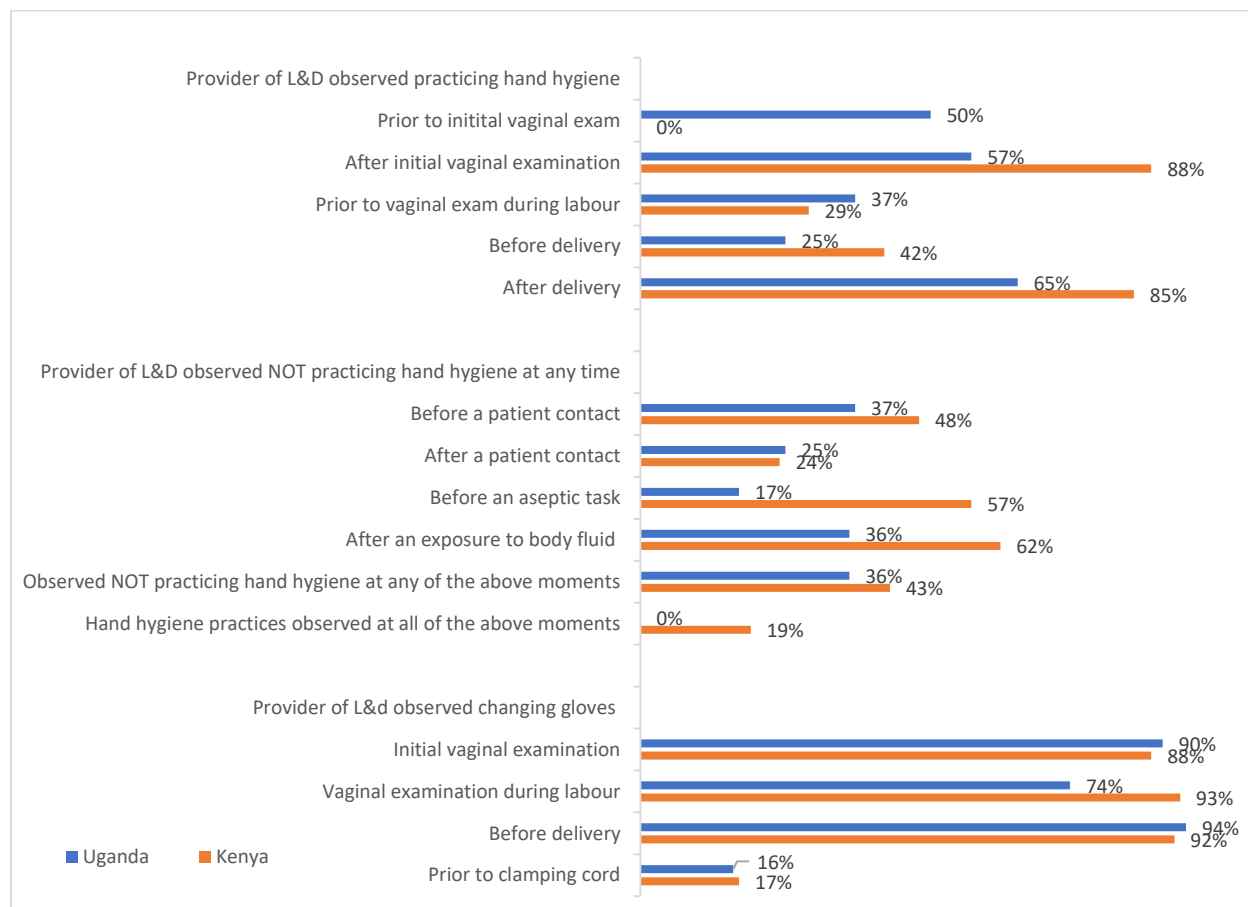
Observations of care during labor and delivery showed that, in practice, providers were attentive to comfort and dignity of the patient and actively tried to make the woman more comfortable, with supportive practices during labor (e.g., encouraging walking, eating, drinking) commonly observed. Weaknesses in client-centered respectful maternal care included not offering pain relief, not teaching breathing techniques, not ensuring women's privacy, and abusive behavior of care provider (reported by 4-6 % of clients).

While non-EB practices such as enemas and pubic shaving prior to delivery were reported by providers, client reports and observations showed that these are, in fact, rare interventions. Conversely, 1/3 of Kenyan and 3/4 of Ugandan delivered women had their perineum swabbed with antiseptic (not a recommended practice). Episiotomies (not recommended as routine practice) were also rarely recorded (1% each country) although an additional 2% of the Ugandan women had 3rd or 4th degree perineal tears documented (none of whom received a preventive antibiotic). Whether these cases should have had episiotomies or not would require further information.

Infection prevention: Infection prevention is a major focus for quality maternity care. Hand hygiene (washing the hands with soap and water or using alcohol-based handrub) and changing gloves at

recommended times during labor and delivery were not consistently observed (**Figure 14**), and providers did not identify handwashing as the single best infection prevention practice. For delivery patients, hand hygiene was not practiced at key times prior to putting on gloves for a procedure but rather, was more commonly performed after the procedure and removal of gloves. Specific times when hand hygiene was most commonly practiced were after the initial vaginal examination, and after the delivery (**Figure 14**). During the observations of labor and delivery (L&D) service providers, 36% (Uganda) and 43% (Kenya) were observed not practicing hand hygiene at least once when observed at any of the 5 moments defined by World Health Organization (WHO) as times hand hygiene should be practiced,⁶ with none of the Ugandan providers and 19% of the Kenyan providers observed using hand hygiene practices at all relevant times when observed providing labor and delivery services. Almost all Labor and Delivery providers (over 90% in each country) were observed changing sterile or high-level disinfected gloves at initial examinations and before delivery, but only 16% (Uganda) and 17% (Kenya) changed their gloves prior to cutting the umbilical cord. Hand hygiene points with soap and water or hand disinfectant were observed available in the delivery room for all Ugandan facilities and observed in 80% of the Kenyan facilities.⁷

Figure 14: Observed infection prevention practices during labor through delivery (Uganda n=59, Kenya n=21)



⁶ Five moments defined by WHO for hand hygiene are before and after each patient contact, before any aseptic task, and after exposure to body fluids.

⁷ One referral hospital with delivery services in Kenya did not have the facility inputs for delivery services assessed.

Support for quality MNC: The proportion of providers reporting any training in newborn resuscitation where a doll was used was high, although not universal. However, most reported their training was more than 12 months ago. On average, higher percentages of Kenyan delivery and newborn care providers reported recent training in delivery or newborn care related topics, reported using guidelines or protocols related to these topics, and felt very comfortable with their ability to provide key delivery and newborn care interventions. Kenyan respondents reported a high comfort level with providing the screening and management of high burden maternal complications (post-partum hemorrhage [PPH], pre-eclampsia/eclampsia, prolonged/obstructed labor, peripartum infections, and preterm delivery), while an average of 14% (Uganda) and 7% (Kenya) reported low levels of confidence across these same services (Figures 15 and 16).

Among all interviewed providers 73% (Uganda, n=71) and 76% (Kenya, n=104) reported their facility conducted any reviews of patient deaths and near misses. Among those reporting their facility conducts any death audits, almost all respondents (81% Uganda and 92% Kenya) reported their facility has a formal structure for reviewing death audit findings, with 69% (Uganda) and 83% (Kenya) reporting death audit findings are reviewed at least every three months. Asked to specify mechanisms for acting on results of death reviews, most providers simply reiterated that this is part of the review process.

Figure 15: Average percentage of delivery care respondents, reporting recent training, using guidelines/protocols, and feeling very comfortable providing services across the indicated number of topics (Uganda n=31, Kenya n=20)

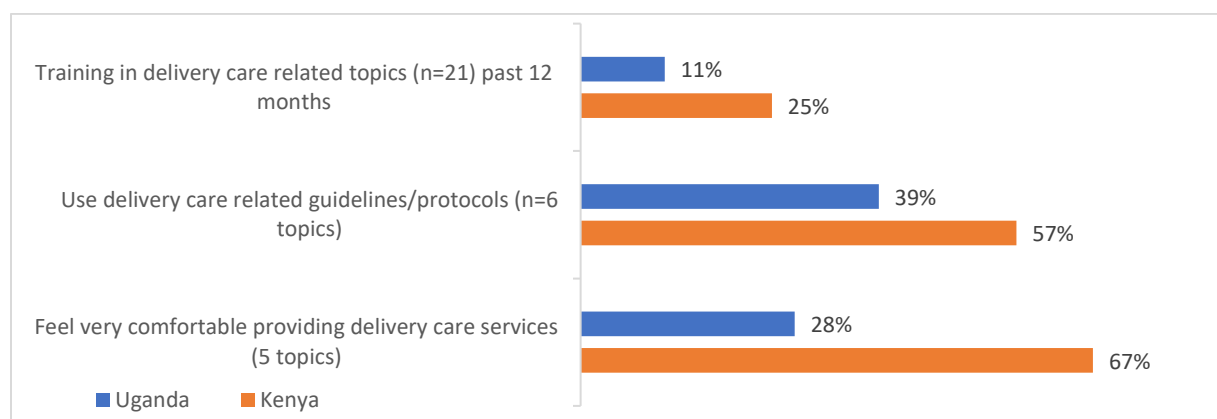
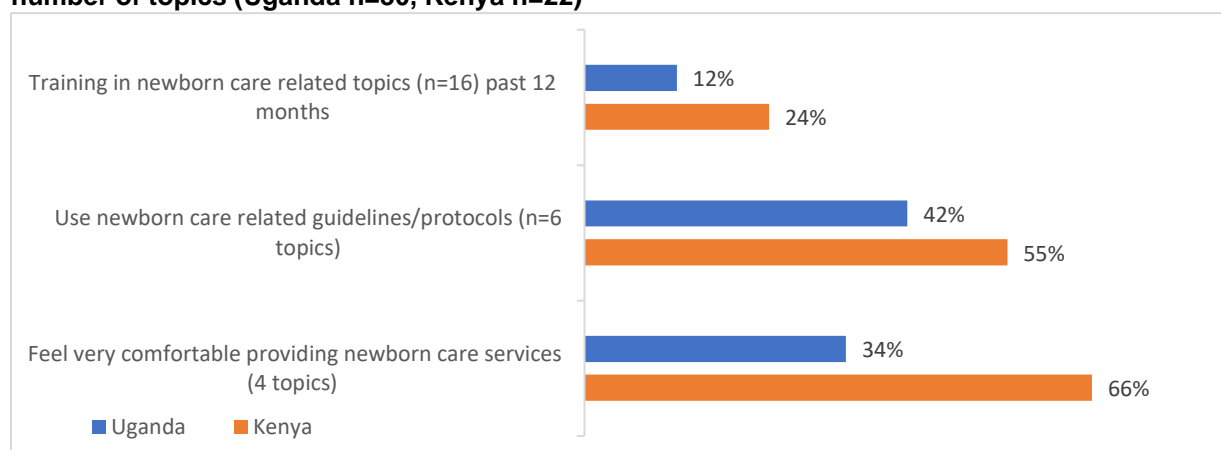


Figure 16: Average percentage of newborn care respondents, reporting recent training, using guidelines/protocols, and feeling very comfortable providing services across the indicated number of topics (Uganda n=30, Kenya n=22)



Admission history: Key information for identifying risk for the mother and fetus was not observed to be consistently collected during the admission process. A review of labor and delivery records for the observed women, for documentation of 12 items relevant to pregnancy and delivery such as syphilis and HIV test result, hemoglobin level, maternal vital signs, and infant assessment data (e.g., lie and presentation, fetal heart rate), showed that, on average, 40% of the Ugandan and 93% of Kenyan women had documentation for each of the items. For both countries the most commonly assessed information was vaginal bleeding during this pregnancy and HIV status.

Admission physical examination: Overall, Kenyan providers were observed to perform more of the initial assessments recommended for women in labor. Across all methods of assessment, the least commonly recorded information on patient history and admission assessment were urine protein, urinalysis results, syphilis test results, a full assessment of risk symptoms this pregnancy, and measured temperature and maternal pulse. Fetal assessments on admission (checking presentation, lie, and fetal heart rate) were common across methods used to assess these. Measuring fundal height was less common (**Figure 17**).

Monitoring of labor and immediate postpartum status: Maternal and fetal monitoring during labor were almost universally reported as routine practices (**Figure 18**), however, observations and record reviews showed gaps, particularly with the timing and recording of both maternal and fetal measures.

