WHO Informal Consultation on fever management in peripheral health care settings: a global review of evidence and practice

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WHO Informal Consultation on fever management in peripheral health care settings

Background for organising the meeting:

- Deployment of malaria testing + decreasing malaria transmission = ↑ proportion of febrile patients being diagnosed as not having malaria

- If no guidance and medicines for management of non-malaria fevers
  - clinicians tend to ignore the malaria test result
  - or they tend to overprescribe antibiotics

Consequences:
- undermines clinical benefits of parasitol. diagnosis
- aggravates wastage of antimalarials and antibiotics
- accelerates development of resistance to antimicrobials

- Clear algorithms for management of fevers at different levels of the health system, as well as good implementation support tools, are now available
WHO Informal Consultation on fever management in peripheral health care settings

Main aims of improving management of fevers:

To increase appropriate treatment and referral to

→ reduce severe diseases and deaths
→ reduce morbidity (length of febrile episode…)

To reduce unnecessary antibiotics and antimalarials prescription to

→ reduce drug pressures and development of resistance
→ decrease risk of drug adverse events
→ save money

Objectives of the meeting:

a) Review existing evidence and guidance on management of malaria and non-malaria fevers at primary care and community levels

b) Provide practical recommendations and operational tools for implementation of integrated management of fevers at peripheral level

c) Identify and discuss major research gaps
Recommendation 1

Studies on etiologies of fevers should be undertaken at different levels of health care and in different epidemiological settings, seasons and age groups.
Section I - Review on etiologies and management of febrile illness

Recommendation 1
Studies on etiologies of fevers

Emerging research findings

*Children*<5 years*:  
- 0-12% malaria, 40-80% ARI, 10-25% diarrhea  
- ARI mostly UARI and due to viruses (influenza, RSV)  
- the remaining children had unspecific fever:
  - typhoid low in Africa, high in Asia  
  - urinary tract infection always low  
  - occult bacteremia very low

*Children >5 and adults*:  
- driven by HIV (40% in one study), 4-32% malaria  
- Causes in malaria-neg. adults (with or without ARI/diarrhea):
  - OPD in Asia: Dengue, scrub typhus, JEV, leptospirosis  
  - IPD in Tanzania: Chikungunya, leptospirosis, rickettsiosis, Q fever, brucellosis

*Ref*: D’Acremont, Bjorkman, Crump, Bell, Bhutta, unpublished
Section I - Review on etiologies and management of febrile illness

Recommendation 1
Studies on etiologies of fevers

Recommended study design

What?
• Focus mainly on non-specific fevers (absence of pneumonia, malaria & diarrhea)

Who?
• Inclusion criteria should be clear, reproducible and if possible as previous studies
• Do not forget children 5-15 years and infants <2 months

How?
• Use a simplified design and avoid repeating extensive etiological studies
• Use common case definitions between studies
• Always link clinical data to lab. results to avoid over-interpretation of positive results
• When possible, compare with lab. results in matched asymptomatic control groups
Section II - Available WHO guidelines and tools for the management of fevers

Recommendation 2

Malaria diagnosis and treatment should be deployed as part of promoting programmes for the integrated management of fevers, based on WHO algorithms available for different age groups and levels of care.
### Section II - Available WHO guidelines and tools for the management of fevers

**Recommendation 2**

WHO algorithms for the integrated management of febrile illness

#### Available tools

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Health facility</th>
<th>Community (informal private)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children</td>
<td>Blue book</td>
<td>IMCI</td>
</tr>
<tr>
<td>Adults</td>
<td>District manual</td>
<td>IMAI</td>
</tr>
</tbody>
</table>

- IMCI & IMAI should be more widely disseminated
- Adherence to iCCM by community health workers is good
- The algorithm for malaria diagnosis and treatment is well integrated in most guidelines, except IMAI for HF level
  
  → no more malaria management without IMCI/iCCM
  → Home-based Malaria (2002-05) should be archived
Section II - Available WHO guidelines and tools for the management of fevers

