

4065-A-2209

## **Viability of cholera vaccine CVD 103-HgR in drinking waters from the US and Europe**

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**Background:** The attenuated recombinant *Vibrio cholerae* O1 strain CVD 103-HgR (Vaxchora®), is supplied as buffer and active vaccine packets to be mixed in water and ingested. They are stored at 2-8°C and consumed within 15 minutes of reconstitution.

**Methods:** To assess the viability of Vaxchora vaccine in drinking waters from common sources, buffer and active vaccine packets were reconstituted in 100mL of ambient temperature (15-25°C) bottled or tap water from the US and Europe. Viability was measured via a colony forming units (CFU) assay immediately after reconstitution and at 15 and 30 minutes post-reconstitution. Water samples were tested in duplicate. Duplicates were performed by reconstituting the vaccine in 100 mL from two separate bottles of bottled water, or two separate 100 mL aliquots of tap water. Potency is defined as  $4 \times 10^8$  -  $2 \times 10^9$  CFUs per dose. Chemical analyses of select water samples were also performed to identify compounds that may negatively affect Vaxchora vaccine viability.

**Results:** Vaxchora vaccine titers were stable in all bottled waters tested, including purified bottled water, bottled spring water, and sparkling waters. However, tap water from certain cities in the US and Europe affected viability and were found to be incompatible with the vaccine. Water chemistry revealed that these tap waters contained copper, likely leached from copper plumbing.

**Conclusions:** Vaxchora vaccine maintains stability when reconstituted in a variety of bottled waters. Tap water and any waters containing copper, however, should not be used for reconstitution.