

Guidance on temporary malaria control measures in Ebola-affected countries¹

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The effectiveness of the Ebola response in Guinea, Liberia and Sierra Leone can be further optimized through the deployment of targeted measures to reduce the number of fever cases. This WHO guidance note summarizes a set of temporary recommendations for the three countries most severely affected by the Ebola outbreak. (The latest addition to this document is Section 3 on mass drug administration using artemisinin-based combination therapies).

Background

In Guinea, Liberia and Sierra Leone, malaria transmission occurs all year round. During the rainy season, which lasts from May to October, there is a significant rise in the number of malaria cases and deaths. In all three countries, access to health facilities is currently at a very low level: most health posts are still closed, and in those that are open, outpatient attendance rates are as low as 10% due to fear of the Ebola virus.

The detection and management of Ebola and malaria has been challenging for clinicians as the initial clinical presentation of the two diseases is similar (fever, headache, weakness and joint pains³). In addition, the widespread fear of Ebola has kept many fever patients away from health facilities, complicating the management of both diseases. In all three countries, malaria is the most common cause of fever, but through a set of targeted measures, the overall fever caseload can be reduced.

The malaria prevention and control strategies outlined in this document aim to achieve three objectives: 1) reduce malaria morbidity and mortality, 2) lower the number of febrile patients with malaria to “unload” Ebola assessment services, and 3) increase the protection of front-line health workers engaged in the fight against these two deadly diseases.

1. Malaria testing and treatment in Ebola-affected areas

1. Reinforce the need for standard precautions at “all times for all patients” in health care conditions (including hand hygiene and use of gloves) and for ensuring injection safety (avoiding injuries with needles) and safe waste disposals.

¹ This guidance note has been developed by WHO Headquarters (HTM/GMP, MCA and SDS) and the WHO Regional Office for Africa (AFRO/ MAL and AFRO/PHE). WHO is grateful for the technical contributions provided by the US Centers for Disease Control and Prevention, UNICEF and the African Leaders Malaria Alliance.

² Malaria-related guidance notes were first circulated to National Malaria Programmes in Ebola-affected countries in September 2014. All guidance notes have now been merged into one document. This document will be updated if any of the temporary recommendations change, or are further expanded.

³ Case definition recommendations for Ebola or Marburg Virus Diseases, WHO, 2014 (<http://www.who.int/csr/resources/publications/ebola/ebola-case-definition-contact-en.pdf>)

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2. If malaria rapid diagnostic tests (RDTs) are being used, they should meet the WHO-recommended selection criteria⁴ based on the results of the WHO malaria RDT product testing programme, and undergo lot testing before deployment to the field.
3. The requirements for personal protective equipment (PPE)⁵ when performing a malaria rapid diagnostic test should be stated explicitly in guidance documents.

PPE requirements when performing a malaria RDT:

- i. If the patient does not have vomiting, bleeding, or diarrhoea:
Double examination gloves, face shield (or mask and goggles) and disposable gown
- ii. If the patient has vomiting, bleeding, or diarrhoea (risk of splashes during the procedure):
Double examination gloves, impermeable gown (or non-impermeable gown and rubber apron), medical mask, face shield or goggles, head cover, boots)
4. Wherever PPE requirements cannot be met, RDT tests should be temporarily suspended until either the required level of PPE and appropriate training has been received, or the National Ebola Health Emergency has been officially declared to be over. In the absence of RDTs:
 - a. Suspected malaria cases should be treated empirically with a full dose of an artemisinin-based combination therapy (ACTs). The clinical response to the ACT can be expected within 48hrs.
 - b. No response to ACT treatment (i.e. the absence of fever clearance within 48hrs) virtually excludes malaria as a cause of fever and strengthens the likelihood of other febrile illnesses, including Ebola.
5. Case management of fever at community level by community health workers:
 - a. Given the challenge of guaranteeing the required level of PPE, community health workers participating in integrated community case management (iCCM) programmes in Ebola-affected areas should be instructed/trained to diagnose malaria cases only on the basis of history of fever (without performing RDTs).
 - b. Use of RDTs to diagnose malaria should be discontinued and antimalarial treatment given on a presumptive basis until the epidemic is officially declared over.
 - c. Pneumonia (fast breathing) and diarrhoea should be managed as per the iCCM guidelines⁶ and those suspected of Ebola should be referred as appropriate.

