Clinical management of children with fever: a cross-sectional study of quality of care in rural Zambia

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Objective To evaluate current practices and standards of evaluation and treatment of childhood febrile illness in Southern Province, Zambia.

Methods From November to December 2013, we conducted a cross-sectional survey of facilities and health workers and we observed the health workers’ interactions with febrile children and their caregivers. The facility survey recorded level of staffing, health services provided by the facility, availability and adequacy of medical equipment, availability of basic drugs and supplies and availability of treatment charts and guidelines. The health worker survey assessed respondents’ training, length of service, access to national guidelines and job aids for managing illnesses, and their practice and knowledge on management of neonatal and child illnesses. We also conducted exit interviews with caregivers to collect information on demographic characteristics, chief complaints, counselling and drug dispensing practices.

Findings This study included 24 health facilities, 53 health workers and 161 children presenting with fever. Facilities were insufficiently staffed, stocked and equipped to adequately manage childhood fever. Children most commonly presented with upper respiratory tract infections (46%; 69), diarrhoea (31%; 27) and malaria (10%; 16). Health workers insufficiently evaluated children for danger signs, and less than half (47%; 9/19) of children with pneumonia received appropriate antibiotic treatment. Only 57% (92/161) were tested for malaria using either rapid diagnostic tests or microscopy.

Conclusion Various health system challenges resulted in a substantial proportion of children receiving insufficient management and treatment of febrile illness. Interventions are needed including strengthening the availability of commodities and improving diagnosis and treatment of febrile illness.

Introduction

In Africa, historically, fever in children younger than 5 years has been considered to be due to malaria and has been treated immediately with antimalarial drugs without laboratory confirmation to avoid treatment delays. The recent reduction in malaria-related morbidity and mortality has prompted a change in clinical management of children presenting with fever. In 2010, the World Health Organization (WHO) updated its guidelines from presumptive antimalarial treatment of children with fever to recommend diagnostic testing for malaria, by either microscopy or malaria rapid diagnostic test, to ensure rational use of antimalarials.

Reflecting global trends, Zambia has recently made progress in reducing its malaria-associated disease burden by about 7% annually from 2000 to 2010, resulting in over 50% reduction in malaria deaths.

Health-care services in Zambia are delivered through a five-level hospital system, which includes three tertiary hospitals, 21 provincial or general hospitals and 85 district hospitals, employing specialist staff. These hospitals receive referrals from urban and rural health centres and community-based health posts at the lowest levels of the health-care system throughout the country. Health care in Zambia faces chronic challenges with human resources and inadequate supplies of drugs, equipment and medical supplies. Starting in 1996, the Zambian Ministry of Health adopted an integrated management of childhood illness (IMCI) approach to managing the causes of childhood febrile illness, including malaria, viral or bacterial infections. The health ministry has made several adaptations to the generic IMCI guidelines issued by WHO and the United Nations Children’s Fund (UNICEF), to include guidelines for human immunodeficiency virus (HIV), diarrhoea management, use of malaria rapid diagnostic test for classifying fever and newborn care. In the country, the principles of the IMCI guidelines are incorporated into pre-service curricula and training programmes and the approach is implemented in all districts. However, less than 10% of the districts have the minimum level of 80% health workers trained in IMCI as required by the ministry of health. As a result, health workers in Zambia face the challenge of managing febrile illness when malaria test results are negative.

With this study, we aimed to evaluate current practices and standards of care for childhood febrile illness at differ-
ent levels of the health-care system, in Southern Province, Zambia.

**Methods**

**Study site**

In 2013, Southern Province had an estimated population of about 1.6 million. It is one of 10 provinces in Zambia and is divided into 13 districts. Malaria transmission in the province ranges from hypoendemic (less than 10% of children aged 2–9 years are parasitic) to holoendemic (more than 75% of children aged 2–9 years are parasitic). In recent years, Southern Province has been the focus of intensive malaria control activities using reactive case detection and mass malaria test and treat strategies, with the aim of creating malaria-free areas within the province. In 2012, in Southern Province, 44% of children younger than 5 years slept under a treated bednet and 22% of all households reported indoor residual spraying in the previous 12 months.