Figure 17: Observed admission assessments for women in labor (Uganda n=42, Kenya n=8)

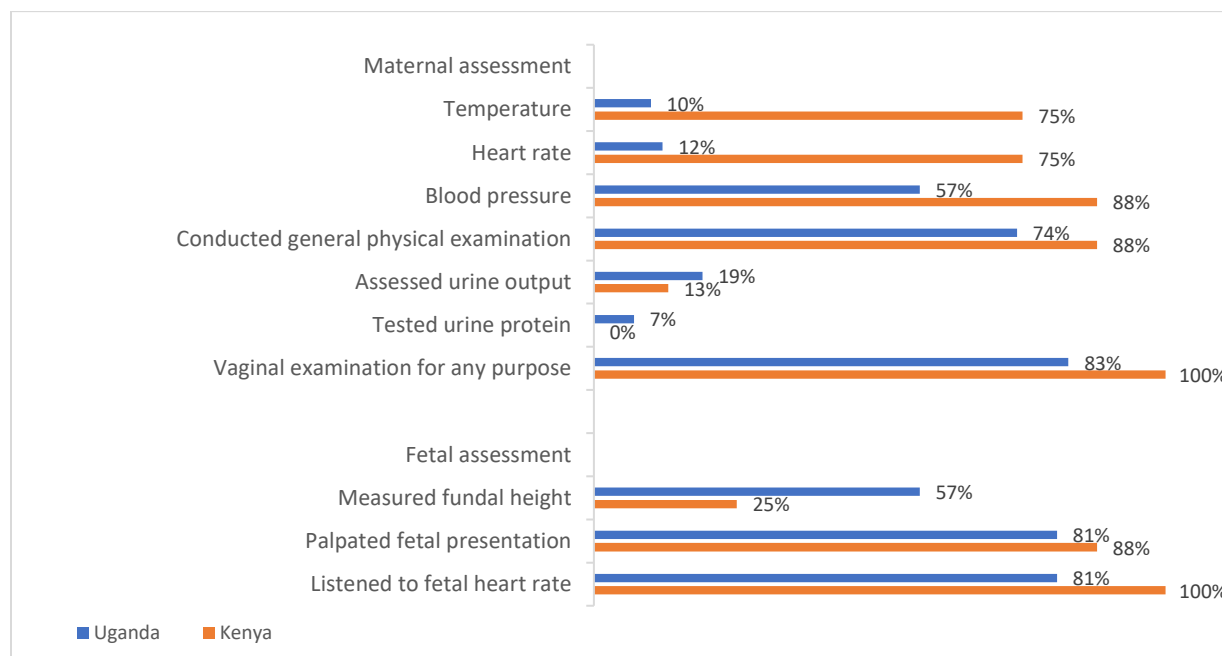
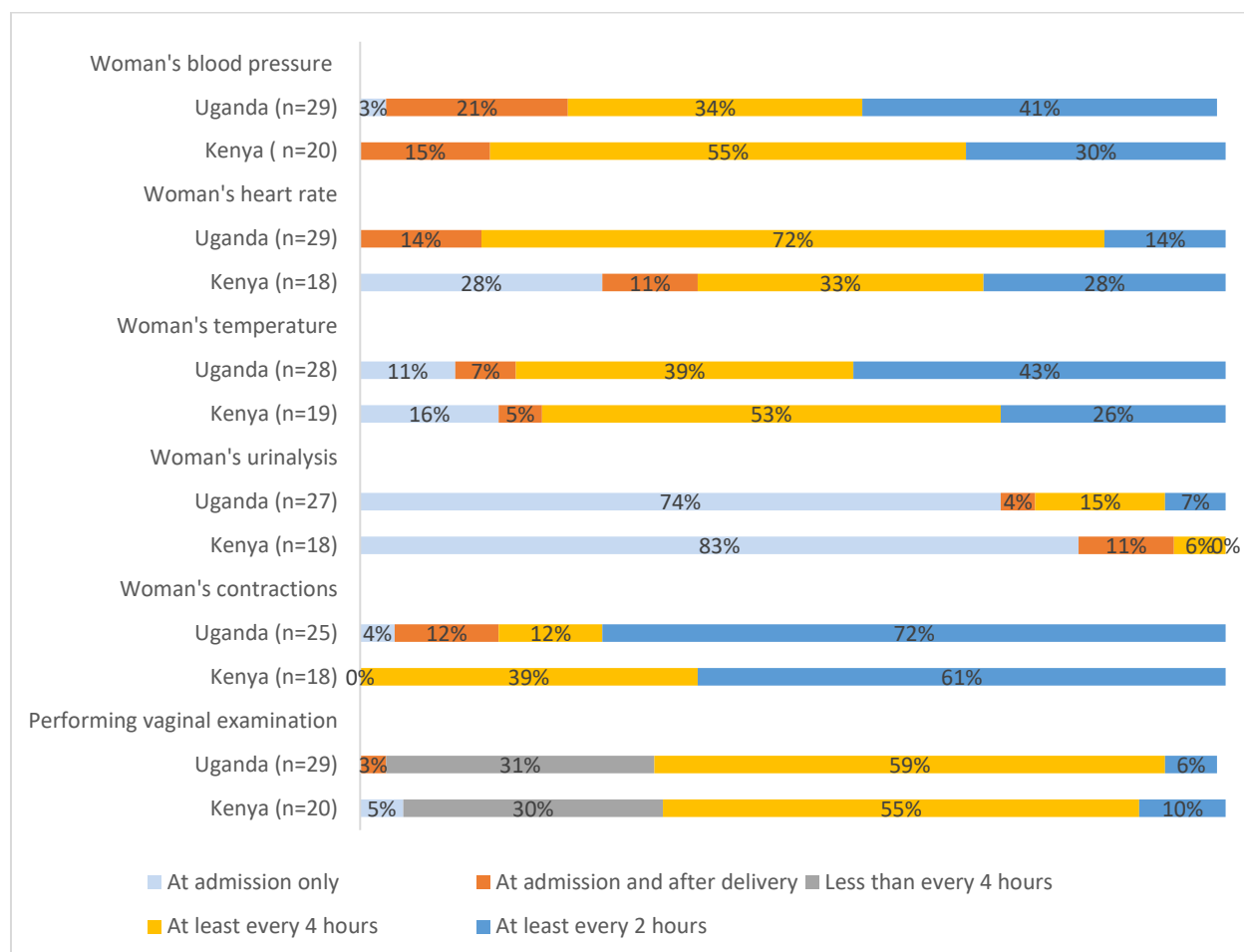


Figure 18: Percentage of L&D providers reporting they practice the indicated monitoring with the indicated frequency during L&D (number of respondents varied by item)



Use of partographs was reported by almost all providers completing the delivery questionnaire, however record reviews showed lower levels of actual availability of completed partographs, particularly in Uganda, where partographs were found for 44% compared with 84% of Kenyan deliveries with record reviews from a general sample. Records selected for review of maternal complications deliveries had lower percentages of records with partographs (27% Uganda and 66% Kenya). It was notable that, whereas the recording on partographs was similar for those reviewed during record reviews (**Figure 19**) and observations (**Figure 20**), recording of measures on partographs was more frequent than measurements actually observed (**Figure 20** and **Figure 21**).

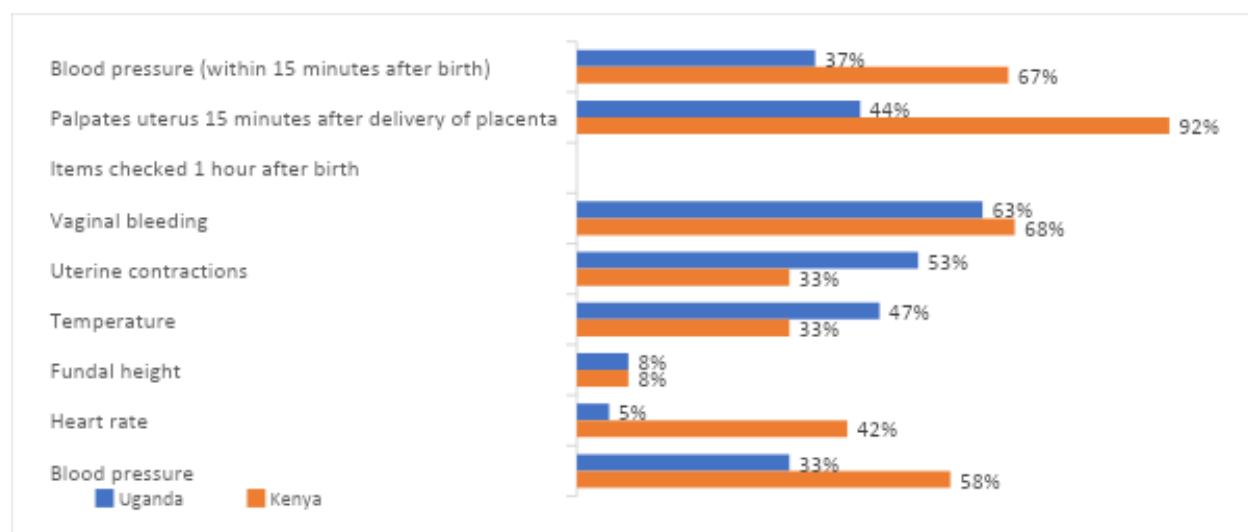
According to the medical documentation review, the most deficient monitoring practices at the first stage of labor for both countries were monitoring of mother's temperature, blood pressure, and pulse and heart rates and also cervical dilation for Uganda (**Figure 19**).

Active management of the third stage of labor was universally practiced with routine provision of oxytocin within the first minute after birth reported by most providers (62% Uganda and 78% Kenya) and observation showing similar levels of actual practices. Documentation of the timing for administering oxytocin, however, was inconsistent (not recorded in around 30% or more of the records from each country).

Maternal post-partum monitoring was also weak, with most monitoring observations occurring for less than 50% of the women in either country. Postpartum vaginal bleeding was the most commonly monitored item, while fundal height and heart rate monitoring were the least performed practices in both countries (**Figure 22**).

It is noteworthy to mention that documentation of essential practices during the postpartum period varied within 50%-65% range in both countries. This included documentation of uterotonic (while its administration was universally observed in both countries), blood loss, delivery method, and birth time.

Figure 22: Observed maternal monitoring in the immediate postpartum period (Uganda n=43, Kenya n=12)



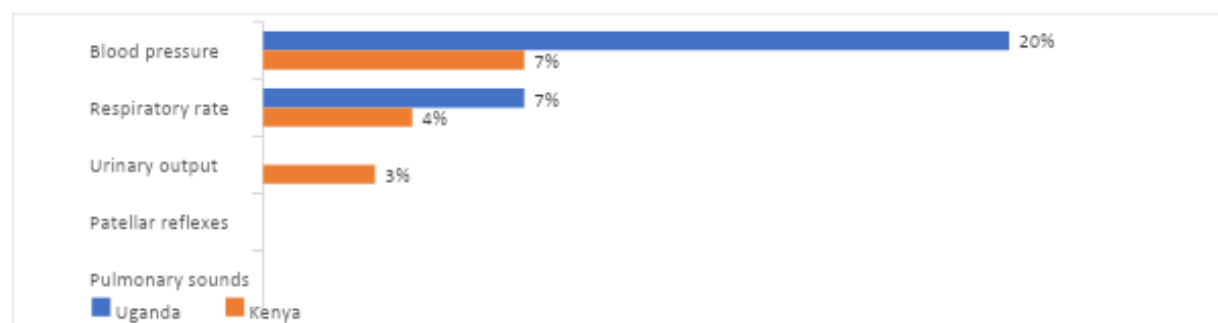
Across all methods, the least consistently recorded and observed monitoring results were maternal heart rate and maternal temperature. Recording of the time the placenta delivered and estimated blood loss was low for all reviewed delivery records, including those for observed delivery clients. Preventive measures of immediate postpartum uterine massage and examining the placenta for completeness were observed for most (72% and 91% of Ugandan clients and 100% and 92% of Kenyan clients), however these practices were rarely documented.

Prevention and management of maternal complications

Antibiotics for prevention and treatment of maternal conditions: Provider knowledge, training, use of guidelines, and documented practices related to administering antibiotics for prevention or treatment of maternal symptoms of infection, following WHO best practices, were weak. When provided a situation and then asked about treatment, over-reporting of types of cases where antibiotics are routinely warranted were reported by almost all providers. Overall, record reviews showed 18% (Uganda) and 42% (Kenya) of women with conditions warranting antibiotics documented with an EB treatment; the others had no record of receiving any antibiotic. Pre-surgical EB antibiotics for caesarean sections (a correct practice) were almost universally recorded for Kenyan patients in all record reviews, but for less than half of Ugandan caesarean sections (from complicated maternity sample—the general sample for Uganda had only 1 caesarean section, which did receive pre-surgical EB antibiotic).

Diagnosis and management of severe pre-eclampsia: Knowledge, reported provision of the services, and documentation all showed that while knowledge of symptoms and monitoring for pre-eclampsia was high, practices for prevention and treatment were low. Knowledge and comfort in providing the service much higher for Kenyan respondents. When asked about different scenarios and appropriate/safe use of MgSO₄, Ugandan respondents averaged 17% for each of the correct responses about when MgSO₄ should be delayed, while Kenyan respondents averaged 56%. Ugandan respondents were all less ready to provide services for pre-eclampsia, indicating less knowledge/use of guidelines (61% versus 90% for Kenya), recent training (16% versus 35% for Kenya) and a lower level of comfort in providing care for the pre-eclamptic woman (16% feeling comfortable versus 70% for Kenya). Record reviews showed that while most women received MgSO₄ when indicated, provision of the full treatment and adequate monitoring of the women while receiving treatment was not evident (**Figure 23**).

Figure 23: Record review: Measures documented on an hourly basis for severely pre-eclamptic patients (Ugandan=54, Kenya n=69) (maternal complications sample)



Although low percentages of ANC hypertensive clients had evidence of antihypertensive treatment, the delivery records showed almost all delivery patients (92% Ugandan and all Kenyan) with severe pre-eclampsia (diastolic blood pressure >110) had an antihypertensive documented.

