

USVI DOH CISTERN WATER STUDY

Determining the Best Practices for Cistern Water Treatment

Updated - October 2019

BACKGROUND

The Department of Health recently launched an initiative to evaluate the quality of cistern water throughout the US Virgin Islands (USVI). In July-August 2019, several teams visited households on St. Croix, St. Thomas, and St. John to gather cistern and tap water for testing.

The information we have gathered will help us develop guidelines specific to the USVI on the maintenance and treatment of cisterns and cistern water.



The Department of Health is developing guidelines specific to the USVI to help homeowners improve and maintain the quality of their cisterns and cistern water.

Using cistern water without properly treating it can increase your risk of getting sick.

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Cisterns can contain a mixture of rainwater, debris—like bird poop—from your roof, and uninvited creatures such as frogs and iguanas. Using improperly treated cistern water increases your risk of getting sick. For example, drinking untreated water or using it for washing fruits and vegetables, brushing teeth, or washing an open wound increases your risk of intestinal, respiratory, or other infections.



Photo Credit: Gouthami Rao

Q: What is the Department of Health doing to help reduce the possible risk of infection from untreated cistern water?

A: The USVI Department of Health, in collaboration with Love City Strong and the *CDC, is conducting a study to assess the:

- Risks cistern water poses to households regarding biological pathogens,
- Household characteristics that increase the risks of cistern water having biological pathogens, and
- Best practices that can be used to reduce the risk of having biological pathogens in cistern water.

Q: What sources of water was collected in the study?

A: Teams collected water directly from household cisterns and kitchen taps.

“The Department of Health is working diligently to improve and maintain the health of the USVI community by conducting this study on cistern water.”

Q: What type of tests were conducted in this study?

A: Teams evaluated the condition of household cisterns and tap water, as well as conditions of homes that could affect the quality of water (e.g., blocked gutters, presence/absence of animals, etc.). Based on the drinking water standards established by the Environmental Protection Agency, the water quality was evaluated for features such as pH, chlorine, and the presence/absence of a specific type of bacteria called *E. coli*, which indicates if there is human or animal feces in the water.



Photo Credit: Gouthami Rao

To date, the DOH has collected cistern and tap water from over 400 households throughout the territory. Stay tuned for more information as we continue to review the data.

Contact Us

Department of Health - STX

Charles Harwood Memorial Complex |
3500 Estate Richmond | Christiansted
Telephone: (340) 718-1311 ext. 3891

Department of Health - STT

1303 Hospital Ground | Suite 10 |
Charlotte Amalie
Telephone: (340) 774-7477 ext. 5647

Email: esther.ellis@doh.vi.gov

Website:

<https://doh.vi.gov/programs/epidemiology-disease-reporting>

INITIAL FINDINGS

In our February 2019 pilot study, we found that 64% of the households visited had *E. coli* in their cistern water, and 32% had *E. coli* in the water coming from their kitchen tap—even as 96% of the households reported treating their water! It is important that we look closely at the type of treatment approach we use to remove biological pathogens, dirt, and/or improve taste.

The overall findings from our larger cistern study conducted in July-August 2019 will be provided shortly. So, please consider following the Department of Health Facebook page at <https://www.facebook.com/virginislandsDOH/> for future updates.

CISTERN WATER TREATMENT OPTIONS

Sediment filters – These filters remove dirt, while Brita or fridge filters improve the taste of water. However, these do not remove biological pathogens (such as *E. coli*).

Bleach or chlorine – This chemical can kill biological pathogens. However, it is most effective for use with small volumes of water (like 5-gallon drums), and can be difficult to use effectively in a large, complicated cistern.

Multi-stage filtration with or without UV – This type of system can provide clean water for the entire household once the filters are changed according to the manufacturer's instructions. Over time, it becomes a more cost-effective solution for drinking water than purchasing bottle water.

MORE TO COME...

Access to clean, safe water for drinking and other household activities is critical. The Department of Health is working diligently to improve and maintain the health of the USVI community by conducting this study on cistern water. To date, we have evaluated the water at more than 400 homes throughout the territory.

We look forward to providing you with information on the best practices for cistern maintenance and water treatment that is specific to the US Virgin Islands. Stay tuned.

A special thanks is given to all the volunteers, including Love City Strong!

*The findings and conclusions in this report are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention.