EXPERIENCES WITH INTRODUCTION OF EMERGENCY TRIAGE ASSESSMENT AND TREATMENT PLUS ADMISSION (ETAT +) IN THE CARE OF SICK CHILDREN IN MANICALAND PROVINCE, ZIMBABWE

A CASE STUDY
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The Background – Under five morbidity & Mortality in Zimbabwe
Zimbabwe has made strides in reducing under-five mortality in recent years through the implementation of evidence-based interventions such as Integrated Management of Neonatal and Childhood Illnesses (IMNCI), Vitamin A supplementation, Baby Friendly Hospital Initiative (BFHI), increasing the practice of exclusive breastfeeding, and the use of Oral Rehydration Salts (ORS) and zinc in the management of diarrhoea. According to the Zimbabwe Demographic Health Survey (ZDHS), under-five mortality rate (U5MR) was reduced by 18% from 84/1,000 to 69/1,000 live births over the 5 year period between the last two surveys (ZDHS 2010/11 and ZDHS 2015), but this U5MR is still unacceptably high. Forty thousand of the 500,000 children born each year in Zimbabwe will not make it to their fifth birthday. Zimbabwe is off-track to achieve the goal of reducing child mortality to 25 or fewer deaths per 1,000 live births by 2030.

Severely sick children seen at primary health care facilities often require referral to an admitting hospital. These severely ill children are at high risk of death and quality referral care is thus essential to reducing deaths. However, the assessment of quality of care for children in referral hospitals report of 2004 identified the lack of triaging as an important issue for compromised quality of care at referral centres. The number of deaths occurring in Zimbabwean hospitals within the first 24 hours of admission remains unacceptably high. At Harare hospital, about one out of three child deaths occurs within 24 hours of admission. Many of these deaths can be prevented if very sick children are identified soon after their arrival in the hospital and appropriate treatment is started immediately. Emergency Triage Assessment and Treatment plus admission care of sick children in the first 24-48 hours of admission to hospital or ETAT+ can make a big difference.

The project – The Maternal & Child Health Integrated Program (MCHIP)
The Maternal & Child Health Integrated Program (MCHIP) was the USAID flagship maternal and child health project implemented between 2010 and 2014 by a consortium of international organizations including Jhpiego, John Snow Inc (JSI) and Save the Children and. In Zimbabwe, a follow-on Associate Award (AA) was granted in January 2014 and builds on lessons learned during the first award.

The goal of the MCHIP program is to significantly and sustainably contribute to improvements in Maternal, newborn and Child Health (MNCH) through the scaling up of evidence-based, high impact, integrated public health interventions. The program provided support at the national, provincial/district and facility levels to ensure that Zimbabwe’s made progress towards the SDGs on reducing child mortality. At the national level, MCHIP supports strengthening of policy, strategy and programs to foster scale up of high impact MNCH interventions. At the district hospital, rural health center (RHC) and community levels, MCHIP supports improvements in the coverage and quality of high-impact MNCH interventions provided by health care workers in facilities and village health workers (VHWs) in communities.
The intervention: Emergency Triage Assessment and Treatment plus admission (ETAT+)

Emergency Triage Assessment and Treatment plus admission care of newborns and children in the first 48 hours (ETAT+) is a comprehensive and proven intervention, originally developed specifically for implementation in East Africa, to reach the poorest and most vulnerable children in rural and peri-urban areas. The ETAT+ course targets a wide range of health care workers including nurses, physicians and midwives and aims at improving emergency pediatric care. Originally developed by the World Health Organization (WHO) and adapted and adopted by other countries like Malawi and Kenya\(^5,6\), the course draws from the WHO Hospital Care for Children and WHO ETAT Training Modules, and is designed to provide knowledge and skills in emergency management of sick children at referral centers.