Management of PPH: Knowledge of identification and interventions for PPH was high, however, actual practices documented for monitoring and treatment of PPH were less comprehensive. There was no documentation of bimanual compression of the uterus, aortic compression, or balloon or condom tamponade being used for PPH from either country while provider knowledge questions indicated knowledge of these interventions, particularly in Kenya. Abdominal compression of aorta and condom tamponade were reported as appropriate actions for heavy bleeding by 35% and 70% of Kenyan and 29% and 6% of Ugandan care providers, respectively). Although 6-7% of women required blood transfusion, interventions to reduce bleeding other than provision of a therapeutic oxytocic (documented for 93% of the eligible Kenyan and 44% of eligible Ugandan women) were not documented.

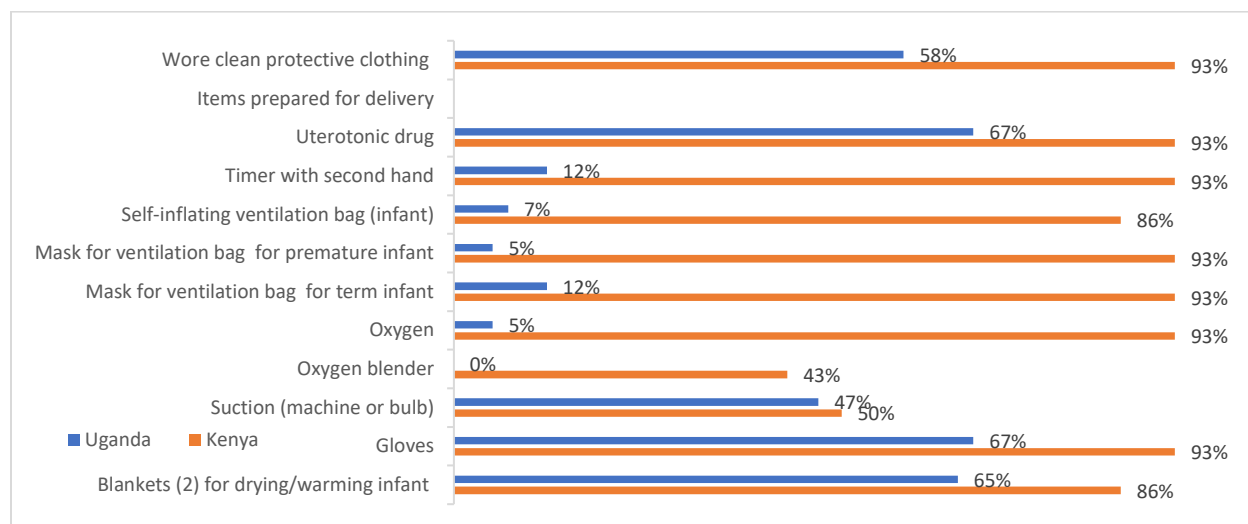
Diagnosis and management of delayed/obstructed labor: Among records reviewed with a diagnosis of prolonged/obstructed labor, few used a partograph with a fourth action line (5% Uganda and 30% Kenya). Results from assessments related to identifying the cause of the delayed labor and administration of labor augmentation drugs were rarely recorded. Among the observed women for whom a partograph was used (44% of Ugandan and 90% of Kenyan women) only three Ugandan women were observed to have passed the partograph alert line for delayed/obstructed labor. Actions taken were to encourage them to walk and to alert emergency transportation (1 of 3), ask them to empty the bladder, and continue to hydrate but omit solid food (2 of 3). The action line was reached by two of these women at which time a specialist was consulted and preparation made for a caesarean section.

Corticosteroids for mothers with risk of preterm births: Administration of antenatal corticosteroids (ACS) was a national policy in both Uganda and Kenya at the time of this assessment. Knowledge about criteria for safe ACS administration was low, and record reviews showed only around 11% (Uganda) and 15% (Kenya) of women with preterm labor at ≤ 34 weeks gestation received ACS and slightly higher

levels, 19% (Uganda) and 18% (Kenya) of women with gestational ages >34 and <37 weeks (not the recommended age group), also receiving ACS. Although these are few cases, the providers did not seem to differentiate ACS administration by degree of prematurity.

Barriers to providing quality intrapartum (or delivery) services: Providers reported knowing of cases where MgSO₄ was needed but was unavailable (43% Uganda and 11% Kenya), and where a caesarean section was needed but was not provided because of some gap in resources to provide the caesarean (56% Uganda and 41% Kenya). Observation of items prepared for delivery showed a major lack equipment and supplies for managing newborn respiratory emergencies in Ugandan facilities (**Figure 24**).

Figure 24: Observed provider preparation for delivery (Uganda n=43, Kenya n=14)



Newborn care: Both countries have adopted the WHO guidelines for essential newborn care.⁸ Assessment of the newborn and monitoring of the infant for danger signs during the first hour after birth was inconsistent, although practices were performed more regularly for observed Kenyan deliveries (all from one facility) than Ugandan. Providers commonly reported that they implement the best practice care for the newborn for thermal protection (drying the infant and then skin-to-skin practices immediately after birth and later) and breastfeeding immediately postpartum. Recording, observation, and client interviews, however, while supporting that these reported practices are actually implemented, showed them at lower percentages than reported. It should be noted that the facilities and interviewed clients were not the same as those in the observation or record review samples, but the consistent finding was that there are weaknesses in recommended practices such as immediate and continued skin-to-skin contact between the mother and infant. Provider identification of components of a thorough newborn assessment was weak, with observation and record reviews providing evidence that routine postpartum newborn assessment and routine newborn monitoring are not consistently practiced as per WHO recommended practices. Low levels of practice for measuring temperature and respiratory rate were confirmed across all data collection methods. **Table 3** provides further information on documentation of immediate postpartum newborn care, and **Table 4**, information on observed postpartum newborn care.

⁸ WHO Recommendations on Newborn Health. Guidelines Approved by the WHO Guidelines Review Committee. Updated May 2017.

Table 3: Record review: essential newborn care during immediate postpartum period (general sample)

	Uganda (n=247)	Kenya (n=263)
Meconium observed in amniotic fluid	0%	2%
Clear amniotic fluid documented	70%	52%
Clear amniotic fluid and infant suctioned	34%	1%
Cord clamping within 1-3 mins after birth	45%	0%
Immediate dry	61%	7%
Immediate skin to skin*	69%	Not available
Continued skin to skin with mother during the 1st hour	37%	17%
Weight measurement within first hour	96%	97%
Temperature measured within first hour	3%	24%
Respiratory rate counted within first hour	1%	47%
Cord care (chlorhexidine ⁹ or no medication)	100%	95%
Tetracycline eye drops or ointment	62%	73%
Breastfeeding initiated within 1st hour after birth	70%	79%

Table 4: Observed immediate postpartum newborn care

	Uganda (n=59)	Kenya (n=21)
Immediately and thoroughly dried baby with towel after breathing assessed	81%	100%
Discarded wet towel and covered infant with dry towel	79%	83%
Suctioned airways when amniotic fluids were clear	58%	17%
Immediately placed newborn on the mother's abdomen "skin-to-skin"	84%	75%
Continued skin-to-skin with mother during the 1st hour (with body and head covered)	65%	33%
Assisted the mother to initiate breastfeeding within the first hour.	81%	75%
Monitored baby every 15 minutes in the first hour for chest indrawing, fast breathing, warmth	28%	42%
Weighed the infant	91%	100%
Measured infant temperature	0%	25%
Measured infant respiratory rate	5%	33%
Provided infant eye care with Tetracycline	58%	100%
Provided cord care with Chlorhexidine	0%	25%

Care of the small/sick newborn: Training and use of guidelines related to care of the small/sick newborn, while not commonly reported, were more frequently reported by Kenyan respondents. Kenyan respondents also reported more experience with newborn care for complications, such as management of congenital anomalies, naso-gastric feeding, care of preterm babies, and newborn resuscitation with bag and mask. Knowledge, however, was not strong. Among a variety of approaches to elicit responses about identifying the infant at risk, symptoms of risk, and initial actions for suspected sepsis, percentages of respondents identifying correct responses were low. Ask to identify danger signs (non-prompted), less

⁹ Both countries have adopted UNICEF/WHO Essential Newborn Care guidelines. Cord care recommendations for facility births is to keep the cord dry and clean and apply no topical agent. Chlorhexidine is no longer recommended.

than 20% of Ugandan respondents mentioned hypothermia, fast breathing, movement only when stimulated, or convulsions. Although higher proportions of Kenyan respondents identified danger signs, the percentages were still low.

The following conditions were assessed on a sample of records that were specifically selected for infants with complications.

Management for respiratory distress syndrome (RDS): Continuous positive airway pressure (CPAP) was recorded for 35% of preterm infants with a recorded diagnosis of RDS in Uganda, while Kenyan records did not show CPAP use (although hospitals had oxygen). Use of surfactant for preterm infants with RDS (not recommended) in Uganda and Kenya, while provided to few cases, was not restricted to premature infants with RDS recorded.

Newborn resuscitation: Recent training in newborn resuscitation was reported by less than half of respondents (37% Uganda and 45% Kenya). Kenyan respondents reported more experience in newborn resuscitation and greater comfort in providing the intervention and performed better for the neonatal resuscitation case study. Management of newborn asphyxia was assessed in retrospective record reviews for a general sample and for a sample selected specifically for the diagnosis of asphyxia. The retrospective record reviews for a general sample of infants found that among the 7% (Uganda) and 5% (Kenya) of infants with documented newborn asphyxia, resuscitated with bag and mask was used at higher levels in Kenya (66%) than Uganda (10%). Retrospective record reviews for a sample of infants selected for a diagnosis of asphyxia, however, had documentation of resuscitation with bag and mask at similar levels in both countries (59% Uganda and 57% Kenya). Ugandan providers documented only rubbing the back (39%) or no intervention (50%) most often in the general sample of infants with asphyxia whereas Kenyan providers rarely documented rubbing the back and documented no interventions for 33% (general sample) and 41% (complicated infant sample). Review of records without particular selection criteria showed no documentation of newborn resuscitation attempts for infants classified as stillbirths from either country. It is unclear whether this is because resuscitation attempts for stillbirths that are unsuccessful were not documented or not attempted. With no information documented on the fetal heart rate at the admission and throughout the course of the delivery in delivery registries, it is not clear whether the fresh stillbirth happened before the admission of the women in labor or as a result of an intrapartum event in the health facility. Additionally, the poorer results among the records for infants selected for asphyxia may be a result of other conditions that the infant had (a higher proportion of Kenyan infants in this sample had very low birth weights [VLBW]).

Thermal protection: Neither country used Kangaroo Mother care (KMC) in high percentages for infants with VLBW (defined for this study as ≤ 2000 grams), but where it was used, it was stronger in Ugandan facilities where 42% of the stable and 26% of the unstable infants were documented receiving KMC, with almost all receiving KMC throughout their stay. For Kenya, 5% of the unstable infants were documented as receiving KMC, with almost all receiving it throughout their stay. Among these VLBW infants, 65% (Kenya) and 3% (Uganda) were documented as receiving radiant warmer/incubator warmth.

A protocol to operationalize KMC was observed for 2 of 10 Ugandan facilities and 7 of 10 Kenyan facilities, with trained staff reported (by key informants) for the 2 Ugandan, and 4 of the Kenyan facilities with a protocol, plus one additional facility, however among interviewed providers, knowledge about specific KMC implementation practices were weak. KMC practices in Uganda should be strengthened, particularly in these facilities where special care or NICUs are not available. Even where incubators are available, the feasibility of promoting intermittent KMC should be strengthened.

