

Cholera Prevention Emergency Training (UNICEF WCARO, Chad, 2011)

Targeting, monitoring and adjustment of the community based « Water, Sanitation and Hygiene » (WASH) response to strengthen the fight against the cholera epidemic

- **Presentation of participants:** Names and (brief) activities of organizations present at the (half day) training.

A. Theoretical Session (*interactive with questions and answers*) :

- **Cholera basics** (*a relatively new disease in Africa, can kill within hours, breaks out in less than five days, the bacteria like aquatic and dirty environments but can be killed by chlorine, soap, or other disinfectants, as well as by heat above 70 degrees, and by acids or sun rays*) :
 - History of cholera : first described in 2.500 years old texts from India, then in 1,503 (AD) by the navigator Vasco de Gama in India, identification of the link with water in England in 1853 (Snow) and of the bacteria in 1883 (Koch), arrived in Africa in 1970 and in 1971 in Chad with a record high in 1991 (14,000 cases) ;
 - Lake Chad Basin epidemic/ endemic: in 2010, approximately 60,000 cases recorded in the 4 countries of the Lake Chad Basin region, with 40,000 cases in Nigeria, 10,000 in Cameroun (since May 2010), 6,000 in Chad (since July, spreading through the lake region); so far in 2011 (beginning of August), there were already 8.000 cases in Chad, following the epidemic explosion in the dry season at the beginning of 2011, which started from the fishing grounds in the Chari Baguirmi and Mayo Kebi regions.
 - Transmission and symptoms : incubation period (from intake of the bacteria through the mouth until arrival of symptoms) from some hours to 5 days, absorption of cholera bacteria by water or food (unclean water, lack of hygiene, unsanitary conditions) diarrhea and/or vomiting with dehydration that can cause death within hours if the sick person is not rapidly rehydrated (a person with severe cholera can lose up to 20l per day), most people infected with cholera remain healthy but are also contagious (although to a lesser extent);
 - Favorable and unfavorable environments : Cholera develops in aquatic environments (lakes, rivers, creeks, etc.), is destroyed by chlorine ($\geq 0,5$ mg/l) and soap or other disinfectants (ash, laundry detergents, etc.), heat (>70 degrees), acids (lemon, even Moringa leaves or « Mong », etc.), sun rays (e.g., the Sodis technology uses the synergy with temperature: clear water in plastic bottles put in the sun for 6h on corrugated iron sheets).
 - **Methodology of the WASH response** (*the rapid appraisal of the origin of cases enables improved targeting of high-risk places, communities and practices, with 'protective shield' and 'punch' interventions that are measurable and adaptable in order to become even more effective*):
 - Epidemiological analysis for improved targeting: regular information from medical teams regarding the origin of cases enables us to adjust continuously the targeting of WASH interventions according to the three origin indicators : geographical, community, and high-risk practices. Keep in mind the short incubation period of several hours to 5 days for following the cholera.
 - Double strategy of « protective shield » and « punch »: UNICEF's regional cholera study recommends the « protective shield strategy » (mass communication : wide distribution of key messages, chlorination of water in distribution networks and at household level, cleaning of markets etc.) and « punch » (order : disinfection of households and suspected places and shared environments, sensitization in proximity using the social organization, targeted chlorination of drinking water, safe handwashing practices during celebrations and after information exchange and negotiation with local leaders, cleaning and/or temporary closure of markets, etc.)
 - Monitoring and adjustment of interventions : evaluations and simple measures allow us to improve : 1) distribution and uptake of key messages (symptoms, water treatment, handwashing, funerals) ; 2) drinking water treatment practices (how to measure residual chlorine, being mindful of traditional knowledge, etc.) ; 3) handwashing at critical times (before eating and after defecating, with running water and soap or other detergent) ; 4) healthy environmental practices (safe latrine hygiene and/or going much further from living areas for open defecation, precautions during burial practices and funerals, etc.).
- ### B. Practical Session (*participatory, with presentations*) :
- **The key messages** (*the 'Chinese whispers exercise' exemplifies the importance of keeping messages short and simple and to monitor their dissemination among leaders and communities*):
 - Message transmission chain: In groups of 5 to 10 persons, using the Chinese whispers exercise, a message is circulated. The message that arrives at the end is then compared with the initial message. Through the use of different messages of varying length (such as the WASH messages disseminated in the country), the exercise demonstrates several issues:
 - The strong change and/or twisting of a message that is too long ;

