Tested Changes to Improve Newborn and Child health Care services

A compilation of low cost, high-impact, evidence-based changes that resulted in facility-level improvements in the processes of providing newborn and child health care services in Northern Uganda.

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DISCLAIMER

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

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Glossary of Terms

**Change concept:** A category of change ideas or interventions that are similar and have a common underlying thought pattern.

**Change idea:** A specific intervention that a health facility quality improvement team has tested.

**Change package:** An organized summary of strategies and interventions that have been tested and proven to improve care in a given context. In this case, the interventions being outlined have been proven to result in improvements in maternal and neonatal care thereby reducing respective morbidity and mortality rates.

**Improvement collaborative:** A strategy for linking the efforts of many quality improvement teams that work independently to address a common challenge, but are periodically brought together to share and learn from one another, so that emerging best practices are easily and rapidly spread at scale.

**Plan-do-study-act (PDSA) cycle** – An iterative and efficient trial-and-learning methodology used to test specific change ideas and learn from them. It begins with a plan and ends with action according to the learning gained from the Plan, Do and Study phases of the cycle. In most cases, multiple PDSAs are needed to make successful changes.
I. Background and Context

The USAID Applying Science to Strengthen Systems (ASSIST) project is working with the Ministry of Health to increase access to quality health care with focus on HIV/AIDS and Maternal Newborn and Child Health services through using a quality improvement (QI) collaborative approach. The “Improving treatment of childhood illnesses” initiative is supported by USAID ASSIST core funds in close collaboration with USAID ASSIST field project. It supports ten (10) child health collaborative sites in Gulu, Omoro and Nwoya districts, to improve management of the common and leading causes of mortality in children under-five years.

The change ideas provided in this package are a collection of specific actions (changes) which health facility QI teams have undertaken to improve the processes for better quality of child health services.

This package describes what the improvement teams did to improve vaccination, prevention and treatment of newborn infections, pneumonia, and diarrhea. These change ideas have been successfully implemented in 10 health facilities in 3 districts in Uganda where the USAID ASSIST project is providing technical support to the Ministry of Health (MOH) Uganda.

Results from applying a quality improvement collaborative approach in the 3 districts of northern Uganda

The USAID ASSIST Project’s approach to QI is guided by the Model for Improvement that uses the Plan-Do-Study-Act (PDSA) cycle. Beginning in December 2015 in 10 facilities of Gulu, Omoro, and Nwoya districts, the project:

i) Supported the formation of multidisciplinary QI teams at 10 high-volume delivery facilities in the three Northern Uganda districts, through which QI activities have been implemented.

ii) The improvement teams at the health facilities received monthly coaching and mentorship sessions from ASSIST’s improvement coaches on how to identify gaps in care, how to prioritize areas for improvement and how to develop, test, and eventually implement change ideas that had the potential to bring about improvement.

iii) Members of improvement teams were brought together every three months to share their experiences and insights in peer to peer learning sessions which served as a primary mechanism for spreading good practices among all teams.

AIM I - Improving the treatment of newborns at risk of infection

Background

Neonatal sepsis is one of the leading cause of mortality in new-borns worldwide and in Uganda. Maternal risk factors such as maternal fever, premature rapture of membranes (PROM), purulent liquor and chorioamnionitis are known to be associated with early onset neonatal sepsis. Strong evidence exists that babies born to such mothers should receive prophylactic antibiotics treatment to protect against severe infection. However, a number of health facilities are unable to deliver such lifesaving interventions due to lack of staff competence in identifying babies at risk, lack of proper documentation, and frequent stock-out of antibiotics

Improvement aim: To increase from 0 to 90 percent the number of newborns at risk of infection that receive appropriate treatment.
Key change idea: Adding the maternal risk factor to the diagnosis column of the register

Gap being addressed: Health workers were not well conversant and often forgot to assess mothers for possible risk factors for sepsis. And even when identified, babies born to such mothers did not receive prophylactic treatment. Without documentation, it was also difficult to trace babies born to such mothers and institute the needed antibiotic treatment.