<table>
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<th>Difference between ETAT and ETAT+</th>
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<tr>
<td><strong>Emergency, Triage, Assessment and Treatment</strong></td>
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<tr>
<td>• 3 and 1/2 day course with Test</td>
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<td>• Covers:</td>
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<td>o Triage</td>
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<td>o Life Support: A,B,C,D &amp; Trauma</td>
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<tr>
<td>o Shock, Coma &amp;Convulsions</td>
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<tr>
<td>o Dehydration Management</td>
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<tr>
<td>• Emphasis on the implementation within the health facility</td>
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<td>• Specific modules can be delivered to specific workers</td>
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The process: Introduction of ETAT+ in Zimbabwe

The USAID funded Maternal and Child Health Integrated Program (MCHIP) supported a 2-day adaptation, adoption and printing of the ETAT+ training package in 2015. The stakeholders who worked on the adaptation of the training material included paediatricians, MOHCC, WHO, UNICEF, Ministry of Justice and Social Welfare. The training materials developed through this effort comprised the Participant manual, the Zimbabwe paediatric protocols and Treatment flow charts, and other job aids such as flow charts, while the Kenyan Facilitator guide continues to be used. The training package was reviewed during TOTs by the paediatricians and other ETAT trainers.

The Ministry of Health and Child Care (MOHCC) in Zimbabwe and the Paediatric Association of Zimbabwe (PAZ) in collaboration with partners considered adoption of the Kenyan ETAT+ strategy in response to the prevailing challenge of high under five mortality in the country.

The training materials comprised of the Participant manual, the Zimbabwe paediatric protocols and Treatment flow charts (See Figures 2&3). The Kenyan Facilitator guide continued to be used.
The process: ETAT trainings
MCHIP supported the pilot testing of the training package during two national Trainer of Trainers (TOTs) workshops during which a pool of 22 national trainers (nurses and doctors) were trained and certified as trainers in 2016. USAID/MCHIP provided the MoHCC with training kits used during these TOTs (Fig.4). The training was conducted by paediatricians trained by the Kenyan paediatricians from where the ETAT plus course was adopted.

A country-wide roll out of ETAT+ trainings for implementers country-wide followed the TOT workshops. MCHIP support for roll out in all 15 admitting hospitals in Manicaland province commenced in February, 2016. Nurses and doctors in district hospitals are often required to handle complicated emergency pediatric and neonatal emergencies in the absence of specialists but before ETAT+ training did do not always have all of the necessary skills and knowledge to deal with newborn and child emergency conditions.

The ETAT+ course consists of short and topic specific lectures, demonstration, practical sessions, case scenarios using manikins and mortality audits of selected patient medical records. Discussions and hands on practice take place in small groups of 5-6 participants where doctors and nurses all work and learn together. To assures that participants acquire the knowledge and skills which will enable them to manage life threatening conditions in children trainers continuously assess and provide feedback to trainees to evaluate their performance and knowledge acquisition.

All participants complete a standard knowledge assessment of 20 multiple-choice questions (MCQs) before the start of the course and again at the end of the training. At the end of the training they are re-tested using the same 20 MCQs and on two clinical skills scenarios selected from the several that have been discussed during the
ETAT-Plus Case Study, September 2017

course. ETAT post test scores improved compared to the pre-test scores during nine ETAT+ training sessions held in Manicaland province (see Figure 8)

Figure 8: ETAT pre- and post-course results (%) scored by participants from 15 HF's in Manicaland province.

The majority of participants performed well in the post training practical skills assessment following ETAT training activities. Only 33 out of the 168 trainees (20%) requiring further orientation and support before they could pass the test (see Fig. 9)

Figure 9: Post course practical test outcomes following ETAT Training activities at 5 hospitals in Manicaland province, (n=168)
Scenes from ETAT Training workshops in Manicaland province
The first three five-day training courses were at Mutare Provincial Hospital (MPH) in Manicaland with participants drawn from different districts. This central approach resulted in a low coverage of ETAT trained HCWs at the admitting facilities. To increase the number of health workers trained in ETAT, MOHCC and MCHIP introduced an affordable, on site, training model for ETAT+.

Since the introduction of ETAT+ in Zimbabwe, MCHIP supported the training of 363 health workers. Most of these workers [173 (47.7%)] work in Manicaland province.

Post training follow up (PTFU) visits focus on assisting facilities to rearrange patient flow, assessing availability of commodities and strengthening the process of under-five death audits. During these visits, skills retention assessments, a critical component of the PTFU, are conducted. However, to date, not all participants trained in ETAT were assessed. Facilities were provided with flow charts for managing emergency cases in departments dealing with sick children. The paediatrician available managed to do mentorship support for the newly trained ETAT trainers in Manicaland to ensure that they were meeting the standards of ETAT training. Because of other commitments, Mentorship visits to facilities were done by quality improvement support teams (QIST) trained in ETAT during their routine integrated quarterly support visits.