- The strong twisting of messages that use complicated words;
 - The necessity to monitor messages disseminated through leaders, medias, and the population;
 - The necessity to monitor that messages are understood (and put into practice) by communities.
 - Keep messages short: In a second step, the messages were adjusted by the teams. The adjusted messages were as follows:
 - If not treated immediately, cholera can kill within hours (through diarrhea and/or vomiting);
 - Only drink clean water that is treated with chlorine;
 - Before eating and after defecating, always wash hands with running water and soap ;
 - Avoid funerals, and never touch a dead body.
- **Water treatment** (*How to evaluate if there is residual chlorine in the water: add a DPD1 tablet to a glass of water , the water should become pink. This allows monitoring water chlorination, to adjust chlorine doses and to take other measures, if necessary.*) :
 - Chlorination of drinking water: Practical water treatment exercises (potable after 30mins) are done, taking into consideration water turbidity (clear water = base of the bucket is visible), because chlorine can deteriorate if there is dissolved matter in the water (turbid water, or dirt from the bucket). If the solution is old, chlorine can also evaporate (that's why the stock needs to be aired, not too humid, not too hot). Dosage standards are:
 - PUR sachet: For turbid water: 1 sachet for 10 liters (stir in one direction for 5 to 10min, leave for sedimentation, then filter through a piece of fine and clean cloth);
 - For clear water: Stock solution at 1% of chlorine (HTH 70%) : 1 or 2 "Cristal" bottle caps for 20l of water (stock solution = 1 level desert spoon [heaped if the spoon is shallow], equivalent to 10g of chlorine per 1l clean water in a plastic bottle)
 - Measuring residual chlorine: Put one DPD1 tablet in a glass of water* (2,5 caps of a « Cristal » bottle) to verify if (yes or no) there is residual chlorine in the treated water. The norm for cholera epidemics is $\geq 0,5$ mg/l (should not be more than 1 to 2 mg/l), and ensuring the promotion of the practice of safe use and storage at household or urban network level (*NB : If available, use a "Pool Tester", which is more precise.) :
 - No colour : = 0 mg/l residual chlorine (no disinfection) ;
 - Almost invisible pink colour: $< 0,5$ mg/l residual chlorine (insufficient) ;
 - Light pink colour : $\geq 0,5$ et ≤ 1 mg/l residual chlorine (OK) ;
 - Strong pink colour: $\gg 1$ mg/l residual chlorine (dosage can be reduced).
 - Well disinfection : Necessary distinction between first (and strong) disinfection of wells that are close to households with suspected cholera cases (because they might be re-contaminated later on), and the (voluntary) regular disinfection of collective wells (subject is under discussion because it can lead people to think that the water is safe, and that chlorination at home is no longer necessary) :
 - First shoot: Strong disinfection: 10 to 50g of chlorine per m³, depending also on water turbidity (i.e., 1 to 5 desert spoons per bucket; assuming 1 m³ per meter of depth for a big well [diameter > 0,8m], and equally 1 m³ for a 2m deep traditional (neat) well.)
 - Regular disinfection is voluntary, but recommended if the well is at very high risk: 2 to 10g of chlorine per m³ and per day (or more often), with regular review of the measurement of residual chlorine.
- **Hand washing** (*mobile workshops and small inventions are useful to help to promote correct handwashing*) :
 - Mobile workshops : Community team workers can construct public handwashing points, using the 'sakhan' for handwashing of celebration participants, especially before eating (with soap or disinfectant or chlorinated water of 0,05% concentration (10g for 20l);
 - Permanent structures (collective or at household level): Easy and cheap innovations and techniques (in strategic positions) that favor correct handwashing in order to target key moments (eating place, latrine exit) can be conceived and constructed rapidly with locally available materials, such as :
 - Sakhan suspended by a string, with the tap blocked by a piece of wood (to limit water discharge) and with a second string (for easy handling) to a small plastic that contains the soap; Tippy-tap etc.
- **Sanitation** (*latrine visits and open discussion of the subject; not to forget the danger of public markets etc.*) :
 - Latrines, markets: Even if the coverage is low (<10% in Chad) hygiene in public and private latrines is very important. At a minimum, they should be clean and all holes should be closed (if there is no grilled ventilation system). Easy indicator: « No flies, no stink! ». Markets should be kept clean.
 - Open defecation: if no latrines are available, in emergency situations defecation sites should be distanced from water points and houses.