

Recommendation for prophylaxis in the post-flood situation in Kerala

Summary from AMCHSS, SCTIMST, Trivandrum on 23/08/2018 at 10:00 hours

1. Priority should be given to upkeep the routine vaccination coverage. No child should miss their routine vaccines. The Mother Child Tracking System (MCTS) could be effectively used to trace all the beneficiaries.
2. The only vaccines recommended for wider use in this situation is Measles & Tetanus Toxoid,
 - a. Measles vaccine coverage is suggested for children in the 6 months to 12 years of age. Considering the high compliance rate of the recent MR Vaccination campaign, we refrain from advising Measles vaccines to all children in this age bracket. Emphasis should be on strengthening the surveillance for measles in relief camps and flood affected areas. Measles Rubella (MR) vaccination could be given to those children who missed, the vaccination in the recent MR vaccination drive, as directed by the Directorate of Health Services, http://dhs.kerala.gov.in/pdf2018/adfw_22082018.pdf.
 - b. Tetanus Toxoid, could be given to those in need as per the recommendations of the Directorate of Health Services, http://dhs.kerala.gov.in/pdf2018/adfw_21082018a.pdf
3. Doxycycline prophylaxis against leptospirosis should be considered for rescue workers and those survivors who got exposed to potential contaminated water, as per the guidance of the Directorate of Health Services. http://dhs.kerala.gov.in/pdf2018/flood_17082018.pdf
4. AMCHSS is partnering with Geologists to create detailed maps of each district delineating the areas with health risk categories. This will be made available soon. That could be used chart out the activities mentioned in the guidance note from DHS http://dhs.kerala.gov.in/pdf2018/flood_19082018.pdf
5. Watch out for respiratory infections, especially among children and elderly in relief camps.

Summary of the evidences used for the above recommendations

Cholera: The use of OCV should be assessed in light of other public health priorities and other priority interventions. It is NOT recommended for use after the start of an epidemic¹. Under some circumstances, for example in Haiti after the 2010 earthquake, it was not recommended, and the CDC does not recommend OCV for evacuees following a disaster². Cholera vaccine may be considered preventatively, in a stable, endemic environment, but is of limited use once an epidemic has begun. High risk populations may be targeted for pre-emptive use.

Hepatitis A: In case of an outbreak, **targeted vaccination** with Hepatitis A for populations at risk³ and may be considered for contacts⁴. NOT recommended for mass immunization, and may be considered for persons at high risk, i.e. those involved in management of drinking water, waste water, or sewage⁴. Hepatitis A vaccine is not routinely recommended after disasters.

Hepatitis B: No indication for mass vaccination with Hepatitis B vaccine in emergency generally, however some indication for vaccination for those handling dead bodies who may be more at risk of blood borne infections⁵

Measles: Measles immunization is a priority health intervention in emergencies⁶ and may be considered the only essential immunization in the early stages of an emergency. It should be administered to all children 6 months through to 12 years of age, and at minimum to all children aged 6-59 months⁷. An opportunity for second dose should be given to those immunized prior to 9 months of age, once they reach 9 months, with a minimum of one month between doses. In some cases groups older than 15 should be considered in the target age, based on risk assessment. Recommended coupling with Vitamin A supplementation to reduce complications of measles⁸

Polio (OPV): Polio transmission is a threat to eradication programs, and is linked to poor water and sanitation⁶. At the outset of an outbreak, all children should receive at least 1 dose with a second round of mass vaccination after 30 days. Vaccination is recommended with bivalent vaccine rather than trivalent vaccine.

Rabies: For post-exposure prophylaxis only

Routine Immunizations and Expanded Programme on Immunizations (EPI): Routine immunization/EPI services should be implemented once the conditions of the emergency

stabilize or in the rehabilitation phase after disaster.

Tetanus (TT, Td): For pregnant women⁹ and women of child-bearing age. In post-emergency, EPI should include either TT or Td, at least 2 doses⁸. Unhygienic conditions, sustainment of injury and wounds with potential for contamination

- For open wounds: Mass tetanus vaccination not recommended^{7,10}. Targeted active and passive vaccination to individuals who sustain open wounds or are involved with clean up after a disaster. Not necessary to give TT or tetanus immunoglobulin (TIG) to patients who have had complete series and a booster within the last 10 years¹¹.

Typhoid: Not recommended as it only offers low, short-term individual protection and little or no protection against the spread of disease^{9,12}.

