

Field Guidance Note

Evidence-Based Guidance For Water Chlorination In Humanitarian Response

Issues:

Current guidelines for water chlorination in emergencies are not based on any field evidence. This means that they may fail to ensure water is safe to drink where people actually drink it in refugee/IDP camp settings, especially in hot climates or where environmental hygiene is poor. MSF carried out field research in refugee camps in South Sudan, Jordan, Rwanda, and Tanzania in order to develop new evidence-based water chlorination targets that are suitable for different local conditions and are demonstrated to ensure water safety at the point of consumption:

LOCAL SITE CONDITIONS		CHLORINATION RECOMMENDATION	
<i>Midday Air Temperature</i>	<i>WASH Conditions*</i>	<i>FRC at Tapstand</i>	<i>Duration of Protection</i>
Hot (>30°C)	Poor	1.1 - 1.3 mg/L	12 hours
Hot (>30°C)	Good	1.2 - 1.4 mg/L	24 hours
Moderate (20-30°C)	Poor	0.6 - 0.8 mg/L	24 hours
Moderate (20-30°C)	Good	0.3 - 0.5 mg/L	24 hours

How To Use:

Look up the temperature and WASH conditions* of the refugee/IDP site in the left two columns. Follow that row across to see how much free residual chlorine (FRC) you should deliver at the point of distribution (tapstands). This FRC target should provide adequate chlorine protection (0.2 mg/L FRC) at the point of consumption in peoples' shelters for the maximum duration given in the rightmost column.

* To determine this three key WASH indicators are compared to Sphere minimum standards: I. available water quantity (>15 lpd); II. water accessibility (<250 users per tapstand); and III. sanitation accessibility (<20 persons per latrine stance). Sites where one or more indicators do not meet minimum standards are classified as having poor environmental hygiene. Sites where no indicator is deficient are classified as having good environmental hygiene.

Seasonality:

Due to a strong influence of temperature on accelerating chlorine decay, chlorination targets may need to be adjusted between hot and cool seasons. For every 10°C increase in average midday temperature, FRC at the tapstand should to be increased by up to 0.5 mg/L in the hot season over the cool season in order to provide sufficient chlorine residual.

Monitoring:

Monitoring FRC levels at both distribution points (tapstands) and households is essential for fine-tuning water treatment and ensuring water safety at the point of consumption.

Impact:

Based on field research, using these new evidence-based FRC targets can improve the proportion of camp households having safe water at the point of consumption up to 85%, compared to 15-50% under the old guidelines. This can help improve the public health effectiveness of safe water supply in emergencies.