CASE STUDY

Khunyangu Sub County Hospital Spread Rational Use of ACTs at Bumala B, in Western Kenya

Summary

Khunyangu Sub-County Hospital is one of the seven high volume hospitals in Busia County, in Western Kenya. It started implementing quality improvement (QI) in June 2014 when the USAID Applying Science to Strengthen and Improve Systems (ASSIST) project introduced its work in Busia County. The hospital experienced Artemesinin Combination Therapy (ACT) stock outs due to irrational dispensing of Artemether-Lumefantrine (ALs). There were no stocks of ACTs in March 2014 prompting a sub county redistribution in April 2014. In May 2014, ACTs issued were three times more than the number of confirmed cases. ASSIST introduced QI in the facility and the county in June 2014. Employing a range of QI tools and techniques, the facility was able to eliminate irrationally issued ACTs, translating to approximately 7 months of ACTs saved by January 2015. In the months that followed, the team embarked on ensuring good commodity practices with available ACT dose bands securing their stocks further. They began involving other facilities in the sub-county during sub-county continuous medical education (CME) sessions, Bumala B being one of them. In February 2016, the coach at Khunyangu selected a coach in Bumala B and a Work Improvement Team (WIT). The coach from Khunyangu helped the WIT at Bumala B implement the changes they had tried in Khunyangu to help secure their ACT and follow through on the test-treat-track (3T) model. ACT doses issued in Bumala B have since dropped from a median of 126% to 100%. Bumala B continues rationally using ACTs.

Background

Khunyangu Sub-County Hospital is one of seven high volume hospitals in Busia County, Western Kenya, with average outpatient attendance of 2,263 patients monthly. Average confirmed malaria cases among children is 540, 434 among adults, and 8 among pregnant women monthly. This improvement work involved the County, Sub-County Malaria Coordinators, USAID Applying Science to Strengthen and Improve Systems (ASSIST) project malaria QI advisor, ASSIST regional QI project officer and facility Work Improvement Team (WIT) comprising of hospital pharmacist, lab technologist, clinician in charge, nurses in out-patient department, and community representative. The hospital experienced Artemesinin Combination Therapy (ACT) stock outs due to irrational dispensing of Artemether-Lumefantrine (ALs). In May 2014, ACTs issued were three times more than the number of confirmed cases. This also created an avenue for loses of ACTs to imaginary clients as well as unconfirmed cases of malaria. There was staff resistance in accepting Malaria policy among staff.

Bumala B is a health centre in the same, Butula, sub-county with Khunyangu. It has a catchment population of 17,627. Monthly average out-patient department (OPD) workload is 2,870. Each month, between 500 and 1,000 cases of malaria are seen among all patients seen including pregnant women and under-fives.

Implementation

Khunyangu experienced stock outs of ACTs in March 2014 prompting an ACT mop up in the subcounty and redistribution at the sub county hospital in April 2014. In May 2014, ACTs issued were three times more than the number of confirmed cases. ASSIST introduced QI in the facility and the

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county in June 2014. A quality improvement team (QIT) was formed in the same month of June 2014. The QIT comprised hospital pharmacist, lab technologist, clinician in charge, nurses in OPD, and community representative. During their first QIT meeting, the team conducted their first root cause analysis and determined that ACT losses were due to clinician treating malaria suspects for malaria clinically without a confirmatory laboratory test, in the same vein, the pharmacists were issuing ACTs to all patients prescribed the drug by the clinician without cross-checking if they were confirmed with malaria. Certain medical colleagues and family members of staff, were said to be walking in to the pharmacy and requesting ACT doses for their alleged malaria like symptoms. The flow of clients allowed suspected malaria cases from other facilities to directly access the pharmacy on entering the facility.

Employing the tree and matrix diagram to prioritize change ideas, the coach, then the hospital pharmacist, called for a meeting and sensitized the clinicians at the OPD on the 3T strategy. Clinicians also agreed to screen patients from other facilities requiring ACTs to consult with them first in the new client flow at the OPD. The pharmacy department also held a meeting and resolved not to issue any ACT unless a client had a confirmed malaria diagnosis. A notice (Figure 1) was put outside the pharmacy door and serving window informing clients about ACTs being issued to only confirmed cases. The lead pharmacist offered to establish a corner in the dispensing cupboard to hold ACTs for colleagues and or family members of staff said to ‘walk in’ and demand ACT doses. This first set of change ideas that were tested resulted in a phenomenal drop in the ACTs dispensed in the months that followed.

A QI training was the conducted to the QIT members by ASSIST in August 2014. The QIT began meeting fortnightly. Meeting cycles followed that the first meeting done in the month focused on discussing progress of their improvement changes and work plan, while the second one, done before fifth of the new month, discussed malaria reports and indicators. The community health worker provided health education on malaria case management, and on the expected client flow.