How to implement the change idea: A knowledgeable staff oriented the team through a practical session of identifying mothers with possible infections during labor and the treatment of babies born to such mothers. The teams then agreed to always document the maternal risk factor together with the diagnosis in the maternity register. At the end of each shift, the midwives checked the register to identify mothers that had such risk factors and ensured that treatment to their babies had been given. Facility teams also decided to add antibiotics to the drug tray in the labor ward to institute timely treatment.

Indicator: Percentage of new-borns born at risk of infection that receive prophylactic antibiotic treatment.

Figure 2: Percentage of newborns at risk of infection that receive prophylactic antibiotic, 6 sites, Gulu, Omoro, and Nwoya Districts, Northern Uganda (July 2015-Dec 2016)

**TESTED CHANGES**
- Onsite peer to peer skills mentorship
- Documenting maternal risk factor and treatment for infants
- Adding antibiotics to emergency tray
- Proper ordering and quantification of antibiotics
- Reviewing register for data completeness
Box 1: Improving antibiotic prophylaxis for new-borns at risk of infection at Anaka Hospital

At Anaka General Hospital in July 2015, babies born with maternal risk of infection were not receiving appropriate antibiotic prophylaxis. During the QI coaching visits, this gap was highlighted by the health facility midwives. They realized that mothers with signs of these risk factors were never documented in the register and as a result infants born to such mothers could not be identified and treated appropriately. In addition, the staff lacked skills and knowledge on the rationale of instituting such treatment.

During the coaching sessions, the facility QI team agreed to hold a peer to peer orientation by a knowledgeable staff to refresh the knowledge of the staff on the WHO guidelines on treatment of new-born infections. In order to easily identify babies at risk of infection, the midwives agreed to document the maternal risk factor within the diagnosis column of the maternity register. And at the end of each shift, both midwives ensured that exposed babies received appropriate prophylactic treatment. The QI team also documented details of treatment given to infants and their outcome using an improvised counter book. Over a period of 4 months the facility was able to improve treatment of babies at risk significantly from 0 to 100%.

Figure 2: Percentage of newborns at risk of infection that receive prophylactic antibiotics at Anaka Hospital, Nwoya District (July 2015-Dec 2016)

![Graph showing percentage improvement]

**AIM 2- Improving the percentage of children with Pneumonia that receive a recommended first line antibiotic**

**Background**

Pneumonia is a major cause of morbidity and mortality in under-fives in Uganda. Saving children from pneumonia requires that the health workers properly assess and recognize signs of pneumonia and take urgent action with appropriate treatment. Amoxicillin is the recommended first-line agent for children with uncomplicated community-acquired pneumonia. However, the vast majority of under-five children with signs of pneumonia in the outpatient setting do not receive this recommended treatment or receive other less effective or broader spectrum antibiotic, putting them at a risk of developing more severe illness or antibiotic resistance. For example, observation of outpatient visits of children between 2 months to 5 years during baseline assessment revealed that only 33% of children with pneumonia were prescribed...
Amoxicillin, while 67% of children were prescribed co-trimoxazole or other non-evidence based antibiotics.

**Improvement aim:** To increase the percentage of under-five children with pneumonia that are treated with a recommended first line antibiotic from 66% to 100%.

**Key change idea:** Reviewing prescription in the register weekly and giving timely feedback to the team

**Gap being addressed:** Health workers did not follow any standard treatment regimen when treating children for Pneumonia. Some staff also lacked skills in identifying signs of pneumonia. As a result, they occasionally missed these signs and often used various non-evidence based antibiotics to manage pneumonia cases. This was coupled with frequent stock out of first line antibiotics at the facility, further escalating the problem.

**How to implement the change idea:** Assigning a staff to regularly review the out-patient department (OPD) register weekly. The focal staff cross checked the prescriptions for children with pneumonia and diarrhea to ensure that they received the recommended treated. In the event of any identified gaps, the staff gave timely feedback to the team during the same week, so the team could address them immediately.

**Evidence:** Five health facilities tried this change and achieved improvement in treatment of pneumonia.

**Indicator:** Percentage of under-five children with pneumonia that are treated with a recommended first line antibiotic.