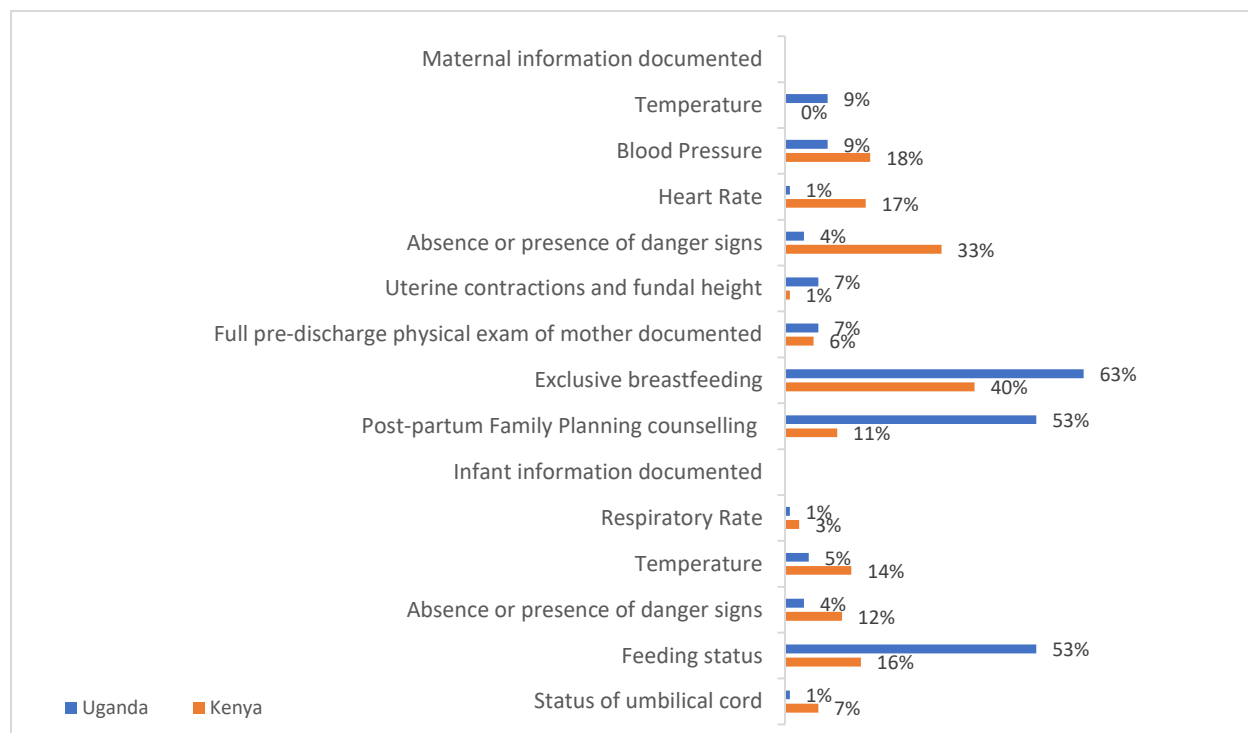
Infants with/at risk for sepsis/severe infection: Among infants at risk (assessed using selected patient records) antibiotics were recorded for 42% (Uganda) and 96% (Kenya) of infants with conditions warranting antibiotics, with ampicillin and gentamicin the most commonly provided antibiotics in both countries. Infants without risk symptoms also received antibiotics (particularly in Kenya where 30% who

did not have the assessed conditions documented), which might or might not have been warranted by other conditions. These were also primarily injectable antibiotics.

Newborn- and family-centered practices: Observation results demonstrated that routine suctioning of newborns, without justification, which is not recommended, was widely practiced in Uganda (58%). Provider interview results also shown that they are not familiar with facility policies for non-discrimination and mistreatment of infants.

Postpartum care and pre-discharge practices: Routine documentation of the infant and maternal status on discharge was low, with the exception of documenting the infant feeding status in Uganda (**Figure 25**).

Figure 25: Record review documentation of pre discharge findings for the mother and newborn (Uganda n=247, Kenya n=262)



Provider and client responses and record reviews confirmed that routine counseling on maternal and newborn risk signs after discharge was not consistent, with vaginal bleeding being the most commonly cited complication by providers and clients for which to seek help. Additionally, client interviews supported the record review finding that low percentages of women received routine postpartum assessments, with findings higher for Kenyan than Ugandan clients.

Although high percentages of delivery service providers report providing counseling about FP prior to discharge (81% Uganda and 55% Kenya), the percentage of women reporting they received counseling on FP prior to discharge was much lower (28% Uganda and 13% Kenya). Methods of choice on discharge that was documented for postpartum Ugandan women with records reviewed were lactational amenorrhea method (LAM) (36%) and condoms (23%). There was no documentation of methods of choice prior to discharge for Kenyan women. High percentages of providers indicated they were knowledgeable about FP methods appropriate at different times postpartum. IUD insertion, which would be indicated postpartum prior to discharge if the woman wanted to use this method, was only reported to be provided by around half of respondents from each country.

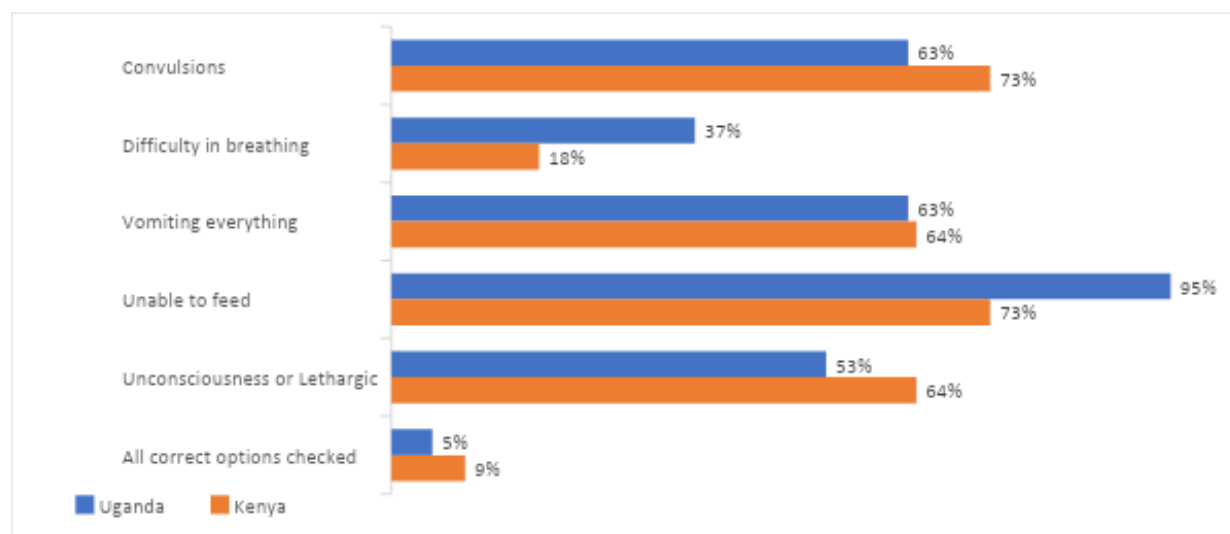
D. Outpatient Care of Children Under Five Years Old

Overall observation of consultations and review of patient records showed that adherence to integrated management of childhood illness (IMCI) guidelines for assessment of an illness, diagnostic criteria, and treatment for respiratory, fever, and diarrheal illnesses were weak. This was true for young infant (< 2 months) and older children. Among interviewed providers, less than 30 percent from either country reported having received recent training in IMCI practices for young infants or children. Use of IMCI guidelines was reported by 37% of Ugandan and 73% of Kenyan respondents. Despite this, there were no consistent findings of stronger practices nor knowledge for IMCI by Kenyan service providers.

Assessment of the sick child: Provider knowledge, record reviews, and observed consultation showed the IMCI assessment recommendations were not readily known (or followed) by providers (**Figure 26**). When identifying whether the sick child had a sign or symptom assessed, the criteria was whether information on the sign/symptom was elicited, regardless of whether the finding was negative or positive. The information may have come as a result of provider recording either a positive or negative result, or observation of a provider questioning, provider identifying a sign/symptom without questioning, or the caregiver mentioning the sign/symptom. Record reviews and observations showed low levels of documentation for the assessment of sick children, including a full assessment of three IMCI danger signs¹⁰ with recorded findings (0% Uganda and 8% Kenya) and observed findings (6% Uganda and 14% Kenya) or major symptoms¹¹ observed (37% Uganda and 25% Kenya) (**Figure 27**). Less than 30% of children had recorded or observed measurement of temperature or recorded respiratory rate (0% Uganda and 2% Kenya).

Routine assessment of nutritional status was weak, with weight measured for 45% (Uganda) and 43% (Kenya) of observed consultations. Plotting the weight against a growth chart (providing evidence for interpreting the weight for the individual child), however, was only performed for 6% (Uganda) and 0% (Kenya) of the children. Record reviews similarly showed only 25% (Uganda) and 22% (Kenya) of children with recorded weights during their most recent visit, and only 4% from each country having a Z score or mid-upper arm circumference (to identify malnutrition) recorded.

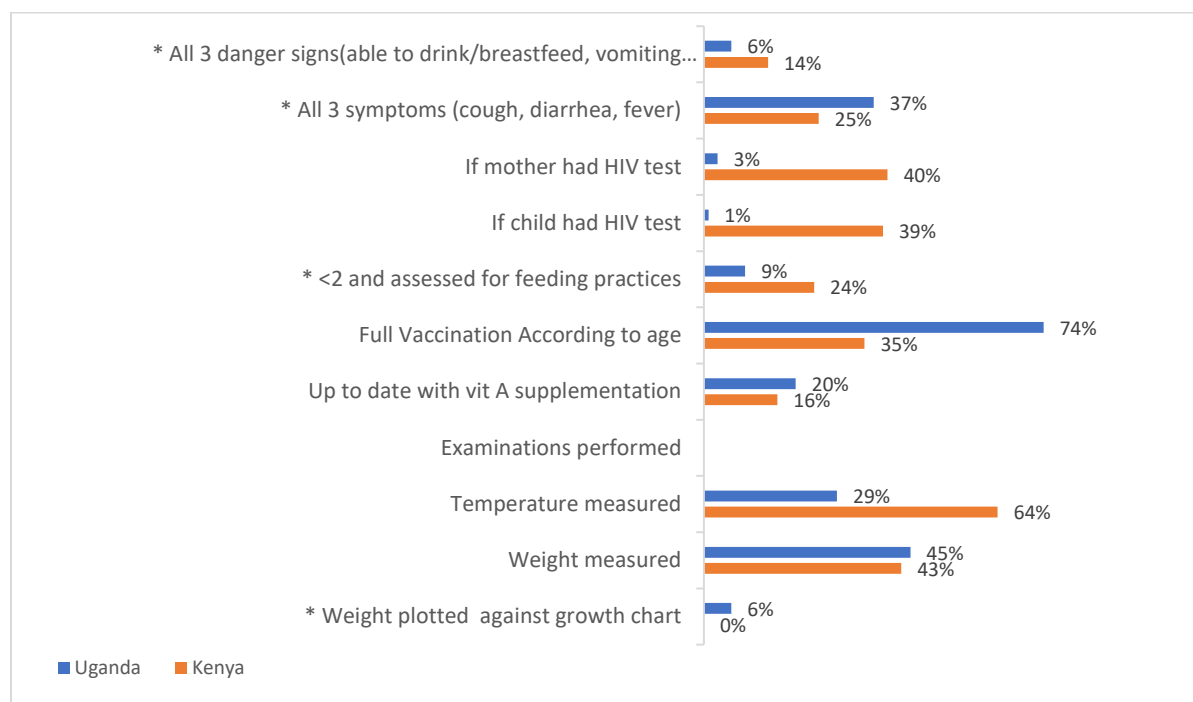
Figure 26: Provider reported IMCI danger signs (unprompted) (Uganda n=19, Kenya n=19)



¹⁰ Whether the child is able to drink anything, whether breastfeeding, and whether vomiting everything

¹¹ Whether the child has had cough, diarrhea, or fever

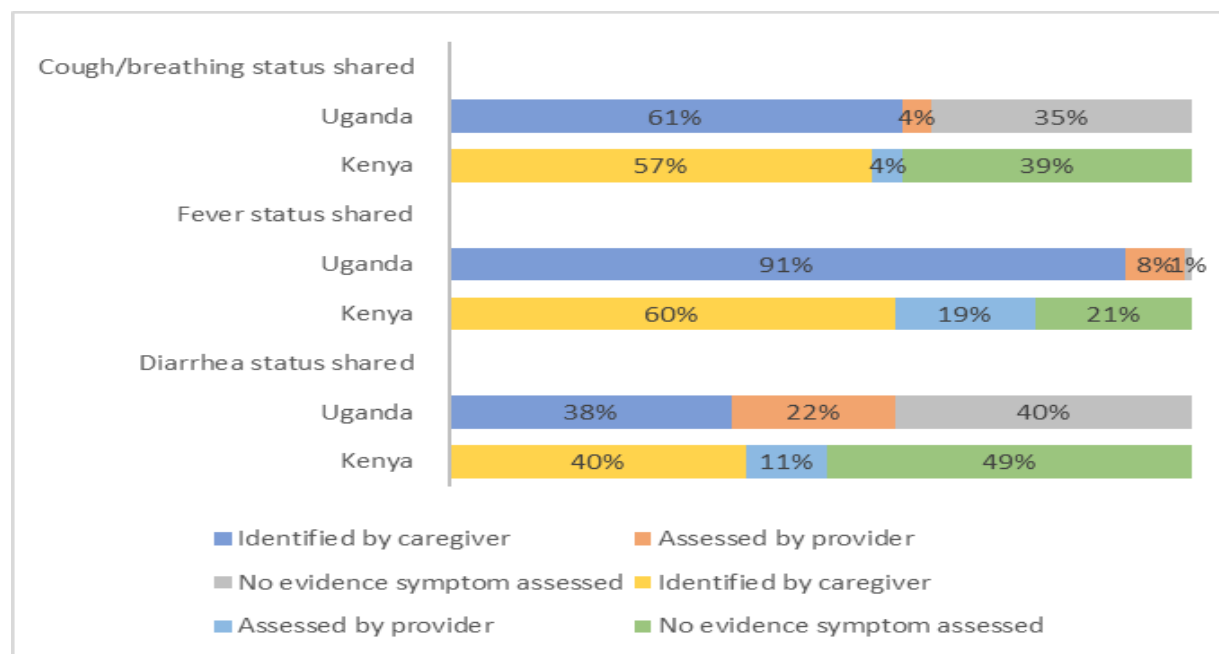
Figure 27: Observed (or documented in the individual child health card) signs or symptoms assessed (Uganda n=145, Kenya n=168)



*WHO Priority Indicators for IMCI at health facility level

The assessment of children with symptoms of critical illnesses was primarily passive, where the caregiver mentioned the symptom as a reason for coming to the facility, with few providers asking about the symptom if it was not mentioned by the caregiver (Figure 28).