In December 2014, ASSIST, in liaison with the county, introduced monthly county level TWG meetings to discuss malaria 3T model and commodity status. At the same time, quarterly malaria case management continuing medical education (CMEs) began at the facility to increase knowledge and skills on identification, diagnosis, management, and reporting of malaria cases. The QIT reverted to having their meetings monthly, in view of the additional support and improvements in the ACT doses. However, around May 2015, Busia County experienced serious procurement challenges with the Kenya Medical Supplies Agency (KEMSA), and the network that would deliver commodities including essential antimalarial collapsed. County malaria office refocused their efforts in attempting to salvage the looming commodity insecurity. Consequently, the TWGs and CMEs collapsed. The regional project officer from ASSIST reinitiated the monthly TWGs in October 2015 and restructured the CMEs to sub county based. More facilities were thus reached with malaria case management CMEs. Data QI sessions were introduced in the malaria CMEs, in November 2015 following the second QI sensitization. All participating facilities were required to table and discuss their malaria data, explain inaccuracies and highlight the steps they were going to take to improve it. It was at this point that Bumala B was first engaged by Khunyangu.
In December 2015, the first malaria learning session was held and Khunyangu show-cased their improvement work to the rest of QIT representatives from Busia, Kakamega and Siaya participating. Bumala B did not take part in the first learning session. However, ASSIST called on the representatives to form WITs in their facilities to fast track improvement work. Instead, Khunyangu spotted an opportunity to spread the changes they had so far tested and were working for them (Table 1). In February 2016, the coach at Khunyangu selected a coach in Bumala B and the two formed a WIT. The coach from Khunyangu with the support of ASSIST provided on-job training for the new coach at Bumala B in March 2016. The two coaches working together with the new WIT formed a work plan to help secure ACTs and ensure Bumala B follows through on the 3T model. Subsequent work plans have since been formed by the WIT on a quarterly basis (Figure 2).

Bumala B has since realized a drop in ACTs dispensed. They have participated in subsequent malaria learning sessions, August 2016 and May 2017.

Table 1. Aim and Change Idea table tested by Khunyangu and Implemented by Bumala B

<table>
<thead>
<tr>
<th>Aim</th>
<th>Change Idea</th>
</tr>
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<tbody>
<tr>
<td>Improving malaria diagnosis among suspected cases</td>
<td>- Several CMEs conducted on national malaria case management guidelines</td>
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<td></td>
<td>- Education of clients on malaria case management policy, through posters in waiting areas and morning health education talks</td>
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<tr>
<td></td>
<td>- Redesigning of outpatient client flow</td>
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<tr>
<td></td>
<td>- Provision of malaria rapid test kits (RTKs) in OPD, for use when the laboratory was too busy or lab reagents were out of stock</td>
</tr>
<tr>
<td>Improving ACT dispensing practices</td>
<td>- Job aids on malaria case management provided in clinical rooms</td>
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<tr>
<td></td>
<td>- AL strictly issued to confirmed cases in pharmacy with follow up of antimalarial prescriptions with no evidence of diagnosis with concerned clinician</td>
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<tr>
<td></td>
<td>- Hospital Medicine and Therapeutics Committee revived to monitor rational use of AL</td>
</tr>
<tr>
<td>Improving medical documentation in patient and facility record tools</td>
<td>- Monthly data review to compare cases registered as febrile illness in the outpatient department register, malaria tests conducted in the lab daily activity log, RTK Daily activity register and malaria commodities daily activity register</td>
</tr>
</tbody>
</table>
Both teams collected data on a monthly basis and plotted on a run chart during the implementation periods with ASSIST (Figure 3).

**Results**

By employing QI concepts, the ACT dispensed dropped from a median of 247% to 93% in Khunyangu between March 2014 and March 2016; while, that of Bumala B from 126% to 100%.

**Figure 3. Improvement Run Chart on Percentage of ACT doses issued over Malaria Cases (Mar 2014-May 2015)**

The facility has not presumably treated suspected malaria cases clinically for Khunyangu since September 2014 and Bumala B since October 2015. Total number of ACTs dispensed 6 months before and after the intervention were 11,444 and 5,355 respectively at Khunyangu translating to 53.2% of ACTs saved as a result of rational use providing approximately 7 months of additional ACTs to the facility. Similarly, no stock outs of ACTs have been experienced by the two facilities since they started took up improvement work.

**Lesson Learned**

Dedicated leadership, which sets clear improvement priorities, early identification of QI champions, motivated and strong improvement teams coupled with regular data collection and performance review and shared learning increase the potential for improvement as well as for spreading and scaling up quality improvement work.

**Next Steps**

Health facilities (such as the malaria lake endemic in Western Kenya) that have sustained improvement in their work for at least six month, should feel comfortable spreading and scaling up QI in other facilities within their reach, and possibly far and beyond by transcending change concepts established from their cycles of small tests of change.