**Figure 3:** Percentage of under-five children receiving a recommended first-line antibiotic for pneumonia, 10 sites in Gulu, Omoro, and Nwoya Districts (July 2015-Nov 2016)

**TESTED CHANGES**
- Peer to peer on job.
- Reviewing prescriptions weekly and give timely feedback
- Proper ordering and redistribution of essential drugs
- Continuous orientation of new staff using developed job aids
- Reminder calls or follow-up of clients
Box 2: Improving the treatment of Pneumonia using a recommended first line antibiotic at Koch-goma Health Center (HC) III.

In August 2015, the number of under-five children on a first line antibiotic for pneumonia was 45% at Koch-goma HCIII. During the onsite QI coaching, the facility identified that a lot of children diagnosed with pneumonia were receiving the wrong choice of antibiotics contrary to the IMCI/WHO guidelines & recommendations. This was mainly because the teams lacked knowledge on the recommended first line regiment for treatment of pneumonia and had frequent stock outs of Amoxicillin in the facilities. A knowledgeable staff organised a session and oriented the team on the assessment and management of pneumonia and the team developed job aids which were pinned up in the clinicians’ rooms. The team also monitored impending amoxicillin stock outs using stock cards and coordinated with district leads to effect timely redistribution when necessary.

The facility was able to make moderate improvement towards their target. In order to accelerate this progress, the team held a meeting and appointed a staff to specifically monitor pneumonia prescriptions in the register weekly. The focal person always alerted the team on their performance so that gaps could be addressed timely. Within a period of four months of progressively implementing these changes, the percentage of children with pneumonia that received a first line antibiotic improved to 100%.

Figure 4: Percentage of under-five children that receive a recommended antibiotic for pneumonia, Koch-goma HCIII, Nwoya District (July 2015-Dec 2016)
AIM 3 - Improving the assessment of vaccination status at OPD

Background

Immunization is one of the most cost-effective public health interventions in protecting children from illness and disability. Availability, retention, and utilization of home-based vaccination records (vaccination cards) plays as an effective instrument for promoting childhood immunization, educating caregivers about their child’s immunization status, and stimulating demand for services. Unfortunately, routine use of such records in the community and at the health facilities, during the routine outpatient visits is low. Hence children with missed vaccination opportunities are not routinely identified, counselled or referred for the vaccination.

Improvement aim: To increase from 0% to 80% of under-five children whose vaccination status is assessed and documented in the outpatient register in 10 health facilities of Northern Uganda.

Key change idea: Awarding a code to every child that has completed or missed a vaccination

Gap being addressed: Health workers did not routinely assess under five children for vaccination status at routine outpatient visits. Observation on outpatient visits of children under five revealed that vaccination status assessment by care provider was conducted only in 13% of outpatient visits and none of the vaccination assessment results were documented in the outpatient registries. As a result, several children seen at OPD that had not completed their vaccination were not being identified, counselled and referred for the vaccination. Only a small proportion of mothers carried vaccination cards to the health facility and the clinical staff rarely asked to review the card during an OPD visit. There was also poor or no documentation of vaccinated children in the OPD and child register.

How the change idea was implemented: The facility decided to set up a triage point where all children coming to the facility would be assessed. The team was supported by non-clinical staff at OPD to ensure daily assessment of children. By documenting a code for every child seen at the triage point, all children with assessed vaccination status could easily be identified and referred for immediate vaccination. Health education coupled with counselling by the clinicians at routine outpatient visits and during outreaches to promote the use of vaccination cards by parents.

Evidence that it worked: A total of 6 health facilities tested this change and registered significant improvements in vaccination assessment.

Indicator: Percentage of under-five children whose vaccination completion status is assessed and documented in outpatient registers in 10 health facilities of Northern Uganda.

Figure 5: Percentage of under five children assessed for vaccination status, 10 sites in Gulu, Omoro, and Nwoya Districts (July 2015-Dec 2016)
TESTED CHANGES

- Onsite peer to peer skills demonstration
- Awarding a vaccination assessment code
- Task shifting role of assessment to VHTs at OPD
- Documenting in improvised columns of register
- Reviewing registers for accuracy and completeness

Box 3: Improving vaccination completeness at Opit HC III, Omoro District

Opit HC III received a large OPD attendance of under five children, but only a few of them were ever assessed for vaccination completion. The QI team held a meeting and identified a location to screen every child that attended OPD. The lead clinician organized a peer to peer session in which he demonstrated to the staff how to assess vaccination completeness. The facility initially documented this information in an improvised counter book to keep track of the children seen. However, they were unable to register much improvement because the facility was often under staffed and documentation in the book after assessment was forgotten. The team also experienced frequent stock-out of vaccines.