**The process: Hospital readiness assessments**

Hospital readiness assessment (HRA) is an important part of the ETAT training. It involves assessing all departments that provide some aspects of paediatric care and includes checking on the availability of ETAT commodities. During the exercise, facilities identify gaps to successful ETAT implementation. The HRA makes staff aware of the importance of departmental collaboration and team work to improving care. HRAs were an important component of the post training follow up and supportive supervision visits held by ETAT+ trainers with MCHIP support. It resulted in the improvement of patient flow and setting up of well-equipped emergency corners (See Figure 10).

*Figure 10: Well-equipped emergency corners with flow charts and job aids in outpatient departments*
The process: Paediatric Mortality Audits
On a monthly basis HCW conducted pediatric mortality audits to audit medical records of children who had died in the facility or near misses if no deaths had occurred. To conduct the audits, a mixed team of facility staff, including doctors, nurses, administrators, pharmacists, used the paediatric mortality audit tool in conjunction with the basic paediatric protocols. The process allowed for frank discussions amongst staff involved in providing care for children, with as aim to determine what could have been done better, so that further deaths can be avoided. HCWs understand now that audits are responsive and are not meant to blame one or another but are a joint learning process from mistakes and create an agreement amongst peers on what needs to be done in order to avoid further deaths or near misses.

The outcomes: U5 deaths observed in Health facilities were ETAT+ has been implemented
The impact of the intervention is difficult to ascertain due to the short duration of implementation. No change in mortality within 24 hour of admission could be documented. This was partially due to major challenges in retrieving archived patient records, a lack of systematic and standard recording practices, on top of significant gaps and inconsistencies in the quality of in-patient records. However, when looking at data from various registers, overall facility deaths seem to have declined after the introduction of ETAT+.

The graphs below suggest that there was a reduction in mortality which coincides with the timing of ETAT+ trainings and support (indicated by the red arrow). The provincial, tertiary referral hospital has a higher number of monthly admitted cases and, given its nature, treats the most complicated cases in Manicaland. Mortality in this hospital was higher than in the districts hospitals and reduction of mortality after ETAT+ training was lower than in the combined district hospitals.
The above graph covers the period 2014-2017. It shows percentage of U5 deaths trends out of all admissions at five (5) admitting hospitals in Manicaland. The red arrow indicates when ETAT trainings were conducted.

Fig 12: Number of deaths attributed to 4 major conditions at 5 selected ETAT high volume facilities in Manicaland province, (2014-2017, Q2)
LESSONS LEARNT

- ETAT Onsite training (OST) strategy ensures increased coverage of HWs trained at each facility. It is affordable and costs about ten times less than hotel based trainings of the same number of participants.
- Training supervisors in ETAT ensures implementation of ETAT at the facilities. The supervisors provide continued support and supervision of cadres trained and enforce adherence to guidelines.
- Supplying of job aids is beneficial because the paediatric pocket size protocol and flow charts act as quick reference guides for health workers.

CHALLENGES

- The physical set up of some facilities poses a challenge in rearranging the flow of patients to allow making the necessary changes for ETAT implementation.
- Inadequate commodities for successful implementation of ETAT due to lack of prioritization in procurement by responsible offices (Accounts, Administrators, etc)
- Shortages of F75 and F100 will result in poor management of children identified with severe and moderate acute malnutrition
- Lack of systematic and standard documentation of twenty four hour U5 mortality data.

RECOMMENDATIONS

- Provide all admitting hospitals with the appropriate ETAT resources (including drugs, equipment, policies, and trained staff) to assure effective emergency care for children.
- The MOHCC should adopt the ETAT on-site training, as this strategy is affordable and will speed up the number of ETAT trained health workers at admitting facilities.
- All institutions should intensify their efforts to maintain quality medical records.
- Twenty four hour U5 mortality should be systematically documented using standardized tools
- MOHCC should create an electronic data backups system and train staff in how to archive records
References

3. MOHCC. Zimbabwe Demographic Health Survey. 2015
9.
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For more information about MCHIP’s global activities, visit the websites of MCHIP at www.mchip.net and MCHIP’s successor program, the Maternal and Child Survival Program, at www.mcsprogram.org.

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