Figure 28: Observed (or documented in the individual observed child health card) symptoms assessed



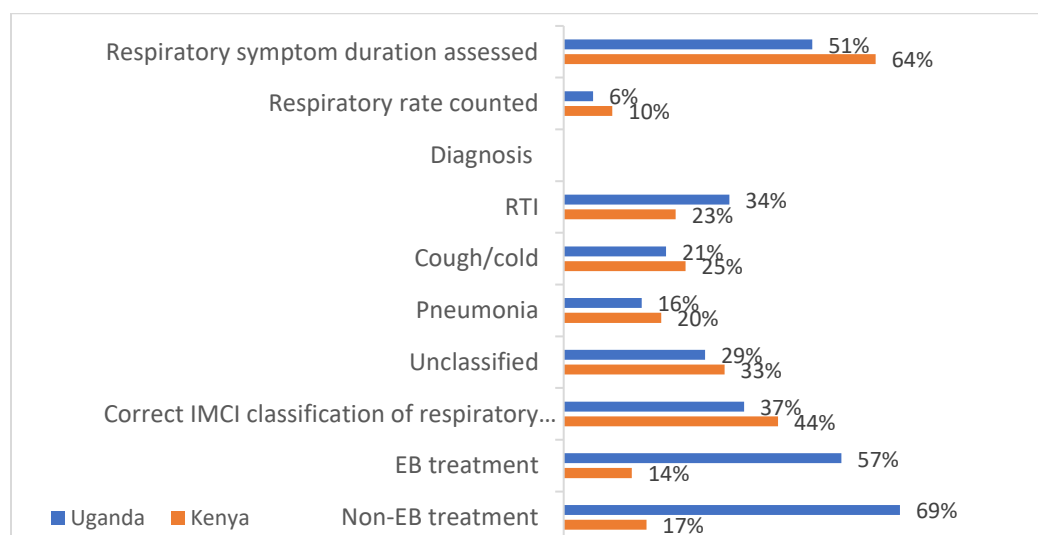
Treatments: Over-prescription of antibiotics for respiratory tract infections, fever, and diarrhea was found. Record reviews for both countries showed that over 80% of the sick children were prescribed antibiotics, but less than 20% of these were classified as justified.¹² Additionally, around 80% (Uganda) to 90% (Kenya) of the records reviewed noted prescriptions of non-EB drugs (e.g., the wrong antibiotic or multiple antibiotics, or antibiotics or antimalarials that were not warranted in view of documented symptoms or diagnoses). Additionally, children were prescribed drugs for symptomatic treatment for pain (e.g., Panadol) and fever (e.g., acetaminophen), or vitamins.

Counseling on continued feeding: Counseling to the caregiver to give extra fluids and continue feeding the sick child was provided less often by Ugandan than Kenyan providers, and where this counseling was provided, it was not associated with any specific diagnosis. Advice to give the sick child extra fluids was provided by 7% (Uganda) and 18% (Kenya) of providers, and to continue feeding the child by 6% (Uganda) and 17% (Kenya) of providers.

Diagnosis and treatment of specific illnesses for the sick child

Respiratory symptoms: When asked about pneumonia services, around 2/3 of interviewed providers from both countries reported high levels of comfort in providing services, around 1/3 or less reported recent training related to childhood pneumonia, and around 50% reported using guidelines when providing these services. Record reviews and observation showed that respiratory rate is rarely counted. All methods showed that amoxicillin is known and used as the EB drug for pneumonia, however record reviews and observation showed high percentages of the prescribed doses were incorrect. Overall, 37% (Uganda) and 44% (Kenya) of observed children with respiratory symptoms were correctly classified, as per IMCI guideline; EB treatment was provided for 57% of children in Uganda with respiratory symptoms and 14% in Kenya with similarly higher non-EB treatment documented in Uganda (69% vs 17% in Kenya) (Figure 29).

Figure 29: Observed (or documented in the individual child health card) respiratory symptom assessment and management (Uganda n=90, Kenya n=100)



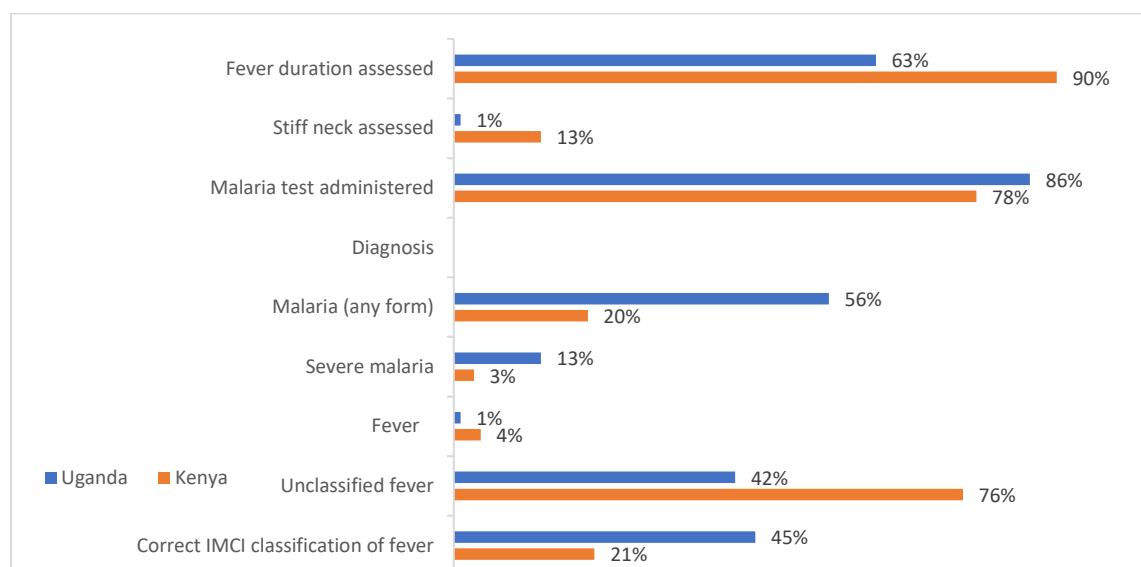
¹² Justified use of antibiotics for children included diagnoses related to pneumonia, sepsis, or dysentery. Medication type prescribed is NOT indicated, not justified for that age of child or classification: 1) Use of any antibiotics in Diarrhea treatment except **Ciprofloxacin** in case of dysentery; 2) Use of any non-EB treatment except recommended (1st choice) medication for any IMCI condition, including: a) Use of antibiotics to treat malaria (except very severe febrile illness); b) Use of antibiotics to treat cough or cold, *RTI, URTI; c) Use of any antibiotic except oral amoxicillin to treat pneumonia or oral infection; d) Use of cotrimoxazole and/or ARV treatment for any conditions except HIV infected or HIV exposed children and e) Use of antipyretics in case of high fever (≥ 38.5 and above)

Among the observed children diagnosed with pneumonia only 42% (Uganda) and 3% (Kenya) received the recommended first-line treatment of amoxicillin in the correct dose.

Fever symptom and presumptive malaria: When asked about malaria services, providers reported high levels of comfort in providing malaria services (79% Uganda and all Kenyan providers), however around 1/3 or fewer of providers (21% Uganda and 36% Kenya) reported recent training for malaria, and half or more (53% Uganda and 64% Kenya) reported using guidelines when providing malaria services.

Overall, 45% (Uganda) and 21% (Kenya) of observed children with fever symptoms were correctly classified, as per IMCI guidelines (**Figure 30**).

Figure 30: Observed (or documented in the individual child health card) fever symptom assessment and classification (Uganda n=139, Kenya n=110)



WHO recommends that all fever patients in endemic areas be considered presumptive malaria cases and that a malaria test be performed, with treatment based on a positive malaria blood test.¹³ In total, among observed cases, 68% (Uganda) and 65% (Kenya) of fever cases were correctly managed for presumptive malaria (malaria test positive treated with antimalarial, malaria test negative not treated with antimalarial).

Among observed cases diagnosed with malaria, 72% (Uganda) and 82% (Kenya) were based on a positive malaria test. The others were based on clinical diagnosis, with 15% (Uganda) and 13% (Kenya) having a negative RDT test result and 13% (Uganda) and 5% (Kenya) having no test. According to WHO recommendations, all these patients should have been tested for malaria and only received an antimalarial if the test was positive (**Figure 31**).

Record reviews showed lower percentages of fever patients receiving RDT (35% Uganda and 51% Kenya) than observations (80% Uganda and 75% Kenya). Record reviews also showed fewer cases with a malaria diagnosis tested (57% Uganda and 30% Kenya) and with the diagnosis based on a positive malaria test (52% Uganda and 10% Kenya). Among all record review malaria diagnosed cases that were test positive, only 24% (Uganda) and 5% (Kenya) received an antimalarial, with the documentation showing few of these received the EB antimalarial (**Table 5**). The discrepancies between the record review findings and the observation results should be further explored. It may be that an RDT was conducted but the results were recorded in another location (e.g., the laboratory) rather than the

¹³ https://apps.who.int/iris/bitstream/handle/10665/162441/9789241549127_eng.pdf?sequence=1 Guidelines for the Treatment of Malaria. 3rd edition. World Health Organization 2015.

register/patient chart, or that only positive results were recorded in the register/patient chart—a large proportion of the test results were positive—prior to drawing conclusions about the management of presumptive malaria. Additionally, the low percentage of EB antimalarial prescribed should be investigated to determine if this is because the drug and dose were not recorded, or if there is another problem.

Figure 31: Observed (or documented in the individual child health card) management for diagnosed malaria cases (Uganda n=79, Kenyan=22)

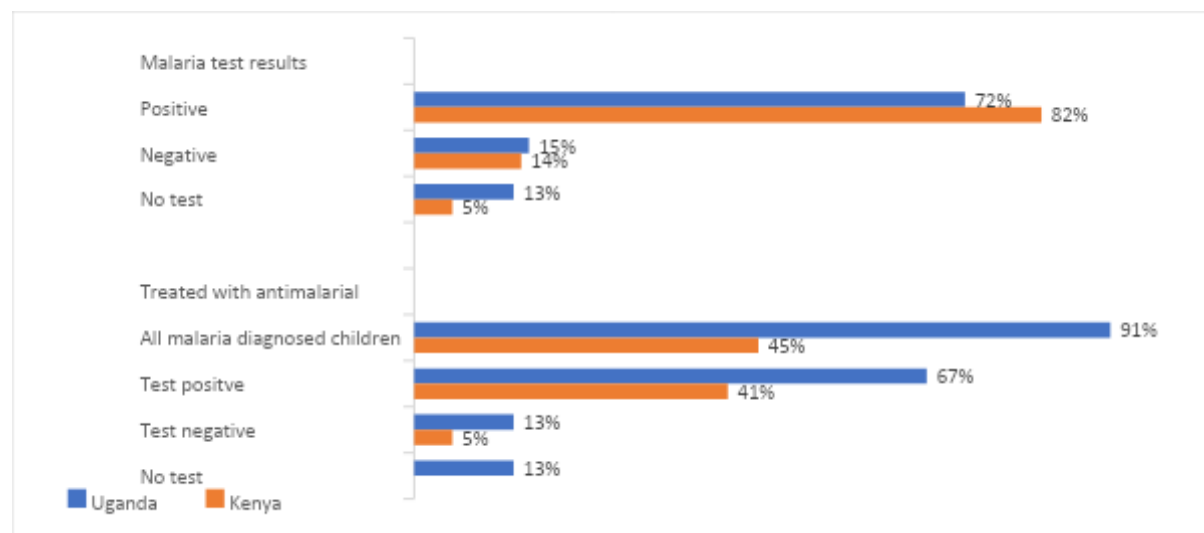


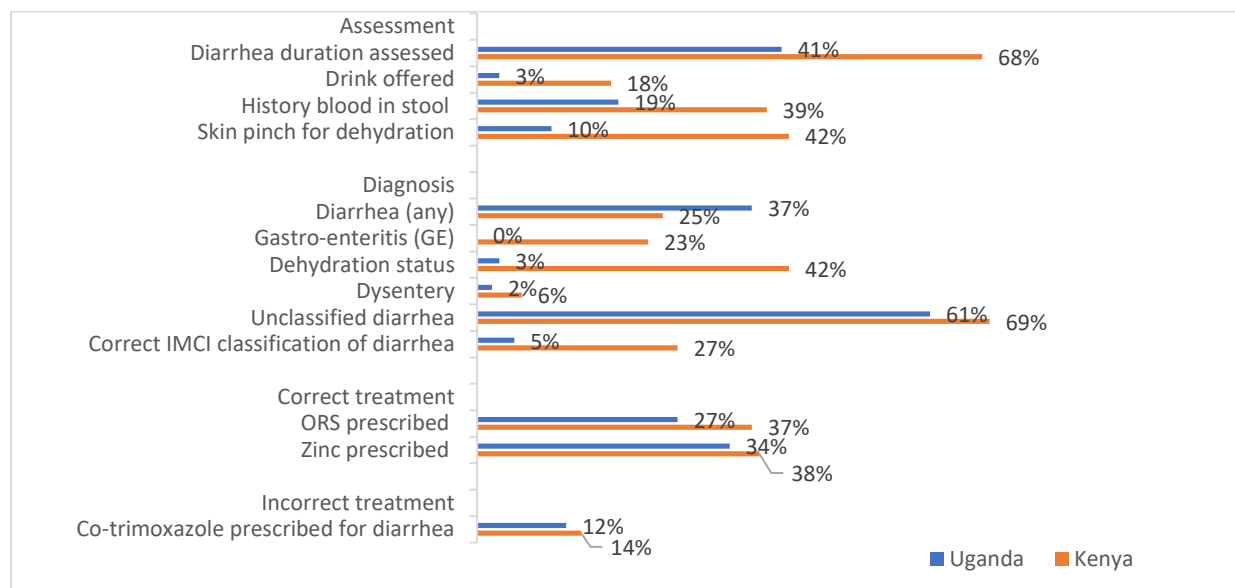
Table 5: Record review documentation of management of patients < 5 diagnosed with malaria