2. Distribution of long-lasting insecticidal nets (LLINs) in Ebola-affected areas

1. As soon as sufficient numbers of LLINs are available in country to reach desired levels of preventive coverage in the priority target areas (those most affected by Ebola), scheduled LLIN campaigns should proceed without delay. All health workers, especially those directly involved in distributing nets or vouchers door-to-door, should be trained on the need to follow at **“all times”** the following precautions in Ebola-affected areas to avoid transmission:
 - a. avoid hand-shaking;
 - b. no touching or providing care to sick people;

⁴ Information note on recommended selection criteria for procurement of malaria rapid diagnostic tests (RDTs). WHO, 2014 (<http://www.who.int/entity/malaria/publications/atoz/rdt-selection-criteria-sept2014.pdf>)

⁵ Adapted from: Infection prevention and control guidance for care of patients in health-care settings, with focus on Ebola. WHO, 2014. (http://www.who.int/csr/resources/publications/ebola/filovirus_infection_control/en/)

⁶ Caring for newborns and children in the community, adaptation for high HIV or TB settings, WHO, 2014 (see http://www.who.int/entity/maternal_child_adolescent/documents/9789241548045-2.pdf)

- c. no touching of personal items (i.e. plates, cup, utensils) and surfaces in the household , in particular if anyone is sick in the house;
 - d. performing hand hygiene frequently during the nets distribution with either an alcohol-based hand-rub solution or, if this is not available, with water and soap;
 - e. maintaining a 1 meter distance when interacting with people.
2. The training itself should be organized in such a way to avoid a large congregation of persons, taking precautions for personal protection into consideration.
 3. Communication and social mobilization campaigns should inform communities on specific changes in LLIN campaigns that will be implemented in Ebola-affected communities to avoid creation of crowds and close contact between people while waiting to receive LLINs. Campaigns should also contain standard messaging on the use of nets, reaffirming that LLINs are provided free of charge, and making clear the difference between Ebola and malaria.
 4. In view of the high pressure on the health services and staff, requirements for data collection and recording should be simplified as much as possible, considering pragmatic approaches (e.g. a standard number of LLINs per household based on average household size if this will ensure universal coverage in target areas). Together with LLINs, nails and strings should be provided to limit population movement in seeking materials to hang up the nets.
 5. **Door-to-door distribution of LLINs** can be considered in order to limit the number of people that would come to each distribution centre at any one time, provided that there is adequate capacity for distribution directly to the households, covering the target population in a reasonable period of time.
 6. **Door-to-door distribution of vouchers** for free LLINs can also be considered in order to reduce transport and logistic requirements. In order to limit close contact between people, a limited number of households, e.g. maximum of 10 at a time, can be given vouchers to collect LLINs from a specific centre during a specified time interval (e.g. morning or afternoon on specified days). Each voucher should have the following information:
 - a. number of LLINs to be given per voucher;
 - b. point of distribution where LLINs can be collected;
 - c. recommended time periods for collecting LLINs and hanging materials.

The voucher can also include messages on appropriate behaviour to prevent malaria and Ebola transmission.

7. LLINs campaigns should also target **all health centres with inpatient facilities**, including Ebola referral centres and Ebola treatment centres to provide all admitted patients with individual LLINs, ensuring adequate protection from malaria. LLINs used by suspected or confirmed Ebola patients should be put in a plastic bag for highly infectious waste and incinerated. Burning LLINs in open air may lead to the release of toxic fumes. When handling LLINs soiled by suspected or confirmed Ebola patients, double gloves, impermeable gown, closed shoes (e.g., boots) and facial protection (mask and goggle or face shield) should be worn.
8. The disposed LLINs should be immediately replaced with new ones. To complement efforts and to ensure the replacement of used/torn LLINs, the **routine distribution of LLINs** should continue both during and after the campaign (if feasible and if already implemented per national policy).
9. Individuals distributing (delivering) LLINs need to follow at all times the above-mentioned enhanced measures of hygiene but are not required to wear personal protective equipment (PPE) or masks or gloves. Alcohol based hand-rub solutions should be provided to all those directly involved in LLINs

distribution following thorough training on how to perform hand hygiene and “no touch” safety measures.