**Study design**

We conducted two types of cross-sectional surveys; one for facilities and one for health workers. Fundamental aspects of the survey design and execution were described previously. The facility survey was used to record level of staffing, health services provided by the facility, availability and adequacy of medical equipment, availability of basic drugs and supplies and availability of treatment charts and guidelines. We also reviewed outpatient, inpatient or malaria rapid diagnostic test registers to document the number of children consulted at the facility, proportions with febrile illness and proportions of confirmed cases of malaria who presented with a febrile illness in the last month. The health worker survey was used to assess respondent’s training, length of service, access to national guidelines, use of wall charts, algorithms/decision charts or other job aids for managing illnesses, and their practice and knowledge on management of neonatal and child illnesses. In addition to the surveys, we observed the health workers’ interactions with febrile children and their caregivers to assess history taking and examination, investigations performed or ordered to aid diagnosis and actions taken, including treatments and counselling. We recorded the observation by using a structured data collection tool that was designed to assess all relevant steps in taking a history and examining a child, as described in the national IMCI guidelines. We also conducted brief structured exit interviews with caregivers (lasting less than five minutes) to collect de-identified information on demographic characteristics, chief complaint, counselling and drug dispensing practices. During the exit interview, we also reviewed the child’s clinic card and documented the care received including diagnosis made, investigations ordered and results and treatment given. These tools were adapted from previously used tools and were pilot tested in a health centre outside Southern Province. All survey instruments are available from the authors.

The Institutional Review Boards of Boston University Medical Center, ERES Converge, (a local institutional review board in Lusaka, Zambia), the Zambian Ministry of Health and the Southern Provincial Medical Office approved the study.

**Sampling**

Our sampling frame included three districts in Southern Province with differing levels of malaria transmission: Kazungula (low), Kalomo (moderate) and Siavonga (high). In the study area, none of the three districts had a level 3 (tertiary) hospital. Therefore, we sampled from level 2 (district hospitals) and level 1 (health centres), which in Zambia serve the highest volume of febrile children.

All health workers attending to febrile children and caregivers 18 years or older were eligible to be included in the study. Health workers caring for febrile children with complications requiring referral, and their caregivers; as well as caregivers unable or unwilling to provide written informed consent were excluded from the study.

**Data collection**

We collected the data from November to December 2013, a time of year in Zambia when malaria incidence starts to increase. We obtained written informed consent from all study participants in English or Chitonga, the local language in Southern Province.

**Study outcomes and analysis**

The primary outcome was the proportion of children with febrile illness (temperature above 37.5 °C or history of subjective fever in the previous 48 hours) managed according to the guidelines issued by the health ministry. The guidelines include identification of seven signs and symptoms of febrile illness: four danger signs for childhood illnesses in outpatient settings (poor oral intake, vomiting everything, convulsions and decreased level of consciousness); ensuring appropriate combined treatment of all major illnesses; strengthening the counselling of caregivers; and referring severely ill children. For our outcome, we defined appropriate management based on Zambia’s Integrated technical guidelines for frontline health workers and the Guidelines for the diagnosis and treatment of malaria in Zambia (Fig. 1). While both of these sets of guidelines are based on the IMCI guidelines, there is greater depth in the malaria guidelines.

Secondary outcomes included: (i) proportion of children presenting with positive blood smear or rapid diagnostic test result and with medical conditions most commonly associated with non-malaria febrile illness; (ii) proportion of health facilities with numbers and cadres of staff as stated in ministry of health guidelines and established targets needed to manage childhood febrile illness; (iii) proportion of health facilities with essential equipment, supplies and drugs to manage childhood febrile illness; (iv) proportion of health workers in-service and pre-service training in the management of childhood febrile illness, such as IMCI and malaria.

We calculated frequencies for categorical variables and means and standard errors for continuous variables.

