

## Understanding and improving the case management of severe febrile illness in highly endemic malaria settings – the CARAMAL study

### Abstract

Currently, over 400,000 children die from malaria and other preventable illnesses every year in sub-Saharan Africa. Few details are available on where these children die, from which causes, and under which circumstances. A better understanding of these factors is crucial to address effectively the remaining burden of preventable childhood diseases.

This webinar reports the results from three large field studies in the Democratic Republic of Congo (DRC), Nigeria, and Uganda, in which 7627 episodes of severe febrile illnesses were detected at the primary care level, as well as 6131 episodes at a referral health facility. While this multi-country observational study (CARAMAL) aimed primarily at assessing the impact of pre-referral rectal artesunate (RAS) under real-world conditions (implementation by the public health system with support from UNICEF), many other health systems factors needed to be considered to improve the children's outcomes. Proper case management required: (1) recognition of the gravity of illness by caregivers and timely care seeking; (2) a functioning primary care system, (3) administration of RAS for a safer referral of malaria cases, and (4) functioning referral health facilities providing appropriate post-referral care.

Post-roll-out, RAS was administered to 88% of patients in DRC, 52% in Nigeria, and 70% in Uganda. Our extensive findings suggest multiple deficiencies in the continuum of care, leading to low effectiveness of case management and negative health outcomes. The status of these children could be determined through Day-28 home visits in 93% of the episodes. Case fatality rates (CFR) varied largely by country, study phase and place of initial presentation (range: 0.3% to 16.1%). A number of risk factors for mortality could be identified and will be presented.

We found some indications that a lower proportion of children receiving RAS completed referral compared to those that did not (varying per country and primary contact point). Treatment with parenteral artesunate was high in referral health facilities (over 80%), but the administration of a full course of an ACT to complete the treatment was not done consistently (from virtually nil in Nigeria to 65% in DRC). Hence, many children were effectively treated with an artemisinin monotherapy. Most children were considered healthy on Day 28, but over 60% still had detectable malaria antigenaemia.

There was an issue at primary care level of aligning the severe febrile illness definition of iCCM with the definition of severe malaria. Finally, these three studies allowed to determine relatively reliable community-based rates of severe febrile illness and malaria episodes.

Chair: Elizabeth Juma

Total time: 120 minutes

| Presentation  | Presenter  | Time     |
|---|--|----------|
| Introduction to mortality from malaria; RAS as a potentially life-saving intervention | Theodoor Visser<br>CHAI                                | 5 min    |
| Overall design of the CARAMAL project   | Aita Signorell<br>Swiss TPH                            | 10 min   |
| Saving lives from severe febrile illness: large-scale experience from Nigeria         | Elizabeth Omoluabi<br>Akena Associates                 | 15+5 min |
| Saving lives from severe febrile illness: large-scale experience from DR Congo        | Antoinette Tshetu<br>Kinshasa School of Public Health  | 15+5 min |
| Saving lives from severe febrile illness: large-scale experience from Uganda          | Phyllis Awor<br>Makerere University                    | 15+5 min |
| Programmatic learnings and implications of findings                                   | Valentina Buj, UNICEF<br>Christian Lengeler, Swiss TPH | 10 min   |
| General discussion  | All  | 35 min   |

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