Emergency Triage Assessment and Treatment (ETAT)

Decision support tools to triage children in outpatient departments in Malawi

SERVICE DELIVERY

Implementation date: July 2012 to September 2014

Despite major breakthroughs in high and middle income countries, meningitis remains a huge problem in Africa and especially in Malawi. There is an exceptionally high fatality rate and the young are especially at risk. An aggressive infection, meningitis can kill within hours of the first symptoms. Recognizing the disease early-on can mean the difference between life and death and improve outcomes for survivors, who are often left with life-altering conditions (e.g. deafness, brain damage).
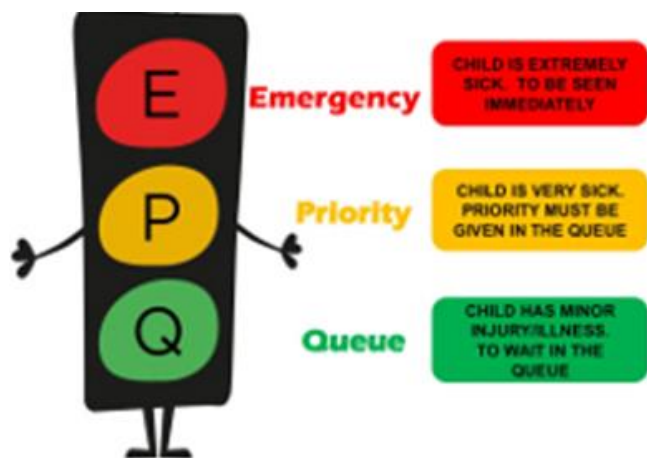
More than half the babies and children who get meningitis in Malawi will die from the illness, while others are left with serious disabilities. Formative research carried out by Malawi-Liverpool-Wellcome Trust (MLW) in the second biggest city, Blantyre, showed limited knowledge about the symptoms of the disease among health professionals and the public. Meningitis Research Foundation's solution is Action Meningitis, a project which focuses on the faster identification of sick children by using mobile phone technology (mHealth) and educating health care workers and the public to the dangers.

About ETAT

Long lines to see the health care workers are very common in many health facilities in Malawi, and the delay in navigating these queues can be the difference between full recovery and death. Action Meningitis has introduced the concept of Emergency Triage Assessment and Treatment (ETAT), at Queen Elizabeth Central Hospital (QECH) in Blantyre, and at five peri-urban health centers in Blantyre. The name of the initiative is 'Chipatala Robots', drawing from the local use of the word robot, meaning traffic light. Health Surveillance Assistants (HSAs) and nurses are trained on the ETAT protocol to rank sick children in the queue as E(mergency), P(riority) or Q(ueue). Children as 'E' are taken straight to a clinician, those classified as 'P' are taken to the front of the queue and those classified as 'Q' wait their turn in the queue.

D-tree International and partners have worked together to introduce the ETAT system into urban health centers using mobile phone technology to track referrals to QECH. Health workers were provided a half-day orientation on the use of the device and application and then moved into a half-day on the job training in their respective outpatient department, with follow-up visits then performed by Action Meningitis and D-tree staff.

Using mobile phone technology (mHealth) application, HSAs scan through the queues at the health centers assessing each child's for the level of acuity and identifying children who need immediate assessment. The tool tracks a child from assessment in the queue, assessment by the clinician and, if applicable, through arrival at the hospital. Since inception, over 200,000 cases have been triaged using this system, with 90 HSAs in seven health facilities trained on it use.

Evaluation and Results

An evaluation was conducted in five peri-urban health centers in Blantyre, between December 2012 and May 2013. Close to over 41,000 cases were observed, during peak traffic times throughout the week. The existing system in place was simply a first-come, first-served model. Pre- and post-patient journey modelling with health staff from each clinic identified waiting times to be noticeably shorter post intervention with the most significant time differences reported in the waiting bay and consultation room.

The triage intervention reduced the mean waiting times between arrival at the clinic and consultation from 74 minutes to 34 minutes for any child attending the clinics. There was a significant difference ($p<0.05$) indicating a noteworthy drop in the average time spent waiting post-intervention. Data captured through the phones also indicated shorter waiting times between triage and consultation for emergency cases (28 minutes), priority cases (45 minutes) and non-urgent cases (59 minutes).

Analysis is ongoing comparing the agreement between the HSA's assessment and that of the clinician. This will allow us to demonstrate the accuracy of the assessment made by the triage system and the mHealth tool.

Lessons Learned

- Health center staff reported that the system had a positive change in separating under-five monitoring visits from those in need of clinical assistance

- Patient guardians perceived the Chipatala Robot system intervention positively

- The intervention contributed to improved recognition of severe illness amongst both health workers and patient's guardians; Most of the health facilities reported that very few deaths occurred on the queues while patients were waiting to be seen by clinicians

Conclusion

This study has shown that mHealth technologies have the potential to improve primary level services with high patient numbers and overburdened staff, one step in the right direction to helping improve early recognition and response to severe illness in children in Malawi. The tools can be effectively deployed even in a busy clinical setting such as an urban hospital's outpatient department and proved to dramatically reduce the time to access care for the sickest children who are most at risk.

Geographic Coverage: Blantyre, Malawi

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