Recommendation 2
WHO algorithms for the integrated management of febrile illness

Need for development and update

• Guidelines for age-groups above 5 years old managed at community level

• Guidelines for children 5 to 10 years

• Continuous update based on evidence, in particular (for malaria):
  - Criteria for high and low malaria risk area
  - Malaria testing of anemic children in high malaria risk areas
  - Malaria testing before referral/pre-referral treatment
  - Time interval for considering a new malaria infection (presently >14 days)

• New strategies to improve adherence to IMCI by clinicians working at HF level
Section II - Available WHO guidelines and tools for the management of fevers

Recommendation 2
WHO algorithms for the integrated management of febrile illness

Criteria for integrating new diagnostic tests

• Detecting illnesses with high disease burden and treatable

• More specific they are, more expensive
  clinical $\rightarrow$ epidemiological $\rightarrow$ severity test $\rightarrow$ pathogen-specific test

• Electronic tools to measure essential clinical parameters (RR, O2 Sat, temp.)

• Some pathogen-specific POCTs already available
  $\rightarrow$ some usable as they are (Dengue), others not yet (Typhoid)

• New POCTs are in development that
  $\rightarrow$ specifically detect one pathogen
  $\rightarrow$ ‘generically’ identify:
  - patients at risk for severe disease
  - patients in need for antibiotics

• Guidance to HWs’ to target the use of tests to selected patients
Section II - Available WHO guidelines and tools for the management of fevers

Recommendation 2
WHO algorithms for the integrated management of febrile illness

Need for rethinking essential treatments

• High level of bacterial resistance to first line treatments:
  → How to quickly adapt guidelines to these changes?
  → How to replace co-trimoxazole by amoxicillin (dispersible) for ARI?

• Should also think in terms of ‘class of antibiotics’ (not only yes/no)

• No injectables for community level (pre-referral antibiotic???)

• No evidence can differentiate the list of medicines by level of health care → responsibility of countries
Recommendation 3

Evidence from studies and lessons learned from implementation should be taken into account when planning scale-up of integrated Community Case Management (iCCM).
Recommendation 3
Evidence from studies and lessons learned on iCCM

Evidence generated by operational research

- **Mortality:** ↓ when antimalarials introduced (ongoing studies for antibiotics)
- **Compliance to algorithm:** high for lab-tests (RDT), low for clinical-tests (RR)
- **Danger signs:** CHWs not good at picking them up, especially in newborns
- **Referral:** not done (why?)
- **Utilisation of CHWs:** is increasing but still below expected incidence of diseases
- **Measurement of quality of care:** direct observation without re-examination, registers, case scenarios, all not enough to assess danger signs & pneumonia
- **Access to care:** not only distance to CHW, but also staff and medicine availability
- **Salaries:** help retention of CHWs
- **Costs:** much cheaper to manage severe pneumonia at community level

Ref: Pagnoni et al, AJTMH, special supplement on iCCM, Dec 2012
Lessons learned from implementation

- **Supervision of CHWs**: by a senior peer rather than a clinician of HF
- **Retention of CHWs**: find country specific solutions from the start
- **Repeated drug shortages**: not sustainable having iCCM parallel systems
- **Seeking behaviour**: communities need to know what care they can expect
- **Weak M&E**: use innovative technologies (e.g. phones)
- **Extension of CHW tasks**: Newborn and child care initiatives should be integrated with iCCM (what about children 5-15 years and adults?)

Ref: Young et al, WHO/UNICEF joint statement on iCCM, 2012
Recommendation 4

The core of the generic iCCM algorithm should not be modified when used in countries implementation programs.
Need more emphasis on the following

- Management of fever always with management of at least ARI and diarrhea
- Mild malaria-neg. cases should not be systematically referred
- Severe cases should be given pre-referral antibiotics (especially if malaria test is neg)
- Fever cases should not be treated presumptively with antimalarials
- Mild malaria-neg. cases should not get antibiotics systematically
- Fast breathing should be assessed only in the presence of cough (overtreatment)
- Pneumonia cases should be treated with amoxicillin rather than cotrimoxazole
Recommendation 5

iCCM programs should be implemented together with strengthening quality of care in health facilities, based on IMCI and IMAI for primary care and hospital levels.
Consequences of the absence of HF strengthening

- **Supervision:** clinicians of HF not able to supervise CHWs
- **Supply chain:** RDTs and medicines available at community but not HF level
- **Quality of care:** services at community level outperform HFs
- **Access to care:** ‘opening hours’ of CHWs broader than that of HFs
- **M&E:** reliable data from community not well used at primary care level

→ back referral of patients from health facilities to CHWs…
Recommendation 6

When subsidized malaria medicines and RDT are made available for the private sector, diagnosis and treatment for common non-malaria causes of fever should also be provided, based on WHO algorithms for iCCM.