**Results**

We surveyed 24 health facilities (comprising four hospital-affiliated urban health centres and 20 rural health centres) and 53 health workers (12 physicians or clinical officers, 26 nurses, eight environmental health technicians and seven other staff) who provided care for febrile children. Table 1 summarizes the characteristics of the surveyed facilities. We also observed the assessment and management of 161 febrile children, with mean age of 24.1 months. Almost half (49.7%; 80 children) were male.

**Diagnostic and treatment capacity**

While all 24 surveyed facilities had diagnostic capacity for malaria, 83.3% (20) lacked other diagnostic equipment such
as a functional X-ray machine and 75% (18) lacked an instrument for counting respiratory rates. Twenty-three facilities (95.8%) lacked visual job aids, such as wall charts and diagnostic and treatment guidance. While all health facilities had artemether-lumefantrine for treatment of non-severe malaria, only 92% (22) stocked antibiotics for pneumonia, but drug stock-outs were common.

**Training**

Table 2 presents the characteristics of the surveyed health workers, training they received and the results of their skill assessment. Over half (50.9%; 27 health workers) had recent formal training in either malaria case management, IMCI, or integrated community case management. Less than one third (32.1%; 17 health workers) had access to IMCI guidelines, while 24.5% (13) had access to both integrated community case management as well as malaria treatment guidelines.

**Chief complaints**

Of the 161 febrile children observed, most presented with symptoms and findings that were consistent with upper respiratory and gastrointestinal infections. The leading chief complaint was fever at 89.4% (144 children) followed by cough at 49.1% (79 children), diarrhoea at 24.8% (40 children), vomiting at 12.4% (20 children) and rash at 9.9% (16 children). Exit interviews revealed that non-pneumonia respiratory infections accounted for the highest proportion of diagnoses with 43% (69 children), followed by diarrhoea with 17% (27 children) and malaria with 10% (16 children).

**Skills assessments**

The health workers assessed 82.6% of the surveyed children (133) for at least one danger sign, 47.2% (76) for two or more danger signs and 8.1% (13) for all four danger signs (Table 3). None of the 161 children were assessed for all seven signs and symptoms of febrile illness, and only 14.3% (23) were assessed for at least four. While health workers measured temperature in 94% of the children (147 of the total 156 children where temperature was checked), none of the health workers took a medical history and only 14.3% (23 health workers) did more than half of the required fever management tasks.

**Diagnosis and treatment**

Table 4 and Table 5 present the healthcare workers’ diagnosis and treatment of pneumonia and malaria respectively, as reported in exit interviews with caregivers. Only 27.8% (22 of the 79 children with diagnosis of cough or difficulty breathing) had their respiratory rate counted and 47.4% (9 of the 19 children with diagnosis of pneumonia) received appropriate antibiotic treatment. In contrast, over prescription of drugs was common. We found 45.8% (11 of the 19 children with a diagnosis of pneumonia) were inappropriately treated with amoxicillin, while 12.9% (11 of the 85 children with negative malaria rapid diagnostic test or microscopy results) were inaccurately classified as having malaria.

Of all febrile children 57.1% (92) were tested for malaria using rapid diagnostic test or microscopy of which 8.3% (7) tested positive for malaria. All seven children appropriately received artemisinin-based combination therapy. Of 26 (13%) children who had negative rapid diagnostic test results and who received amoxicillin, only one received amoxicillin appropriately.
Table 1. Characteristics of 24 health facilities surveyed, by facility type, Southern Province, Zambia, 2013