The team then reviewed these gaps and decided to award a code to every child as soon as they were assessed in their note book and eventually in the OPD register improvising a column. They also oriented and attached two extra non-clinical staff at the OPD to ensure there was always someone to carry out assessment daily and document in the child register. With these changes the facility was able to gradually improve their performance and documentation in OPD registry from 0 to 90%.

Figure 6: Percentage of under five children assessed for vaccination status, Opit HC III, Omoro District (July 2015-Dec 2016)
AIM 4 - Improving the treatment of diarrhea in children under 5

Background

Diarrhea is a leading killer among children under five globally, with the majority of these deaths occurring in South East Asia and sub-Saharan Africa. Many children can be saved through basic interventions to improve drinking water, sanitation and hygiene (WASH) for diarrhea prevention, and the widespread use of a simple solution of oral rehydration salts (ORS) and zinc supplementation during episodes of diarrhea. Despite the availability of this simple effective treatment, many children in Uganda still do not receive an appropriate zinc course and adequate oral rehydration. This is coupled with large scale abuse of antibiotics in the treatment of diarrhea, which may further prolong diarrhea episodes in children.

Improvement aim: To decrease the percentage of children under five who receive non-evidence based treatment for diarrhea from 51% to 10%.

Key change idea: Clinical staff reviewing registers for correct treatment of diarrhea and providing feedback back to the team weekly

Gap being addressed: Health workers treated under five children with diarrhea daily; however a large proportion of these children did not receive zinc/ORS or were given inappropriate doses. In addition, there was widespread abuse of oral antibiotics as a mode of treatment for diarrhea. For example, observation of outpatient visits of children with diarrhea at baseline assessment revealed that 6% were treated with concurrent unjustified Ciprofloxacin and 94% with Co-trimoxazole with no indication.

How to implement the change idea: After identifying these gaps, the team organized peer to peer mentorship on diarrhea case management. A staff was assigned to review the register weekly for correct prescription of zinc with ORS and misuse of antibiotics in diarrhea. He/she alerted the team in case of any existent gaps to be addressed. The team also added reminder on zinc dosages and cautions on antibiotic use.

Evidence that it worked: 5 facilities that tested this change registered significant improvement.

Indicator: Percentage of children under-five with diarrhea who receive non-evidence based treatment for diarrhea.

Figure 7: Percentage of under five children that receive non-evidence based treatment for diarrhea, 10 site in Gulu, Omoro, and Nwoya Districts (July 2015-Dec 2016)

TESTED CHANGES

- Providing timely first dose of ORS rehydration
- Reviewing prescriptions in registers weekly and give timely feedback
- Displaying reminder notices with caution on antibiotic misuse
- Peer to peer Orientation of new staff using available job aids
- Proper ordering and redistribution of essential drugs
Box 4: Improving the percentage of children with diarrhea that are treated correctly in Acet HCIII, Gulu district

After the facility QI team identified gaps in diarrhea case management, a session was organized by the in-charge to orient all the staff. Special emphasis was put on provision of adequate oral rehydration with ORS, prescription of the correct dose of zinc and cautious use of antibiotics in diarrhea. The in-charge then periodically supervised the staff to ensure correct management of diarrhea.

The facility team still had slow progress towards achieving their target; they realized that staff often forgot to prescribe zinc and still used un-justified antibiotic treatment. The team added reminders at OPD and assigned one of the nurses to review the register weekly for correct prescription of treatment. The nurse gave feedback to the team weekly and any existent gaps were quickly addressed. The facility team through these changes progressively reduced the use of non-evidence based treatment of diarrhea from 80% to eventually to 0%.

Figure 8: Percentage of under five children receiving non-evidence based treatment for diarrhea, Acet HCII, Omoro District (July 2015-Dec 2016)

II. Recommendations

To get the most benefit from the change ideas described in this document, health facilities should establish and cultivate an environment that embraces change to nurture improvements. The following ideas can help the team in getting started:

I. Improving Documentation

Existing national data monitoring tools need to be accurately and consistently used. It is through these tools that teams will be able to determine whether their performance is stagnating or improving, both
before and after introducing these changes. To identify gaps in compliance with evidence based child care practices, standard outpatient medical registries need also to be revised.