A	All diagnosed malaria	Uganda (n=166)	Kenya (n=77)
	< 2 months old	16%	32%
	Antimalarial prescribed	85% (n=141)	40% (n=31)
	EB antimalarial prescribed	3% (n=5)	19% (n=15)
	EB antimalarial prescribed along with a non-EB drug	2% (n=4)	16% (n=12)
B	Among diagnosed malaria: RDT and treatment results		
	Received RDT	57% (n=95)	30% (n=23)
	RDT test positive	52% (n=87)	10% (n=8)
	RDT test positive and received antimalarial	24% (n=40)	5% (n=4)
	RDT test negative and received antimalarial	4% (n=7)	(n=0)
	RDT test positive and EB antimalarial prescribed	0% (n=0)	3% (n=2)

Diarrhea symptoms: When asked about diarrhea services, high comfort levels for providing services for severe diarrhea were reported by 63% (Uganda) and 82% (Kenya) of providers, however, less than 1/3 reported recent training and around half reported they use guidelines when providing services for diarrhea. Overall, 5% (Uganda) and 27% (Kenya) of observed children with diarrhea symptoms were

correctly classified, as per IMCI guidelines (**Figure 32**). Prescription of oral rehydration salts (ORS) and zinc for watery diarrhea were noted for less than 40% of observed children with diarrhea, although record reviews indicated around 2/3 or more of watery diarrhea patients had documentation of prescriptions of these two commodities.

Figure 32: Observed (or documented in the individual child health card) diarrhea assessment, classification, and treatment (Uganda n=59, Kenya n=71)



Record reviews showed children with diarrhea being prescribed ORS (67% Uganda and 53% Kenya) and zinc (73% Uganda and 56% Kenya), with 40% (Uganda) and 11% (Kenya) being prescribed both ORS and zinc, with no non-EB prescriptions documented. Observations, however, showed these treatments provided in lower percentages, with ORS prescribed by 27% (Uganda) and 37% (Kenya) of providers, and zinc by 34% (Uganda) and 38% (Kenya). The reasons for the discrepancies in the findings from observation and record reviews need to be assessed.

Sick young infant (0-59 days old) services

Recent training on treatment of the sick young infant, was not commonly reported, with 16% of Ugandan providers and 36% of Kenyan providers reporting recent training in possible serious bacterial infections (PSBI). Around 1/3 of the providers from each country (32% Uganda and 27% Kenya) reported using guidelines when managing PSBI, and 25% of Ugandan and half of Kenyan providers reported high comfort levels in managing severe febrile diseases or PSBI.

Assessment of the sick young infant: Similar to findings for all observed children, the assessment of the sick young infant was weak, although Kenyan providers were more thorough (**Figure 33**).

Diagnosis and treatment of specific illnesses for the sick young infant: Records selected for specific illnesses were reviewed to gain a perspective of the management for cases that would rarely be present on the day of a survey. The assessment critical for diagnosis (measuring temperature and respiratory rate) were not commonly performed. Retrospective review of records of sick infants below two months of age arriving at the outpatient clinic with symptoms of PSBI (e.g., sepsis, meningitis, severe fever), showed that around 10% or less received an EB treatment, either prior to referral, or when being managed on an outpatient basis (**Table 6**).

Figure 33: Observed assessments of the sick young infant < 2 months old (Uganda n=22, Kenya n=68)

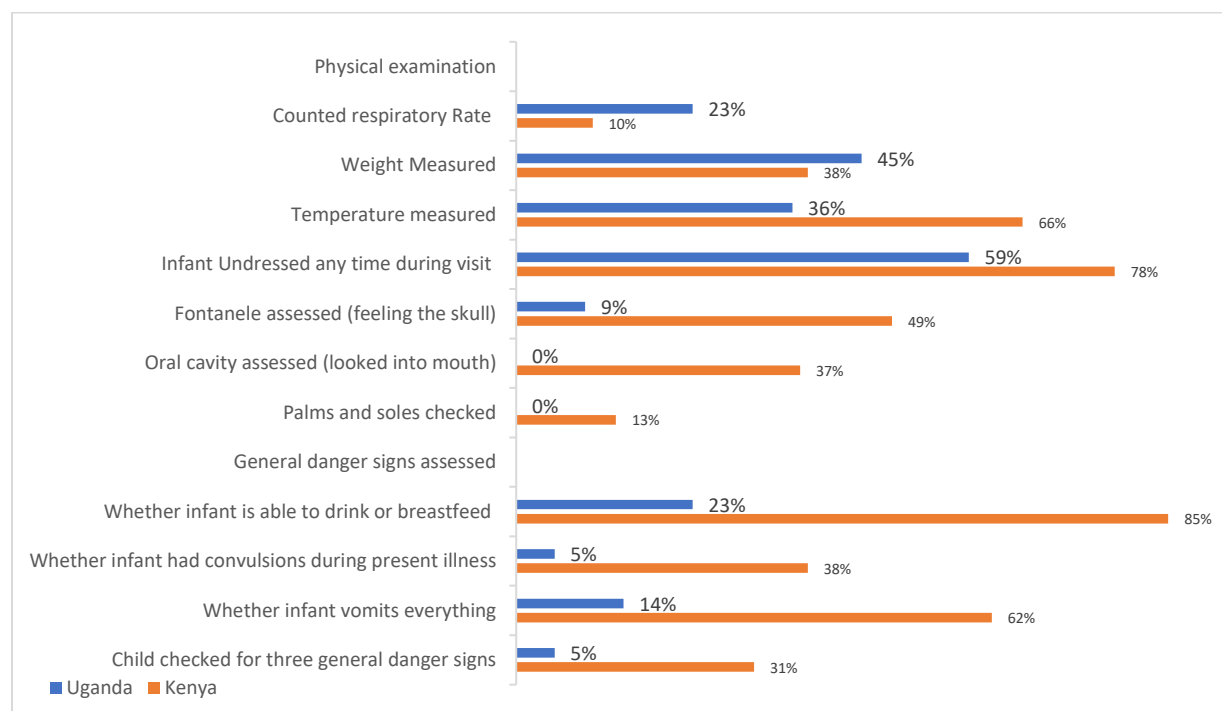
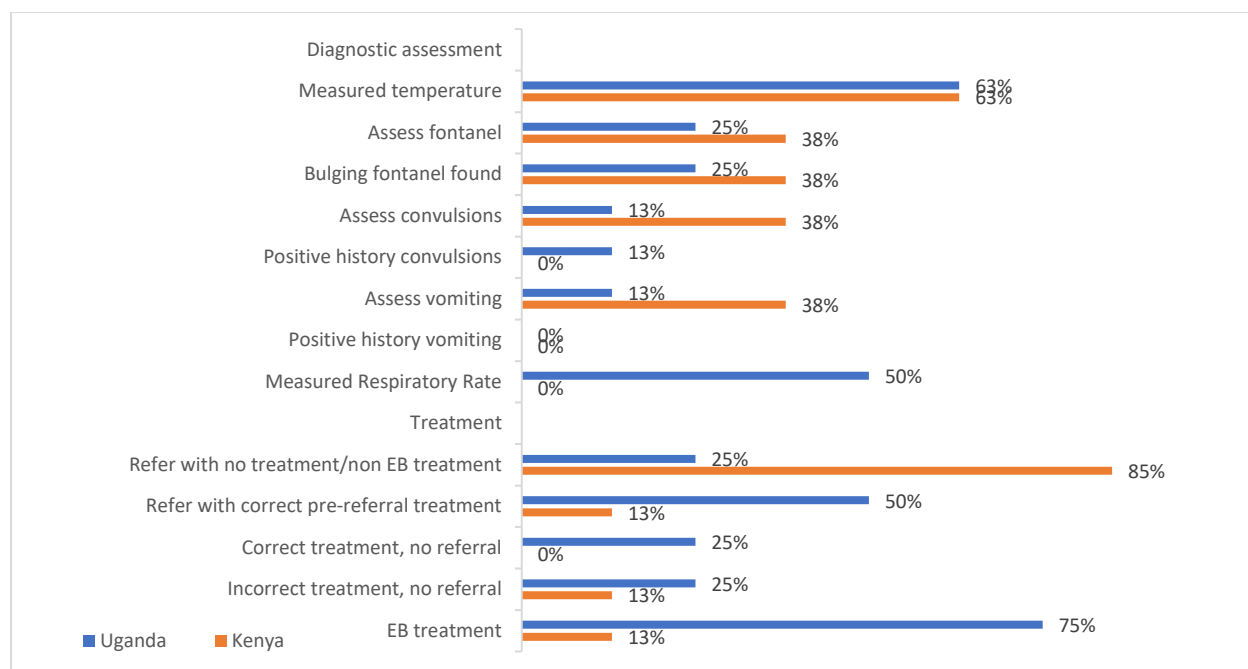


Table 6: Record review documentation for young infants < 2 months old diagnosed with PSBI or pneumonia

PSBI	Uganda (n=307)	Kenya (n=283)
Diagnosed PSBI	42% (n=129)	39% (n=110)
Among young infants diagnosed with PSBI		
Referred to higher level for treatment with or without EB re-referral treatment	13% (n=43)	37% (n=41)
Referred to higher level with EB pre-referral treatment	1% (n=1)	10% (n=11)
Managed outpatient with or without EB management	67% (n=86)	63% (n=69)
Managed outpatient using EB methods	9% (n=11)	1% (n=1)
Pneumonia		
Diagnosed pneumonia or respiratory rate >60	21% (n=65)	46% (n=51)
Among young infants diagnosed pneumonia or respiratory rate > 60		
Young infants diagnosed pneumonia or respiratory rate > 60 and received EB antibiotic in correct dose	48% (n=31)	49% (n=25)

The few observed sick young infants with PSBI also showed weak assessments, but higher levels of EB treatments for Uganda (75%), but similar levels for EB treatments for Kenyan young infants (13%) for referred and non-referred patients (**Figure 34**).

Figure 34: Observed young infant assessment and treatment: PSBI (Uganda n=8 and Kenya n=8)



Pneumonia: Findings for record reviews and the much smaller sample of observed young infants with pneumonia were similar, with Uganda showing higher percentages of pneumonia infants receiving EB treatment. Among records reviewed retrospectively for sick young infants, EB treatment was documented for only around half (48% Uganda and 49% Kenya) of young infants < two months with diagnosed pneumonia or a respiratory rate greater than 60 breaths per minute (**Table 6**).

There were few observed cases with pneumonia (n=3 for Uganda and n=13 for Kenya). Almost none of the young infants with respiratory diagnoses had their respiratory rate counted, so, while a provider may have subjectively assessed “rapid breathing” this was not a diagnostic criterion used for pneumonia. Most Kenyan young infants were undressed and assessed for symptoms of respiratory distress. Among the Kenyan young infants with pneumonia, 31% were referred for treatment, with only one receiving pre-referral treatment. Among Kenyan cases treated at the diagnosing facility, the EB treatment was provided for 38%. In total, 69% of the Kenyan young infants received EB treatment, and all three of the Ugandan pneumonia patients received EB treatment.

E. Adolescent health services

Adolescent-focused health services were widely reported, with advocacy for utilization of these services by adolescents frequently reported. Among preventive health services, counseling practices related to discouraging early marriage and childbirth were not strong.

In general, both providers and clients indicate an awareness of the right to, and practice of, respectful service provision and protection of confidentiality for adolescent clients. Among the interviewed providers and adolescents, there did not seem to be a high level of awareness of any need to target any specific services for adolescents differently from for adults, or to raise awareness for service utilization. The adolescent responses may be biased by the services the respondents were receiving, however, as when

asked about adolescent services, they did not seem to recognize services for adolescents as different from those for adults.

Less than 30% of adolescents in Kenya and 11% in Uganda are aware of particular services provided in the health facility but most of them were able to identify government facilities where they can seek care. Conversely, a higher percentage of adolescents in Uganda reported they did not get the desired service because of lack of equipment, medicines, or other materials (35% in Uganda vs 8% in Kenya). The fact that over half of the adolescents had come to the facility on their own may indicate a comfort in seeking the services that were received by the adolescent respondents (ANC and curative care) and that they will be treated well.