10. Inclusion of LLINs in the distribution of household hygiene or infection control kits, and/or in combination with other disease prevention and control services, should take the principles above into consideration as well as any additional logistics, costs and demands on staff. Communications approaches should clearly link nets to malaria prevention, in order to avoid the perception that they protect against Ebola or other diseases being addressed by the other services. Care-seeking for febrile diseases should continue to be encouraged.

3. Mass administration of ACTs in Ebola-affected areas

1. The deployment of mass drug administration (MDA) with artemisinin-based combination therapies (ACTs) – i.e. mass treatment of all, or a large section, of the population regardless of symptoms – can rapidly reduce the malaria burden to very low levels for a certain period of time.
2. WHO recommends MDA with ACT in areas that are heavily affected by the Ebola outbreak and where malaria transmission is high and access to malaria treatment is very low as patients are not going to health facilities and community services for treatment. In this context, MDA with ACT has the following expected benefits:
 - a. rapid reduction in malaria morbidity and mortality;
 - b. decreased incidence of febrile illnesses due to malaria, thus a reduced presentation of febrile patients at Ebola evaluation facilities, resulting in lower risk of transmission of Ebola to malaria patients and lessened workload at these facilities;
 - c. improve the credibility of health service delivery, including community outreach;
 - d. possible delivery in combination with other interventions (see below).
3. ACTs with long post-treatment prophylactic effect and not used as first-line treatment, such as dihydroartemisinin-piperaquine, should be considered for MDA. For rapid deployment, however, artesunate-amodiaquine (ASAQ) the first-line treatment in the affected countries, may be preferable given its immediate availability and acceptability by the population. MDA should be given to both health workers and the general population.
4. MDA campaigns should be supported by effective communication to explain to communities the expected benefits, focusing especially on MDA’s potential to reduce malaria morbidity and mortality, reduce febrile illnesses which could be misdiagnosed as Ebola, and to promote community participation and maximal uptake. Community agents and health workers involved in the MDA should be trained in social mobilization and communication on the importance of full adherence to treatment and management of adverse drug events that could occur during the campaign.
5. MDA should be given door-to-door to all people living in the target households aiming at total coverage. If possible, the first ASAQ dose should be dispensed under directly observed treatment, and the 2nd and 3rd doses self-administered at home. ASAQ can be given to the entire population, with the exception of pregnant women during the first trimester, infants weighting less than 5 kg, people who received ASAQ during the past month, and patients taking zidovudine, efavirenz or co-trimoxazole.
6. All health workers, especially those directly involved in household visits to record residents and to distribute the medicines door-to-door, should be trained on the need to follow **at all times** the following precautions in Ebola-affected areas to avoid transmission:
 - a. avoid hand-shaking;
 - b. no touching or providing care to sick people;

- c. no touching of personal items (i.e. plates, cup, utensils) and surfaces in the household, in particular if anyone is sick in the house;
 - d. performing hand hygiene frequently during the drug distribution with either an alcohol-based hand-rub solution or, if this is not available, with water and soap;
 - e. maintaining a 1 meter distance when interacting with people.
7. MDA can be planned and combined with the distribution of other commodities such as LLINs, soaps, oral rehydration salts etc. Operational details on how to do this will vary depending on the local context. MDA should be provided at monthly intervals and, after 2-3 rounds of drug distribution, the need for continued MDA rounds should be assessed⁷. MDA should be suspended once the state of National Ebola Health Emergency is officially declared to be over, or earlier if reliable access to ACTs has become available through the health system or other outlets.
8. After discontinuation, the population should have access to LLINs to avoid a rebound in malaria transmission due to high vectorial capacity.

⁷ In Liberia, Médecins Sans Frontières has recently started an MDA campaign with artesunate-amodiaquine to all ages >6 months in Monserrat, a highly populated area of Monrovia. Administration of ASAQ is proceeding door-to-door, with registration teams and drug dispensers visiting each household on consecutive days, following a “no touch” policy. Plans for repeat rounds will be re-assessed on the basis of the results obtained and the evolution of the situation.