II. Establishing Team Work

For any improvement work to yield positive results, health workers have to collaborate and view themselves as members of a team responsible for the different steps in the processes of providing health services.

III. Analyse the Process of Care and Prioritize the Gaps to Be Addressed

After analysing and identifying existing gaps, health workers should prioritize which challenges need to be and can be tackled first and which ones can wait. Addressing one challenge at a time (while introducing a few changes at a time) will enable health workers to systematically monitor the effectiveness of each change in addressing a particular challenge and improving overall service delivery.

IV. Communicating with Patients

Improvements are designed to primarily benefit patients. Health workers should constantly communicate with patients and their families about recommended care, including administration of medications, the signs to seek care and time/place for follow-up.

Additional Change Ideas

Additional change ideas that contributed to general improvements in newborn and child health care services focused on the following thematic areas:

- **Capacity building:** These are changes that build the skills of health workers to perform their different roles in new-born and child health care services. Capacity building could take the form of on-job trainings, peer-to-peer on-site knowledge exchanges, and availing of protocols and guidelines on newborn and child health care services.
- **Adequate stocks of necessary supplies and equipment:** Health facilities should ensure that not only drugs but other supplies like MOH protocols and HMIS tools and elements of the essential new-born care package are available and in adequate amounts.
### Appendix I: Tested changes to improve the treatment of newborns at risk of infection

<table>
<thead>
<tr>
<th>Specific gap to be addressed</th>
<th>Changes tested</th>
<th>How the change was done</th>
<th>Facilities that tested the change with improvement</th>
</tr>
</thead>
</table>
| Health workers did not know the rationale nor the treatment regimen | Peer to peer mentorship for all midwives. | • The facility team organized a session in which a knowledgeable midwife demonstrated to other staff on the signs of infections in mother and how institute treatment to babies at risk of such infection.  
• The QI team obtained treatment protocols and photocopied them as job aides and also inducted staff on their use during the CMEs.  
• The job aides were pinned up in labor ward for quick reference.  
• Subsequently knowledgeable midwives in maternity oriented new and less experienced staff regularly | 5/7 facilities |
| Newborns at risk of sepsis were not identified because there was no documentation in the registers or they were not completely filled | Documenting maternal risk factors in the diagnosis column of maternity register | • The staff held a meeting and agreed to document the maternal risk factors within the diagnosis column of the integrated maternity register  
• After every shift, the midwives reviewed the column in the register to ensure that babies received treatment | 5/6 facilities |
| The treatment and outcome of the newborns was not recorded anywhere | Facilities documenting treatment given to newborns | • The team discussed and agreed to improvise a book where information on treatment and outcome of newborns could be documented.  
• A counter book was demarcated to capture information such as; age, sex, date, drug, dose and outcome.  
• Staff were oriented on how to complete this counter book | 2/4 facilities |
| Initial dose of | Adding prophylactic | • The team added prophylactic | 6/6 facilities |
### Appendix II: Tested changes to improve the percentage of children with Pneumonia that receive a recommended first line antibiotic