Varicella: For evacuees in crowded group settings.

Decision making characteristics of vaccination experiences in emergency settings	
Context	<p>Prioritization of geographical areas: high risk districts and cities with the largest number susceptible children, limited access to some geographical areas, linking of vaccination teams to priority camps, security situation restricting access to populations and movements of teams, civil unrest</p> <p>Prioritization of interventions: vaccination as a priority, utilization of a phased approach to introduction of immunization activities, due to damage of health care structures, the system would be unable to handle an outbreak, vaccination not to disrupt the provision of other high priority interventions</p> <p>Coordinated response involving several public health interventions</p> <p>Seasonality</p> <p>Mobility of the population</p>
Epidemiological / risk assessment	<p>Immunity status: pre-disaster vaccine coverage rates, low natural immunity.</p> <p>Epidemiology of local situation: identification of an outbreak perceived risk of outbreak, reports of cases, contribution of crisis to threatening of global eradication initiatives, risk factors for increased morbidity and mortality identified, determination of the target age range, the use of the surveillance system, vaccine coverage survey to assess the need for supplemental activities</p>

	Size of population at risk.
Vaccine characteristics	Availability of vaccine Dose schedule: two dose regimen considered problematic, timing of dosage strict for children Effectiveness: appropriateness (strain or serotype), time to confer protection, coverage required for the protective effect, duration of protection and single dose efficacy
Logistics	Resources: Human resources and staff training Cold-chain and storage Supplies: procurement, safe drinking water Time: required for planning and implementation Waste: vaccine wastage and waste management
Ethics	Prioritization of subgroups of the population: based on the size of population, located in camps, prioritize pro-active vaccination of groups not yet affected by the outbreak Safety: injection technique, limit on number vaccinated per day and training on adverse events. Informed consent: obtained for health survey Equity: issue of provision of vaccine to all members of a population (unethical to provide to only a subset if all at risk), including host community
Other	Monitoring: adequate supervision, meetings with partners, program coverage and impact, opportunity to implement and evaluate vaccine use in complex emergency setting despite the low risk of outbreak, adverse events. Social mobilization Public perception: vaccination not in lieu of other public health measures, public experience with the pathogen and control measures

References:

1. Chaignat C-L, Monti V. Use of oral cholera vaccine in complex emergencies: what next? Summary report of an expert meeting and recommendations of WHO. J Health Popul Nutr. 2007 Jun;25(2):244–61.
2. Wampler P. Pick sanitation over vaccination in Haiti. Nature. 2011 Feb 10;470(7333):175.
3. Connolly MA, Gayer M, Ryan MJ, Salama P, Spiegel P, Heymann DL. Communicable diseases in complex emergencies: impact and challenges. The Lancet. 2004 Nov;364(9449):1974–83.

4. WHO | Flooding and communicable diseases fact sheet [Internet]. WHO. [cited 2018 Aug 20]. Available from: http://www.who.int/hac/techguidance/ems/flood_cds/en/
5. Morgan O. Infectious disease risks from dead bodies following natural disasters. *Rev PanamSaludPública*. 2004 May;15(5):307–12.
6. Connolly MA, World Health Organization, editors. *Communicable disease control in emergencies: a field manual*. Geneva: World Health Organization; 2005. 295 p.
7. Grais RF, Strebel P, Mala P, Watson J, Nandy R, Gayer M. Measles vaccination in humanitarian emergencies: a review of recent practice. *Confl Health*. 2011 Sep 26;5(1):21.
8. Jafari N, Shahsanai A, Memarzadeh M, Loghmani A. Prevention of communicable diseases after disaster: A review. *J Res Med Sci Off J Isfahan Univ Med Sci*. 2011 Jul;16(7):956–62.
9. UNHCR Handbook for Emergencies. :595.
10. Lam E, McCarthy A, Brennan M. Vaccine-preventable diseases in humanitarian emergencies among refugee and internally-displaced populations. *Hum Vaccines Immunother*. 2015 Sep 25;11(11):2627–36.
11. Afshar M, Raju M, Ansell D, Bleck TP. Narrative review: tetanus-a health threat after natural disasters in developing countries. *Ann Intern Med*. 2011 Mar 1;154(5):329–35.
12. Nnadi C, Etsano A, Uba B, Ohuabunwo C, Melton M, waNganda G, et al. Approaches to Vaccination Among Populations in Areas of Conflict. *J Infect Dis*. 2017 Jul 1;216(suppl_1):S368–72.