| Characteristic                                      | HAHC (n = 4) | RHC (n = 20) | All facilities (n = 24) |
|----------------------------------------------------|--------------|--------------|-------------------------|
| **Type of staff**                                   |              |              |                         |
| Physician, clinical officer or nurse                | 4 (100.0)    | 19 (95.0)    | 23 (95.8)               |
| Physician                                          | 3 (75.0)     | 0 (0.0)      | 3 (12.5)                |
| Clinical officer or medical licentiate              | 4 (100.0)    | 5 (25.0)     | 9 (37.5)                |
| Midwife                                            | 0 (0.0)      | 9 (45.0)     | 9 (37.5)                |
| Nurse or registered nurse                           | 2 (50.0)     | 18 (90.0)    | 20 (83.3)               |
| Other (EHT, CHA or CHW)                             | 1 (25.0)     | 17 (85.0)    | 18 (75.0)               |
| **Availability of diagnostics**                     |              |              |                         |
| Functional microscope                               | 3 (75.0)     | 6 (30.0)     | 9 (37.5)                |
| Malaria RDTs                                       | 4 (100.0)    | 18 (90.0)    | 22 (91.7)               |
| Functional pulse oximeter                          | 0 (0.0)      | 0 (0.0)      | 0 (0.0)                 |
| Functional X-ray machine                           | 3 (75.0)     | 1 (5.0)      | 4 (16.7)                |
| Respiratory rate counter or watch with indicator for seconds | 1 (25.0) | 5 (25.0) | 6 (25.0) |
| RDT wall chart displayed                           | 0 (0.0)      | 5 (25.0)     | 5 (20.8)                |
| IMCI wall chart displayed                          | 0 (0.0)      | 3 (15.0)     | 3 (12.5)                |
| AL dosing wall chart displayed                     | 0 (0.0)      | 6 (30.0)     | 6 (25.0)                |
| At least one wall chart displayed (malaria RDT, AL dosing or IMCI) | 0 (0.0) | 10 (50.0) | 10 (41.7) |
| All three wall charts displayed (malaria RDT, AL dosing and IMCI) | 0 (0.0) | 1 (5.0) | 1 (4.2) |
| **Availability of drugs**                           |              |              |                         |
| AL in stock on day of survey                        | 4 (100.0)    | 20 (100.0)   | 24 (100.0)              |
| AL stock-outs in previous 12 months                 | 0 (0.0)      | 2 (10.0)     | 2 (8.3)                 |
| Amoxicillin in stock on day of survey               | 3 (75.0)     | 19 (95.0)    | 22 (91.7)               |
| Amoxicillin stock-outs in previous 12 months        | 1 (25.0)     | 8 (40.0)     | 9 (37.5)                |

*AL: artemether-lumefantrine; CHA: community health assistant; CHW: community health worker; EHT: environmental health technician; HAHC: hospital affiliated health centre; IMCI: integrated management of childhood illness; RHC: rural health centre; RDT: rapid diagnostic test.

Discussion

This study assessed the quality of clinical management of childhood fever at lower levels of the health system (health centres and second level hospitals), which typically manage the majority of childhood febrile disease burden. Upper respiratory tract infections accounted for almost half of febrile children visits and only 10% of children were diagnosed with malaria. While this was not an etiology study, clinical diagnoses were similar to those found in recent childhood fever etiology studies conducted in Africa. For example, in a large Tanzanian study, most (62%; 625 children who presented to outpatient care for fever) were diagnosed with acute respiratory infections, while only 11% (105 children) were diagnosed with malaria.20

In our study, we observed some deviations from practice as recommended by national IMCI guidelines for management of childhood febrile illness. These include inadequate assessment for danger signs, such as limited evaluations to determine fever etiology, overlap and under-diagnosis of malaria and inadequate pneumonia management. The health workers evaluated danger signs related to poor oral intake in about half of all children with fever, assessed convulsions or lethargy in about a third, and counted respiratory rate in 28% of cases suggested pneumonia. These findings contrast with one study conducted in rural Ghana, where the respiratory rate was counted in 4% of children presenting with cough or difficult breathing.21

Upper respiratory tract infections are highly prevalent in Africa and are predominantly non-pneumonia infections that are likely to be of viral etiology.20 In our study, the majority of health workers did not appropriately evaluate and classify children with pneumonia and upper respiratory tract infections, which highlights an important case management challenge. In a recent study of patients with febrile illness presenting to primary health-care facilities in Zambia, we found high proportions of these patients who received overtreatment with antibiotics (61% and 75%, respectively) for those diagnosed with diarrhoea and upper respiratory tract infections,12 indicating a need to improve diagnostic capacity for non-malaria causes of febrile illness and limit antibiotic use to patients with definite bacterial infections. As malaria prevalence declines, high-quality care for febrile children requires consistent use of malaria diagnostic tests and formulation of a differential diagnosis based on symptoms and physical signs.22,23