<table>
<thead>
<tr>
<th>Specific gap to be addressed</th>
<th>Changes tested</th>
<th>How the change was done</th>
<th>Facilities that tested the change with improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of knowledge about correct assessment and treatment of pneumonia</td>
<td>Peer to peer on job mentorship</td>
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<tr>
<td></td>
<td></td>
<td>• Each facility identified a knowledgeable staff to orient staff specifically on assessment &amp; treatment of pneumonia through a CME.</td>
<td>5/7 facilities</td>
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<tr>
<td></td>
<td></td>
<td>• This involved demonstration of skills on assessment and guidance on treatment using the available IMCI guidelines on treatment of Pneumonia (5/9)</td>
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<tr>
<td></td>
<td></td>
<td>• This was followed by on-job training which was organized during working hours by the skilled staff. (4/10)</td>
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<tr>
<td></td>
<td></td>
<td>• In facilities where there was new staff, orientation on the IMCI guidelines was conducted as part of the orientation process.</td>
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<td></td>
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<td>• A follow up CME was organized by OPD in-charge to re-orient other hospital staff on correct treatment of</td>
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</tr>
<tr>
<td>Specific gap to be addressed</td>
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|                              | Displaying job aids and reminders in clinicians’ rooms for quick reference | - In-charge facility was assigned to photocopy Job aids with standard IMCI treatment protocols and placed at all the service points.  
- These were placed on the clinicians’ walls so that they remember to prescribe correctly.  
- Both new and old staff were oriented and encouraged to use the job aids | 4/5 facilities |
| In-appropriate doses or wrong choice of antibiotic prescribed by staff | Reviewing prescriptions in OPD register for accuracy | - An overall focal person was selected to review the registers on a regular basis (initially weekly then bi-weekly subsequently) and ensure complete documentation is done.  
- The focal person specifically cross checked accuracy of prescriptions (correct antibiotic and dose) for Pneumonia in the register.  
- He/she then provided weekly performance during team meetings to identify and address existing gaps. | 6/8 facilities |
| Regular stock out of antibiotics at the facility due to inaccurate orders and inadequate quantification. | Participating in the proper ordering, quantification and monitoring of stock levels of antibiotics in the facility. | - An appointed staff or in-charge participated in ordering and quantification of antibiotics with the store manager.  
- He/she continuously monitored availability of essential antibiotics and gave feedback to the team.  
- In-case of an impending stock out, the team coordinated with the store manager and the district to redistribute antibiotics from other health facilities. | 5/7 facilities |
<p>| Mother’s did not keep their follow up appointments | Health education focused at appointment keeping by clients. | - Health education talks supplemented with individual counseling by clinicians were conducted to encourage clients to return timely on follow up dates | 4/6 |
| Reminder call to mothers that don’t return for subsequent doses | - A working telephone number and address of caretaker of a severely sick child was registered in a book at the facility and their home of residence mapped out. (1/4) | 3/4 facilities |</p>
<table>
<thead>
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</thead>
<tbody>
<tr>
<td>from the community</td>
<td>Using these contacts, a VHT was tasked to follow up sick infants that did not return for review (3/4).</td>
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<tr>
<td></td>
<td>Airtime to make a phone call was provided for from the PHC fund or IPs contributions (1/1).</td>
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</tbody>
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Appendix III: Tested changes to improve the assessment of vaccination completeness and documentation at OPD

<table>
<thead>
<tr>
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<th>Changes tested</th>
<th>How the change was done</th>
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</tr>
</thead>
</table>
| Lack of knowledge and skills in assessing a child’s vaccination status, especially in the absence a vaccination card. | Experienced staff demonstrated to other staff on how to assess children at OPD. | • A meeting held to identify less knowledgeable staff and also identify an experienced staff, who would be assigned to plan for the mentorship.  
• The assigned staff demonstrated to the health workers e.g. how to assess vaccination status with or without a vaccination card  
• The assigned staff periodically checked at the triage points to ensure that assessment of vaccination was done correctly. | 5/8 facilities |
| There was no mechanism of identifying children with complete or missed vaccination. | Awarded a code for children assessed for vaccination at OPD. | • All children assessed for vaccination completeness were awarded a code that was documented in the patients’ note book and subsequently in the OPD register.  
• VCA was documented for Vaccination Complete for Age-for those with complete vaccination  
• ACRV-Assess, Counselling and Referred for Vaccination-for those with missed vaccination  
• Children with missed vaccination were counselled and referred for immediate vaccination. | 6/8 facilities |
<p>| Improvised a column in the | The teams agreed to add a column where the child’s vaccination code could be documented to the OPD | | 7/8 facilities |</p>
<table>
<thead>
<tr>
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</table>
| Mothers did not routinely carry vaccination cards to health facilities | Routine health education to mother carry along the child health card for every visit at the facility and at outreaches. | • The team designed a monthly duty roster for staff to conduct health education talks at OPD and during outreaches.  
• Health education talks were supplemented with individual counselling by clinicians to mothers.  
• They also attached reminders in the local language on the walls for mothers at OPD. | 4/10 facilities |
| There was poor or no documentation in the Child register | Demonstrating proper update of the child health register | • Both HWs and non-clinical staff were oriented in a session on filling the Child register by a knowledgeable nurse (4/8).  
• Practical demonstrations and scenarios were utilized to ensure staff understood the instructions.  
• The staff in-charge of vaccination was tasked to ensure documentation in the child register was accurate | 4/8 |
| Few clinical staff to assess the large volume of children at OPD.  
Few staff working in OPD clinic | Mentoring support staff, CLFs and VHTs (non-clinical staff) to perform assessment at OPD | • Health facilities mentored available non-clinical staff; health assistants & VHTs at OPD on assessing children  
• A schedule was designed to have a trained staff available at OPD daily to perform triage and document in the registers. | 5/6 facilities |
| Regular stock out of vaccines, gas | Assigning a focal person to monitor | • A focal person was chosen to monitor | 4/6 facilities |
### Specific gap to be addressed

