Factors associated with utilization of community health workers in improving access to malaria treatment among children in Kenya

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Background information
The success of community case management in improving access to effective malaria treatment for young children relies on broad utilization of community health workers (CHWs) to diagnose and treat fever cases. A better understanding of the factors associated with CHW utilization is crucial in informing national malaria control policy and strategy in Kenya. Specifically, little is known in Kenya on the extent to which CHWs are utilized, the characteristics of families who report utilizing CHWs and whether utilization is associated with improved access to prompt and effective malaria treatment. This paper examines factors associated with utilization of CHWs in improving access to malaria treatment among children under five years of age by women caregivers in two malaria endemic districts in Kenya

Methods
This study was conducted in 113 hard-to-reach and poor villages in Malindi and Lamu districts in the coastal region classified as having endemic transmission of malaria. A cross-sectional household survey was conducted using a standardized malaria indicator questionnaire at baseline (n = 1,187) and one year later at end-line assessment (n = 1,374) using two-stage cluster sampling.

Results
There was an increase in reported utilization of CHWs as source of advice/treatment for child fevers from 2% at baseline to 35% at end-line, accompanied by a decline in care-seeking from government facilities (from 67% to 48%) and other sources (26% to 2%) including shops. The most poor households and poor households reported higher utilization of CHWs at 39.4% and 37.9%
respectively, compared to the least poor households (17.0%). Households in villages with less than 200 households reported higher CHWs utilization as compared to households in villages having >200 households. Prompt access to timely and effective treatment was 5.7 times higher (95% CI 3.4-9.7) when CHWs were the source of care sought. Adherence was high regardless of whether source was CHWs (73.1%) or public health facility (66.7%).

Table 2 Source of advice/treatment for children with fever in past 2 weeks among those who reported seeking advice/treatment

| Source of advice/treatment | Baseline (N=235) | Endline (N=298) |
|---------------------------|------------------|-----------------|
|                           | n               | %   | n   | %   |
| CHW/Red Cross volunteer   | 5               | 2.1 | 103 | 34.6|
| Government health facilities | 157             | 66.8| 143 | 48.0|
| Private medical sector*   | 12              | 5.1 | 46  | 15.4|
| Other sources*            | 59              | 26.0| 6   | 2.0 |

Table 3 Women caregiver, household and village characteristics associated with utilization of CHW services for child fever advice/treatment

| Characteristic                              | CHW (N=103) | Other (N=195) | p-value |
|--------------------------------------------|-------------|---------------|---------|
| Women caregiver education                  |             |               |         |
| No formal education                        | 57.3 (59)   | 56.4 (110)    | 0.885   |
| Primary/secondary                          | 42.7 (44)   | 43.6 (85)     |         |
| Women caregiver age group                  |             |               |         |
| ≤20 y                                      | N=98        | N=178         |         |
| 21-30 y                                    | 16.3 (16)   | 17.4 (31)     | 0.993   |
| 31-40 y                                    | 50.0 (49)   | 48.9 (87)     |         |
| 41+ y                                      | 29.6 (29)   | 29.2 (52)     |         |
| Attended ANC during last pregnancy         | N=100       | N=193         |         |
|                                            | 69.0 (69)   | 65.8 (127)    |         |
| IPT (2+ doses SP) during last pregnancy    | N=56        | N=111         |         |
|                                            | 82.1 (46)   | 84.7 (94)     |         |
| Knowledge of AL as new anti-malarial drug  | N=194       |               |         |
|                                            | 84.5 (87)   | 78.0 (152)    | 0.179   |
| Identified sleeping under net as way to prevent malaria | 84.5 (87) | 78.0 (152) | 0.179 |

Table 4 A cross tabulation of timely provision of AL and source of the antimalarial

| Timing of AL treatment | CHW as source of advice/treatment | p-value |
|------------------------|----------------------------------|---------|
| AL given within 24 hours | Yes: 57.3 (59) | No: 19.0 (37) | <0.001 |
| AL given within 48 hours | Yes: 79.6 (82) | No: 36.4 (71) | <0.001 |
| AL given at any time    | Yes: 90.3 (93) | No: 45.1 (88) | <0.001 |

Conclusion

The results of this study provide evidence that use of trained and supervised community health workers in community case management improved management of uncomplicated child fever cases in hard to reach villages in Malindi and Lamu District in Coastal Province of Kenya. In addition to this, poverty seems to be closely linked to child caregivers seeking services of community-based service providers, highlighting the impediment of poverty towards accessibility of cost sharing services.
widely practiced in Kenyan public health facilities. Policy actions to address barriers to effective utilization of CHWs in healthcare delivery should be scaled up in such hard to reach communities. The government and partners should, therefore, invest more in mechanisms which support CHW utilization especially the roll out of the Community Health Strategy 2006 as part of successful control of malaria and other infectious diseases.

The potential for utilization of CHWs in improving access to malaria treatment at the community level is promising. This will not only enhance access to treatment by the poorest households but also provide early and appropriate treatment to vulnerable individuals, especially those living in hard to reach areas.

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