Despite increasing availability of malaria rapid diagnostic tests in Zambia24 and health-care worker training in their use, little over half of febrile children in this study were tested for malaria with either rapid diagnostic test or microscopy. Of those tested, 13% of children with a negative test result were still classified as having malaria. Managing non-malaria fever continues to pose a challenge globally.20 WHO estimates that in the WHO African Region, over 60% of children with fever receive a blood test (rapid diagnostic test or microscopy) at public facilities.25 In a recent nationwide study in Zambia on fever management, among over 700 patients where half of the children were younger than 5 years, 75% were tested for malaria, and testing was associated with reduced antibiotic
prescribing. In a Ghanaian study on childhood fever, where malaria rapid diagnostic tests were fully available, less than half of febrile children were given a malaria test. In the same study, 45% of children diagnosed with pneumonia were given antibiotics. Withholding antimalarial drugs from patients with a negative rapid diagnostic test result was prescribed in children without pneumonia. Still leads to some overtreatment because of the poor specificity of respiratory rate to diagnose pneumonia in patients with cough or difficult breathing. While the clinical overlap of pneumonia with malaria makes their management at peripheral facilities challenging, evidence exists that with effective training, provision of job aids, and regular supportive supervision, community health workers are able to correctly classify malaria and pneumonia and provide appropriate treatment.

In our study, less than half of children diagnosed with pneumonia received the appropriate amoxicillin treatment, yet it was also often prescribed in children without pneumonia. According to WHO guidelines, about 80% of children with respiratory symp-
toms do not need antibiotics and can receive supportive care for cough and cold.24 A hospital trial of 900 children in Pakistan showed that even severe pneumonia can be managed safely at community level without antibiotics.25 Several studies in Pakistan have shown that community health workers can recognize chest indrawing and treat children in the community.26,27 Training community health workers in the management of severe pneumonia can reduce treatment failure by half and can lead to substantial household savings. A study in Pakistan showed that costs were 1.40 United States dollars (US$) for cases managed by a health worker versus US$ 7.60 for treatment costs without.28 As a result of these and other studies, current IMCI guidelines recommend that pneumonia with chest indrawing but no other danger signs be managed at the peripheral level.29

Our study further documented that few providers had the knowledge and skills to identify danger signs; make the right diagnosis; and initiate appropriate treatment following national guidelines. The results illustrate the need to enhance the availability and awareness of current diagnosis and treatment guidelines that providers will be able to use. District and facility managers can support healthcare workers by providing structural support, through systematic coaching and supportive supervision, to recognize signs, symptoms and pertinent history to correctly categorize and treat febrile illness, such as measuring respiratory rate. Access to guidelines and job aids as well as structural and organizational changes such as providing triage facilities dedicated to managing children in larger facilities are ways to provide that support. Our study has limitations. First, the relatively small numbers of health

| Assessment of danger signs | Physician, clinical officer (n = 61) | Nurses (n = 78) | Other cadres* (n = 22) | All encounters (n = 161) |
|---------------------------|-----------------------------------|----------------|---------------------|------------------------|
| Able to drink or breastfeed | 32 (53.3) | 42 (53.8) | 12 (57.1) | 86 (54.1) |
| Vomits consistently | 28 (47.5) | 39 (50.6) | 9 (42.9) | 76 (48.4) |
| Had convulsions or is convulsing now | 18 (31.0) | 24 (30.8) | 8 (38.1) | 50 (31.8) |
| Unconscious or lethargic | 27 (45.8) | 21 (26.9) | 2 (9.5) | 50 (31.6) |
| Health worker asks or checks for at least one of the danger signs | 54 (88.5) | 65 (83.3) | 14 (63.6) | 133 (82.6) |
| Health worker asks or checks for at least two of the danger signs | 31 (50.8) | 36 (46.2) | 9 (40.9) | 76 (47.2) |
| Health worker asks or checks for all four of the danger signs | 4 (6.6) | 7 (9.0) | 2 (9.1) | 13 (8.1) |