<table>
<thead>
<tr>
<th>Changes tested</th>
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<th>Facilities that tested the change with improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>and child health cards at the facility</td>
<td>availability of vaccines and gas. - He/she worked closely with stores person to make timely ordering - In-case of an impending stock out, the team coordinated with the district focal person to obtain vaccines and child health cards.</td>
<td></td>
</tr>
</tbody>
</table>

### Appendix IV: Improving the percentage of children with correct treatment for diarrhea

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Long waiting hours before accessing and giving Oral Rehydration Salts (ORS)</td>
<td>Providing timely dose of ORS rehydration on arrival at the facility</td>
<td>- A clean jerry can for pre-mixed ORS was provided at the OPD by the in-charge. - A staff was assigned to boil water and mix ORS daily for children attending OPD. - The jerry can was placed at an accessible point for all mothers. - Children with signs of diarrhea at the triage point for dehydration and given the first dose of ORS immediately while waiting in line. - Mothers at OPD used clean mineral water bottles/cups to access the ORS.</td>
<td>3/5 facilities</td>
</tr>
<tr>
<td>Oral zinc was not given or prescribed incorrectly</td>
<td>Orienting staff using IMCI guidelines to correctly prescribe zinc.</td>
<td>- A knowledgeable staff used IMCI guidelines to re-orient all facility health workers on the eligibility criteria and dosing of zinc in under-five children with diarrhea during a CME. - The staff conducted periodic supervision to ensure that the staff were treating diarrhea correctly. - Displaying reminders on zinc use and dosage. - The staff developed reminders on zinc use that were pinned up the wall in the clinicians’ rooms. - Monitoring correct prescriptions in</td>
<td>5/9 facilities</td>
</tr>
<tr>
<td></td>
<td>Monitoring correct prescriptions in</td>
<td></td>
<td>5/6 facilities</td>
</tr>
<tr>
<td>Issue</td>
<td>Action</td>
<td>Results</td>
<td>Facilities</td>
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| Inappropriate prescription of antibiotics.                            | Peer to peer mentorship.                                               | • A health worker with IMCI knowledge was chosen to conduct a CME for other facility staff (4/5).  
• The staff used IMCI guidelines to mentor staff on the correct treatment of diarrhea with emphasis on misuse of antibiotics. | 4/5 facilities |
| Mothers not well conversant with preventive methods and rehydration of sick infants at home | Conducting health education talks on of rehydrating sick babies, sanitation and hygiene | • Non-clinical staffs were mentored by a health worker to conduct daily health education talks on adequate rehydration of the sick child.  
• Demonstrations of mixing ORS and feeding babies were also included in the talks.  
• Preventive methods; like proper sanitation, hygiene and clean water were also discussed.  
• This was all coupled with counseling to mothers by clinicians | 3/3 facilities |
| Stock out zinc and ORS at the facility due to inadequate quantification. | Assigning focal person to order and monitor for stock outs in the facility. | • A facility staff was chosen to monitor availability of zinc and ORS and provide timely feedback to the team.  
• In-case of impending stock out the team coordinated with the district to redistribute ORS and Zinc from other health facilities. | 3/5 facilities |
| Documentation in the OPD register was incomplete | Cross checking data completeness in register | • QI team leader/clinic staff periodically cross-checked the registers for accuracy and completeness of data. | 4/6 facilities |
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