Providers reported practices for eliciting information from adolescents that would identify issues that may need to be addressed, but adolescent client responses did not indicate that the providers actually elicited information about these issues (e.g., substance abuse, sexual activity, HIV prevention, transmission, and testing). Substantial percentages of interviewed providers and adolescents could not provide correct responses on key risks for early marriage and pregnancy.

Higher percentages of providers reported counseling about specific consequences of early marriage than adolescents could identify, but providers' knowledge was lacking on emergency contraception (**Figure 35**). Adolescents could identify risks with early pregnancy at higher levels than the providers who indicate they counsel about the issues (**Figure 36**). Both of these comparisons seem to show that the counseling is being provided, however, the knowledge is not becoming common across these groups of adolescents. The gaps in health literacy were most evident around anemia, healthy nutrition practices to prevent anemia, consequences of getting married and having a child very young, LAM, FP, emergency contraception, knowledge on HIV, menstrual hygiene, and knowledge on symptoms of STIs, with a practical absence of knowledge on HPV and cervical cancer prevention. Asked specifically about HIV prevention, transmission, and testing, only around 1/3 of respondents from each country correctly answered a series of questions about HIV prevention and transmission, with more Kenyan respondents identifying each individual item correctly. Almost all respondents (91% Uganda and 79% Kenya) reported they knew where they could get an HIV test if they wanted.

Figure 35: Provider reports of counseling messages provided and adolescent identified consequences of early marriage

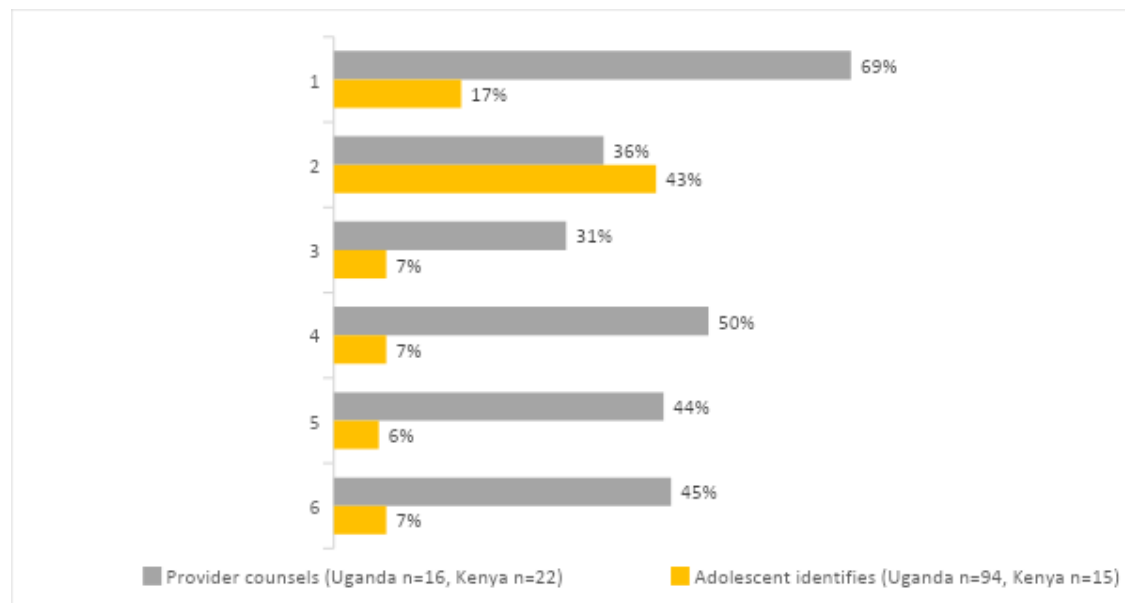
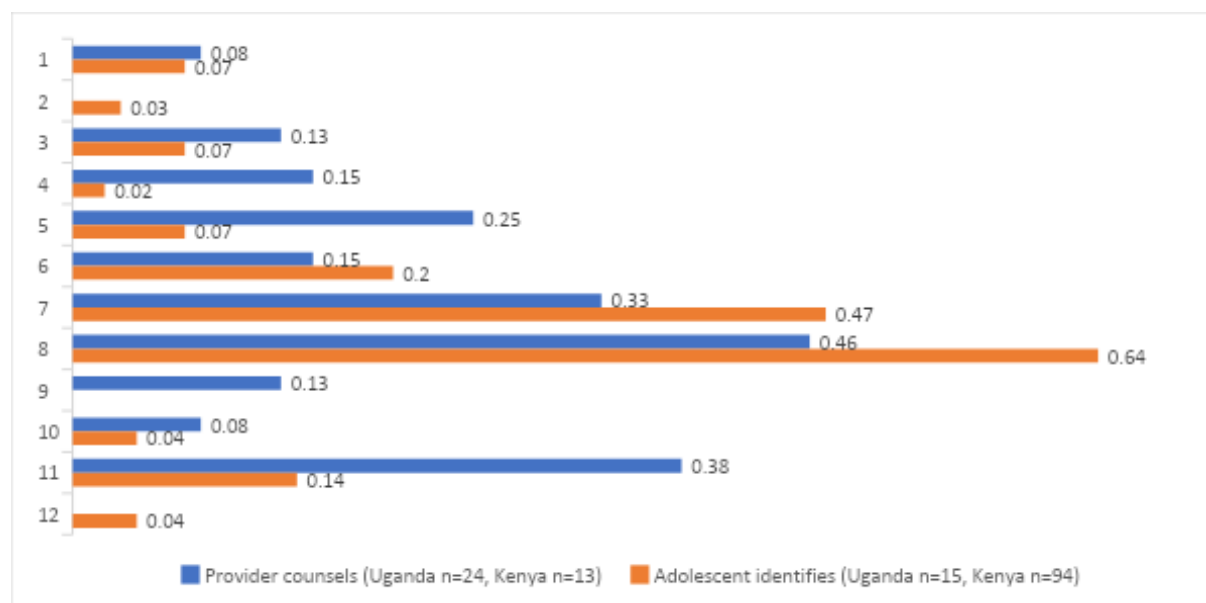


Figure 36: Provider counseled messages and adolescent identified consequences of early pregnancy



IV. CONCLUSIONS AND RECOMMENDATIONS

The developed tools are appropriate, feasible to implement, and provide more in-depth assessment of the quality of care for RMNC+A, according to the existing global guidance (e.g. WHO’s QoC framework for MNCH). The modular approach of the tools allows conducting of a focused assessment in priority clinical area of interest (e.g. ANC), as needed with fewer resources. By using information from a variety of sources, the tools allow for triangulation of results and thus provide a deeper understanding of the quality of care gap and its root-causes. The tools were found to be adequate for achieving the objective, and with minor revisions to adapt them to specific country context, they will provide an important contribution to the ability to quantify the quality of integrated RMNC+A services.

Despite progress over the past 20 years, there are still unacceptably high levels of morbidity and mortality among mothers, newborns, and children under five in low- and middle-income countries. Every day, approximately 830 women and 15,000 children die from largely preventable causes. More than one fourth of girls and women in Sub-Saharan Africa cannot access voluntary FP services, leading to unplanned pregnancies and maternal mortality and morbidity. Globally, neonatal mortality was at 31 deaths per 1000 live births in 2017, still far from the Sustainable Development Goal of 12 in 2030 (in Uganda and in Kenya, neonatal mortality rate is 20 (2018) and 21 (2017), respectively). More than a quarter of the world’s children under five years suffer from undernutrition, and each year, around 12 million infants and young children in USAID’s priority countries do not receive basic immunizations.¹⁴ Most of the maternal, neonatal or child death or high burden diseases are readily preventable or manageable with proven, cost-effective interventions, but these high impact interventions are not implemented correctly and consistently for every patient every time in low- and middle-income countries, including sub-Saharan African countries like Uganda and Kenya.

The assessment confirmed research findings in other similar settings that less than half of patients receive EB MNCH/FP/RH care in a typical preventive or curative visit with variations within and across

¹⁴ Trends in maternal mortality: 1990 to 2010. WHO, UNICEF, UNFPA and The World Bank Estimates. Geneva: World Health Organization; 2012.

countries,¹⁵ and systemic gaps also found in safety, infection prevention and control, care coordination, referrals, and counter-referrals across levels of care.

The gap in quality of RMNC+A care was particularly critical in terms of severity assessments and classification practices across RMNC+A content areas. This together with providers' limited ability to differentiate common pregnancy, maternal, newborn, and childhood conditions lead to incorrect diagnosis and, consequently, unjustified, non-EB treatment of common maternal, newborn, and child diseases. The assessment findings suggest that global and national monitoring frameworks and action plans,^{16, 17} that focus primarily on monitoring the progress and improving RMNC+A care outcomes based on compliance with EB treatment of specific, high-burden clinical conditions (e.g., appropriate antibiotic treatment for suspected pneumonia, MgSO₄ for severe pre-eclampsia, etc.) limit the opportunity to identify and address existing critical gaps in severity assessment and classification, the essential first steps to guide EB RMNC+A clinical interventions. Emphasis primarily on disease-specific interventions may also lead to poor MNC care outcomes due to ineffective treatment of incorrectly classified clinical conditions.¹⁸ These findings further confirm the need of a **fundamental paradigm shift in the way MNCH/FP/RH services are delivered**, by supporting integrated, people-centered health services and programming.

The need to fundamentally strengthen pre and in-service training and supervision for adherence to clinical diagnostic and treatment practices according to guidelines and EB practices is also confirmed. The assessment showed frequent inappropriate treatment practices for common MNC conditions in the study facilities. These included uses of medications, including antibiotics, without clinical indications; prescription of medications not supported by clinical recommendations (e.g., prescription of antibiotics that were not first or second choice) and/or inappropriate medication dosage based on the weight or age of the child.

Unjustified antibiotic prescription practices call for increased action to improve rational antibiotic prescription for high-burden maternal, newborn, and childhood conditions in health facilities in Uganda and Kenya. In addition to safety concerns, inappropriate prescription practices lead to poor pediatric care outcomes, contribute to the emerging challenge of antimicrobial resistance, and are associated with unnecessary costs, burdening health care systems in resource-constrained settings.

Provider survey results further demonstrated that, with few exceptions, most care providers lack sufficient knowledge and skills to identify danger signs, determine disease severity, make the correct diagnosis, and provide appropriate treatment to pregnant women, newborns, children, and young infants. The knowledge gaps were particularly evident in relation to assessment, classification, and treatment of pre-eclampsia/eclampsia, young infants under two months, including EB care of young infants with PSBI.

Our study revealed that despite concerted national efforts in training RMNC+A care providers, especially around integrated management of newborn and childhood illness (IMNCI), care of maternal and newborn complications (e.g., newborn resuscitation) and respectful, patient-centered care is lacking. An earlier study (2004) reflecting on implementation of IMNCI programming in Uganda also came to a similar conclusion and had suggested pre-service training and continuous refresher trainings, provision of which has been decentralized to the district level and to other organizations.¹⁹ The main **providers of training**

¹⁵ Lancet Global Health 2018; 6: e1196–252 Published Online September 5, 2018 [http://dx.doi.org/10.1016/S2214-109X\(18\)30386-3](http://dx.doi.org/10.1016/S2214-109X(18)30386-3).

¹⁶ Countdown to 2015 & Health Metrics Network. 2011. Monitoring maternal, newborn and child health: understanding key progress indicators. Geneva: World Health Organization. <http://www.who.int/iris/handle/10665/44770>.

¹⁷ WHO & UNICEF. Ending preventable child deaths from pneumonia and diarrhoea by 2025: The integrated Global Action Plan for Pneumonia and Diarrhoea (GAPPD). 2013. Geneva: World Health Organization.

¹⁸ Chitashvili T, Cherkezishvili E, Karamagi E, Mwanja N. *AMR Control*. 2017.

<http://resistancecontrol.info/2017/improving-rational-antibiotic-treatment-of-common-childhood-conditions-in-uganda/>.

¹⁹ Nsungwa-Sabiiti J, Burnham G, Pariyo GW. Implementation of a National Integrated Management of Childhood Illness (IMCI) Program in Uganda. *Journal of Health and Population in Developing Countries*. 2014;1-15.

and supervision should be integrated into the routine health system for sustainability of these practices and transition from donor dependence. This means that when donors and others external to the Ministry of Health implement activities that a strategy for ensuring that activities that will be needed long-term (e.g., routine retraining on most topics) be planned from the beginning and that Ministry staff be a part of all activities, rapidly assuming responsibility, even if external technical and financial support continues to be needed.

The assessment also showed that even if training on these EB practices was more frequent and widespread and protocols/guidelines were available, many of these—particularly maternity interventions, are for conditions that do not occur frequently, particularly in small, low-volume facilities. This makes practical training critical, so that the providers have more than theoretical knowledge about how to perform procedures or administer essential drugs. The use of **case-studies and practical training** along with observation of clinical work as a part of supervision should be implemented routinely. Practical training may be provided through simulations, incorporating visual aids to the extent possible (e.g., highly effective videos developed by the Global Health Media Project on different aspects of MNC care)²⁰ but also through programs to bring providers from smaller/low case load facilities to larger ones where they can gain experience related to diagnosing and managing complications under mentors.