**Assessment of focal symptoms of febrile illness**

| Assessment | Physician, clinical officer (n = 61) | Nurses (n = 78) | Other cadres* (n = 22) | All encounters (n = 161) |
|------------|-----------------------------------|----------------|---------------------|------------------------|
| Assess for cough or difficulty breathing | 49 (83.1) | 66 (84.6) | 19 (90.5) | 134 (84.8) |
| Assess for ear symptoms | 21 (34.4) | 15 (19.2) | 10 (47.6) | 46 (28.8) |
| Assess for neck stiffness | 3 (5.1) | 3 (3.9) | 0 (0.0) | 6 (3.8) |
| Assess for pallor | 27 (45.0) | 21 (27.3) | 5 (23.8) | 53 (33.5) |
| Assess all | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) |

**Overall appropriate assessment of febrile illness**

| Appropriate assessment of febrile illnessb | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) |
| Better than average assessment of febrile illnessc | 11 (18.0) | 12 (15.4) | 0 (0.0) | 23 (14.3) |

*a* Includes 4 cleaning and maintenance staff, 1 community health assistant, 1 community health worker and 1 data clerk.

*b* Health worker carried out all physical examination and history taking tasks according to the Integrated technical guidelines for frontline health workers.18

*c* Health worker carried out more than half of the specified physical examination and history taking tasks according to guidelines.18

Note: Represented are the percentages of those observed to perform certain fever assessment skills, for each health-worker cadre, respectively. The total column denominators refer to the number of cases seen by each health-care worker cadre, summing up to clinical encounters with a line total of 161 children included in the study.

**Table 4. Health-care workers’ diagnosis and treatment of pneumonia as reported in exit interviews with caregivers, Southern Province, Zambia, 2013**

| Evaluation characteristic | Total no. of interviews | No. of children (%) |
|---------------------------|-------------------------|---------------------|
| **Diagnosis** | | |
| Cough/difficulty breathing with respiratory rate counted | 79 | 22 (27.8) |
| Fast breathing present in those checked | 43 | 19 (44.2) |
| Appropriate pneumonia diagnosisa | 19 | 4 (21.1) |
| **Treatment** | | |
| Appropriate treatmentb | 19 | 9 (47.4) |
| Inappropriate treatmentc | 19 | 11 (54.8) |

*a* Children having tachypnea.

*b* Fast breathing, treated with amoxicillin.

*c* Not fast breathing, treated with amoxicillin.

Note: Exit interviews with caregivers were used to collect information on demographic characteristics of febrile children, chief complaint for the visit and counselling and drug dispensing practices of health workers attending to children. Children’s clinic card was reviewed to get information on care received.
facilities and health workers included in the study limits the generalizability of our results beyond Southern Province. However, our findings are consistent with challenges related to clinical assessment and management of children with fever reported elsewhere in Zambia and other African countries. Second, the assessment of appropriateness of health worker assessments relied on maternal recall of symptoms and we did not independently verify disease etiologies in our study. The total number of children presenting with fever recorded in our study was less than anticipated. Finally, our observations of health workers were subject to the reactive effects of study arrangements, potentially modifying their behaviours when aware of being observed. However, the Hawthorne effect – i.e. health-care workers changing their behaviour when being observed – has been found to have limited influence on health workers’ practices during consultations with ill children in similar health-care settings in Benin.

In conclusion, this study revealed various health systems challenges that may have contributed to a substantial proportion of children not receiving early and appropriate treatment for febrile illness. Tools for the management of childhood fevers at peripheral health facilities are available in the form of international and national guidelines. The Zambian health system needs innovative approaches to improve their application in the management of childhood febrile illness. Improvement will ensure appropriate treatment and referral of patients with non-malaria febrile illness, especially for respiratory tract infections. It will also minimize unnecessary use of antimalarial drugs, thus reducing morbidity, mortality and related health-care costs.