- Private sector is an important source of care in many (not all) settings
- Pneumonia kills even more than malaria...
- In high endemic areas, a patient can have both malaria and another disease
- In low endemic areas, most patients have negative RDT \(\rightarrow\) would need referral
  \(\rightarrow\) Case management is a service, not a commodity…
What needs to be done?

• Clear segmentation of the private sector (*e.g.* drug peddlers, retail shops, non registered and registered drug shops, private clinics (by level), not-for-profits…)

• Adapt the approach to the segment of the private sector (*e.g.* positive incentives)

• Find mechanisms for supervision

• Elaborate surveillance methods

• Find mechanisms for Quality Assurance (and measurement) of care and products

• Empower consumers and the demand (*e.g.* ‘branding’ of the shops)

• Understand the microeconomics of running private sector outlets

    → in fact, attention to what is done for the public sector…
Section V – Research Agenda

Recommendation 7

Research looking at new strategies for effective diagnostic and treatment of febrile illness should be encouraged, using clinical outcomes* as primary study endpoints rather than laboratory results, in order to modify or expand the current WHO algorithms.

* a common definition needs to be found
Recommendation 7
New strategies for effective diagnostic & treatment of febrile illness

Emerging research findings

- Withholding antimalarials in patients with a negative RDT is safe even in high endemic areas (several studies)
- Proportion of RDT negative patients treated with ACTs is decreasing over time
- IMCI leads to overtreatment with antibiotics (poor specificity of RR for pneumonia)
- In Pakistan, the clinical outcome of children with non-severe pneumonia as defined by WHO was not different when receiving amoxicillin or placebo (Hazir et al)
- Management of severe (but not very severe) pneumonia as defined by WHO is safe at community level (several studies) → update of IMCI ongoing
- Management of children according to iCCM is safe at community level (sev. studies)

Ref: Reyburn, Williams, Msellem, Bisoffi, Hamer, Skarbinski, D'Acremont, Ansah, Hopkins, Mawili-Mboumba, Yeboah, Chanda, Tiono, Anyorigiva, Akogun, Thiam, Bastiaens, Mukanga, Bari, Hazir, Soofi…
Section V – Research Agenda

**Recommendation 7**
New strategies for effective diagnostic & treatment of febrile illness

**Recommended areas of research**

- Safety of withholding antibiotics for non-severe pneumonia in children under five
- Best management of non-specific fevers in children and adults
- Benefit of specific classes of antibiotics in patients with non-specific fevers
- Risk factors for disease progression, severe illness and drug resistance
- Development and use of Disease severity vs Pathogen-specific lab tests
- Benefit of using new respiratory rate counters and pulse oximetry
- Best way to modify current algorithms for management of febrile patients
- Potential of new tools (e.g. electronic guides) for compliance and data collection
- Modelling to inform target product profiles of new diagnostics
Summary of recommendations

1. Studies on **etiologies of fevers** should be undertaken.

2. **Malaria** diagnosis and treatment should be deployed as part of **integrated management of fevers** (WHO algorithms).

3. **Evidence and lessons learned** from implementation should be taken into account when scaling-up **iCCM**.

4. The **core of the generic iCCM algorithm** should not be modified when used in countries programs.

5. **iCCM** programs should be implemented **together with** strengthening quality of care in **health facilities**.

6. When subsidizing malaria medicines and RDT for the **private sector**, also provide diagnosis and treatment for **common non-malaria causes of fever**.

7. **Research on new strategies** for effective diagnostic and treatment of febrile illness should be encouraged, using **clinical outcomes** as primary study endpoints.