The assessment also found that newer **clinical guidelines and EB recommendations** around MNC care are not consistently available or fully implemented in Uganda and Kenya. Within the context of constantly changing evidence, it is essential that countries develop a functional mechanism of continuously updating EB clinical recommendations for priority RMNC+A conditions and at the country level, adapt these recommendations to local context and integrate them into the various implementation and monitoring tools (job aids, care pathways, in-service and continuous professional development trainings, and publicly guaranteed service packages).

Effective care outcomes cannot be achieved without **participation of patients and their families in care** in the health facility and at home.²¹ Pregnant women, children, their parents, and other caregivers should be provided with clear information during care and follow-up about: the disease or condition and its potential long-term effects; frequency and dosage of medications; supplementary care (e.g., to keep the child healthy, such as feeding and keeping children warm); and when and how to access further support or follow-up care. In addition, children should be assessed for vaccination status and counseled and referred for the missed vaccinations. Therefore, proper communication, counseling, and follow-up of pregnant women, children, adolescents and their families are as essential and equally critical components of care as severity assessment, classification, and treatment that can and must be addressed through quality improvement interventions.

Assessment results suggest that many of the problems related to **supporting key inputs** in health facilities remain unsolved both in Uganda and Kenya. Insufficient infrastructure and commodities together with staff shortages and turnover undermine successes achieved in improved utilization of services and pose challenges to continuously improving and sustaining the quality of RMNC+A care. In order to roll-out and effectively implement EB practices for RMNC+A services, it is important to integrate all aspects of the health system to support resource availability (facility infrastructure, pharmaceuticals, trained and skilled service providers), to provide support to the service providers in the work environment to improve their effective EB service provision (supervision, job aids), and to monitor implementation of activities to roll out EB services and to monitor the results of these practices, using QI methods. Considering the critical role of the local health system (district in Uganda and county in Kenya) in sustaining RMNC+A improvement

https://www.researchgate.net/publication/238078702_Implementation_of_a_National_Integrated_Management_of_Childhood_Illness_IMCI_Program_in_Uganda.

²⁰ <https://globalhealthmedia.org/videos/>

²¹ WHO. 2018. Standards for improving the quality of care for children and young adolescents in health facilities. Geneva: World Health Organization (WHO). http://www.who.int/maternal_child_adolescent/documents/quality-standards-child-adolescent/en/

efforts, resources for district and county health offices must be mobilized to address resource availability issues within and across health facilities (e.g., key inputs such as infrastructure, human resources, commodities, ambulance services) and to provide continuous coaching to health facility teams (e.g., transportation to health facility).

The assessment findings also suggest important **gaps in standardization of the medical documentation and recording of essential RMNC+A data for EB clinical and improvement decisions**. Our study respondents did identify problems with sharing of information on patients within the facility, as well as those arriving through referral as issues constraining the ability to provide quality care. To generate essential data for informed clinical and improvement decisions, it is essential to support adaptation of WHO-recommended minimum MNCH data elements in sub-Saharan African countries by incorporating them into the standardized medical documentation.

The assessment also confirmed findings of other studies that despite the fact that, in sub-Saharan Africa, an estimated one-third of health care providers' time is spent on recording and reporting, the data are disconnected from decision-making. Few care providers (1/3 in Uganda and 1/5 in Kenya) in our study reported the use of monitoring data for learning and adaptation of improvement activities. The need to strengthen the provider acceptance of the important linkages between documentation and the ability to provide quality services to patients, and the need of **regular monitoring of the care processes and health and patient-centered outcomes** for continuous improvement and adaptation should be highlighted starting from pre-service through in-service trainings.

Additionally, focusing ***coaching and clinical mentoring (both internal and external) and improvement teams' activities based on the needs identified from regular monitoring of quality of RMNC+A care processes and patient and family-centered outcomes, by simultaneously improving compliance with EB care and addressing waste/inefficiencies in the process and content of care***, is important for targeting the underlying problems through local solutions and efficient utilization of the limited resources.

Lastly, this multi-country assessment provides strong grounds for recommending improvement in the availability and quality of data on service quality, and for regularly monitoring the quality of care and related outcomes at the health facility, subnational, national, and global levels. In parallel, data plethora, particularly for input-related data, that *"are quickly out of date, weakly connected to the content of care delivered and lose usefulness for supply planning"*²² many health information systems contain limited data elements or standardized patient records necessary for measuring MNCH/FP/RH processes and outcomes and have limited indicators for measuring quality at all levels. Even when data exists, the validity of indicators collected raise concerns. Health systems should invest in improving availability and use of quality of care indicators at all levels and most importantly, using the data for continuous clinical and improvement decisions. Fewer but better metrics around effective coverage, quality, and patient/family-centered outcomes for RMNC+A should be harmonized across countries and utilization of existing tools and HMIS platforms (e.g., DHIS) to the extent possible to generate, collect, aggregate, analyze, and use RMNC+A quality of care data for improving quality and patients' experience of care.

To improve RMNC+A practices in Uganda, Kenya and other similar settings, the following measures need to be considered:

A. Crosscutting recommendations

- Continuous improvement systems focused on identifying gaps in quality of care processes and outcomes need to be institutionalized. Regular planning, testing, implementing changes, monitoring progress using indicators for these processes and outcomes, and then refining

²² Lancet Global Health 2018; 6: e1196–252 Published Online September 5, 2018 [http://dx.doi.org/10.1016/S2214-109X\(18\)30386-3](http://dx.doi.org/10.1016/S2214-109X(18)30386-3).

interventions based on the routine monitoring results should be enhanced and supported by facility management and subnational/national level structures. Establishment of functional QI teams needs to be supported in Kenya, and the functionality of the existing QI teams should be enhanced in Uganda.

- Subnational (district or county) health structures could play a critical role in the establishment or strengthening of supporting systems for QI, including strengthening coaching and clinical mentoring, setting up/strengthening data systems and learning platforms for QI, engaging communities to demand high-quality RMNC+A services, and addressing essential input needs in health facilities.
- Standardizing medical information to be recorded and compiled, to ensure availability of a minimum level of RMNC+A data as well as monitoring that essential medical information (especially around severity assessment and monitoring disease progression, evidence of timeliness, reason and pre-referral treatment, and outcomes of referrals) is recorded, is needed to provide the evidence required to assess the effectiveness of the existing health services and to identify where improvements are needed. A systematic process for reviewing and using this information for continuous improvement by facility QI teams and/or clinical supervisors needs to be defined or strengthened.
- It is essential to adopt competency-based clinical education to improve overall clinical assessment, diagnostic, and treatment practices. Routine, “low-dose, high-frequency” training with practical experiences/drills are needed to reinforce more recent clinical recommendations, particularly with the management of severe pre-eclampsia, PPH, IMNCI, PSBI management, and newborn resuscitation. This training should include updates on prior practices that are no longer recommended. Rotations of staff from low-volume to high-volume facilities for mentorship in these interventions along with practice using anatomical models and case studies where the actual intervention and recording of the intervention are practiced should reinforce correct dosages and techniques. The training should highlight the importance of routine assessment practices and correct classification of symptoms or disease severity as essential information for EB clinical decisions. In parallel to content-specific trainings, introducing training in ethics, psychosocial support, and respectful care is essential to enhance respectful, dignified, and patient- and family-centered RMNC+A care.
- Countries need to develop a functional mechanism of continuously updating EB clinical recommendations for priority RMNC+A conditions and at the country level, adapt these recommendations to local context and integrate them into the various implementation and monitoring tools (job aids, care pathways, in-service and continuous professional development trainings and publicly guaranteed service packages). Availability and use of guidelines for diagnostic criteria and treatment for priority illnesses need to be particularly strengthened. Supporting implementation of simple job aids and other provider decision support tools that clearly describe steps and treatment could improve adherence to the guidelines.
- Clinically, more focus should be placed on ensuring that service providers assess key symptoms, danger signs, and vital functions of pregnant women, mothers, and children; as per the prior recommendation, findings from assessments must be documented.
- In addition, routine monitoring of diseases and timely follow up is essential to ensure timely identification of the patients with or at risk of complications and providing EB treatment.
- A fundamental paradigm shift needs to be made from disease-specific treatment approaches to integrated RMNC+A care across the service delivery and life cycle continuum. The use of preventive services such as FP, HIV testing, preventive immunizations, counseling on danger signs for both mothers and babies, nutrition, risky and preventive behaviors and services for substance and personal abuse, which clients (including adolescents) might hesitate to use without specific attention or service conditions, need to be encouraged and strengthened.

- Lastly, client-centered practices need to focus, on the one hand, on clear communication and meaningful participation of patients and their family members in shared decision making, and on the other hand, reducing unnecessary (e.g., unjustified antibiotic treatment, routine suctioning) or harmful practices (e.g., not washing hands between the patients or procedures or administering substandard dosages of medication). Patient information and education is critical not only for better self-management and adherence to treatment, but also to ignite demand for quality and hold systems accountable.

B. Clinical content-specific recommendations

1. Antenatal care

- Improving the maintenance of a longitudinal record for maternity cases from ANC through delivery visits that includes documentation of negative findings and services that are received through referral during pregnancy is essential for improving information needed to improve identification of risk and problems throughout the pregnancy and delivery. While duplication is not desired, a system for ensuring that critical information for evaluation is maintained at the facility is needed.
- Job aids to remind providers (and clients) of the risk signs and symptoms that should be assessed at every ANC visit as well as pre-printed forms where findings (positive or negative) can be simply checked should improve availability of this information.
- Developing protocols for all nursing and physician providers of ANC to prescribe treatments for syphilis, hypertension, and pre-eclampsia and/or ensuring that results of referrals for treatment are documented in the patient record should be considered.
- Strengthening the system for PMTCT to include assessing (and documenting) partner HIV status is needed.

2. Childbirth services

- Routine training with practical experience is needed to reinforce more recent recommendations, particularly with management of severe pre-eclampsia and PPH. Rotations of staff from low-volume to high-volume facilities for mentorship in these practices along with practice using models and case studies where the actual intervention and recording of the intervention are practiced should reinforce correct dosages and techniques.
- Strengthening newborn resuscitation skills should be enhanced, particularly in Uganda.
- A system for supervisors to routinely rotate MgSO₄ supplies from low to high utilization facilities and replacing the supply in low-use facilities with drugs with later expiration dates might minimize the expiration and wastage of the drug and improve availability when needed.
- Supervisors should systematically review case management for patients with complications, their findings reviewed with district/regional managers, and interventions to improve problems identified across facilities developed by these personnel. This requires more complete documentation.
- Routine assessment and monitoring practices during labor, delivery, and the postpartum period need to be strengthened. Job aids such as pre-printed forms and posters to reinforce the frequency and content recommended for routine assessments are options. Reinforcing using the partograph for all women in labor, regardless of the stage at which they arrive, should improve recording of immediate postpartum information and monitoring labor progression.
- Posters to promote birth spacing and breastfeeding should be used to passively promote these practices.
- In addition to routine monitoring during labor, delivery and the early post-partum period, efforts need to be focused to enhance care of mothers and newborns with complications. This is

particularly true for improving care of small and sick newborns. Without focused attention for timely identification and EB treatment of mothers and babies with or at risk of complications, reduction of maternal mortality ratio to less than 70 per 100 000 live births and neonatal mortality rate to less than 12 per 1000 live births (Sustainable Development Goals) will not be possible.

3. Outpatient care of children under 5 years of age

- Improving medical documentation, recording essential information, data quality, and data use should be a critical component of any IMNCI care improvement activity. Supervisors should review records for adherence to diagnostic and treatment protocols. The information to be recorded needs to be specified and reinforced during supervision and through job aids.
- There is a need for increased attention to child- and family-centered practices, well reflected in the pediatric quality of care standards recently launched by WHO.
- Assessment of nutritional status, feeding practices prior to the illness, and feeding practices during illness should be prioritized.
- There is an urgent need to adopt and implement newly updated WHO guidance on Management of Sick Young Infant within the IMCI Chart Booklet guideline²³ by countries, including Uganda and Kenya.
- Integration of PSBI into clinical trainings and enhancing the efforts to address the knowledge and skills gaps in IMNCI at different levels (facility, district, and national) is also needed.

4. Adolescent health services

- More focus is needed for encouraging the use of preventive services such as FP, HIV testing, preventive immunizations, and services for substance and sexual abuse, which adolescents might hesitate to use without specific attention or service conditions that encourage utilization.
- Providers should be encouraged to use every facility visit, regardless of the service provided, to screen for identification of risk situations in adolescents and the need for preventive services, as the adolescent's situation may change between visits.
- Using a checklist specific for adolescent screening and preventive education, and posters to raise awareness among adolescents (and accompanying persons) about issues for which they should consider seeking services, might increase early interventions.
- Collecting more information on current utilization/lack of utilization of preventive services is important for understanding if changes in service provision strategies and encouraging utilization are needed.

²³ Integrated Management of Childhood Illness: Management of the sick young infant aged up to 2 months. IMCI chart booklet ISBN 978-92-4-151636-5 © World Health Organization 2019. <https://lnkd.in/dGgNZaQ>

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