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Competing interests: None declared.

Table 5. Health-care workers’ diagnosis and treatment of malaria as reported in exit interviews with caregivers, Southern Province, Zambia, 2013

| Evaluation characteristic | Total no. of interviews | No. of children (%) |
|---------------------------|-------------------------|---------------------|
| **Diagnostic testing**    |                         |                     |
| Tested only with RDT, where available                     | 153                    | 84 (54.9)          |
| Positive RDT result                                      | 84                     | 7 (8.3)            |
| Tested with RDT or microscopy                              | 161                    | 92 (57.1)          |
| Positive RDT or microscopy test result                     | 92                     | 7 (7.6)            |
| **Classification accuracy**                               |                         |                     |
| Accurate classification§                                   | 7                      | 7 (100)            |
| Inaccurate classification§                                 | 85                     | 11 (12.9)          |
| **Diagnosis accuracy**                                    |                         |                     |
| Accurate malaria diagnosis                     | 18                     | 7 (38.9)           |
| Accurate non-malaria diagnosis                       | 154                    | 74 (48.1)          |
| **Malaria treatment**                                     |                         |                     |
| Classified as malaria and treated with ACT                | 18                     | 8 (44.4)           |
| Appropriate malaria treatment                            | 7                      | 7 (100)            |
| Appropriate non-malaria treatment§                       | 154                    | 153 (99.4)         |

ACT: artemisin-based combination therapy; RDT: malaria rapid diagnostic test.
§ Ninety-two per cent of all facilities have malaria rapid diagnostic test capability.
Positive RDT or microscopy results classified as malaria.
Negative RDT or microscopy results classified as malaria.
Children who actually had malaria diagnosed as having malaria.
Patients who don’t have malaria among all who tested negative for malaria.
ACT given where RDT or microscopy is positive.
No ACT when RDT or microscopy is negative.

Note: Exit interviews with caregivers were used to collect information on demographic characteristics of febrile children, chief complaint for the visit and counselling and drug dispensing practices of health workers attending to children. Children’s clinic card was reviewed to get information on care received.

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Note: Exit interviews with caregivers were used to collect information on demographic characteristics of febrile children, chief complaint for the visit and counselling and drug dispensing practices of health workers attending to children. Children’s clinic card was reviewed to get information on care received.
The rhesus may have received appropriate antibiotic treatment, but 92 (57%) of 161 children did not undergo diagnostic tests for malaria using either rapid diagnostic tests or microscopy. Of the 161 children with fever, only 9/19 (47%) had a history of exposure to malaria. The health workers did not carry out effective changes for severe child health conditions, and less than half (47%; 9/19) of children and their caregivers were not reassessed for clinical conditions.

The government.This study examined 24 health facilities, 53 health workers and 161 children with fever. The health facilities in this area do not have sufficient facilities, staff, and equipment. The children with fever had an average of 2 years of education, and staff did not have a clear understanding of the guidelines for fever treatment.

The results show that this study covered 24 medical facilities, 53 medical staff and 161 children with fever. These health facilities did not have sufficient facilities, staff, and equipment. The children with fever had an average of 2 years of education, and staff did not have a clear understanding of the guidelines for fever treatment.

The conclusion is that fever treatment is urgent and requires special attention. The health workers did not carry out effective changes for severe child health conditions, and less than half (47%; 9/19) of children and their caregivers were not reassessed for clinical conditions.

The objectives of this study were to assess the current practices and standards of evaluation and treatment of fever in rural areas of Zambia.

The methods were based on a cross-sectional survey of 24 health facilities, 53 health workers, and 161 children with fever. The survey covered the following: the history of fever treatment, the diagnosis and management of fever, the availability of diagnostic and therapeutic equipment, and the availability of diagnostic and therapeutic equipment.

The conclusion is that fever treatment is urgent and requires special attention. The health workers did not carry out effective changes for severe child health conditions, and less than half (47%; 9/19) of children and their caregivers were not reassessed for clinical conditions.
работники взаимодействуют с детьми, страдающими лихорадкой, и с лицами, осуществляющими за ними уход. В ходе обследования медицинских учреждений фиксировался уровень укомплектованности кадрами и медицинских услуг, предоставляемых этими учреждениями, наличие и соответствие медицинского оборудования, наличие основных лекарств и расходных материалов, а также наличие руководств по лечению. В ходе обследования медицинских работников была проведена оценка их подготовки, стаж работы, доступа к национальным руководствам и инструкциям по лечению заболеваний, а также их практики и знаний относительно лечения болезней новорожденных и детей. Мы также провели беседы с лицами, ухаживающими за больными, для сбора информации о демографических характеристиках, основных жалобах, консультировании и практике выдачи лекарств.

Результаты

Это исследование включало 24 медицинских учреждения, 53 медицинских работника и 161 ребенка с лихорадкой. Учреждения были недостаточно укомплектованы персоналом и имели недостаточное оснащение и снабжение для осуществления надлежащего лечения лихорадки у детей. У детей чаще всего встречались инфекции верхних дыхательных путей (46%, 69), диарея (31%, 27) и малярия (10%, 16). Медицинские работники проводили недостаточное обследование детей на наличие опасных симптомов, и менее половины детей с пневмонией (47%, 9 из 19) получали соответствующее лечение антибиотиками. Только 57% (92 из 161) были протестированы на малярию с использованием либо экспресс-диагностических тестов, либо микроскопии.

Вывод

Различные проблемы системы здравоохранения приводят к тому, что значительная часть детей получает недостаточное лечение заболеваний, сопровождающихся лихорадкой. Необходимо принять меры, включая повышение доступности лекарств и оборудования, а также улучшение диагностики и лечения заболеваний, сопровождающихся лихорадкой.

Resumen

Gestión clínica de niños con fiebre: un estudio transversal de la calidad de la atención en la Zambia rural

Objetivo

Evaluar las prácticas y los estándares de evaluación y tratamiento actuales de las enfermedades febriles en los niños en la Provincia del Sur, Zambia.

Métodos

De noviembre a diciembre de 2013, se realizó una encuesta transversal de centros y trabajadores sanitarios y se observaron las interacciones de los trabajadores sanitarios con niños con fiebre y sus cuidadores. La encuesta de los centros registró el nivel de personal y servicios de salud ofrecidos en el centro, la disponibilidad e idoneidad de los equipos médicos, la disponibilidad de medicamentos y suministros básicos y la disponibilidad de cronogramas y directrices de tratamiento. La encuesta a los trabajadores sanitarios evaluó la formación de los encuestados, la duración del servicio, el acceso a directrices nacionales y ayudas laborales para la gestión de enfermedades y su práctica y conocimiento acerca de la gestión de las enfermedades neonatales e infantiles. También se realizaron entrevistas de salida con cuidadores para recopilar información acerca de las características demográficas, los motivos de consulta, asesoramiento y prácticas de distribución de medicamentos.

Resultados

Este estudio abarcó 24 centros sanitarios, 53 trabajadores sanitarios y 161 niños con fiebre. Los centros no contaban con personal, suministros y equipos suficientes para gestionar de forma adecuada la fiebre en niños. Las afecciones más comunes presentadas por los niños eran infecciones del tracto respiratorio superior (46%, 69), diarrea (31%, 27) y malaria (10%, 16). Los trabajadores sanitarios evaluaron a los niños de forma insuficiente en busca de signos de peligro, y menos de la mitad (47%, 9/19) de los niños con neumonía recibieron el tratamiento antibiótico adecuado. Solo el 57% (92/161) fue sometido a pruebas de malaria utilizando pruebas de diagnóstico rápido o microscópicas.

Conclusión

Varios desafíos del sistema sanitario llevan a un gran porcentaje de niños que reciben una gestión y tratamiento insuficientes de las enfermedades febriles. Es necesario intervenir para fortalecer la disponibilidad de productos básicos y mejorar el diagnóstico y el tratamiento de las enfermedades febriles.

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