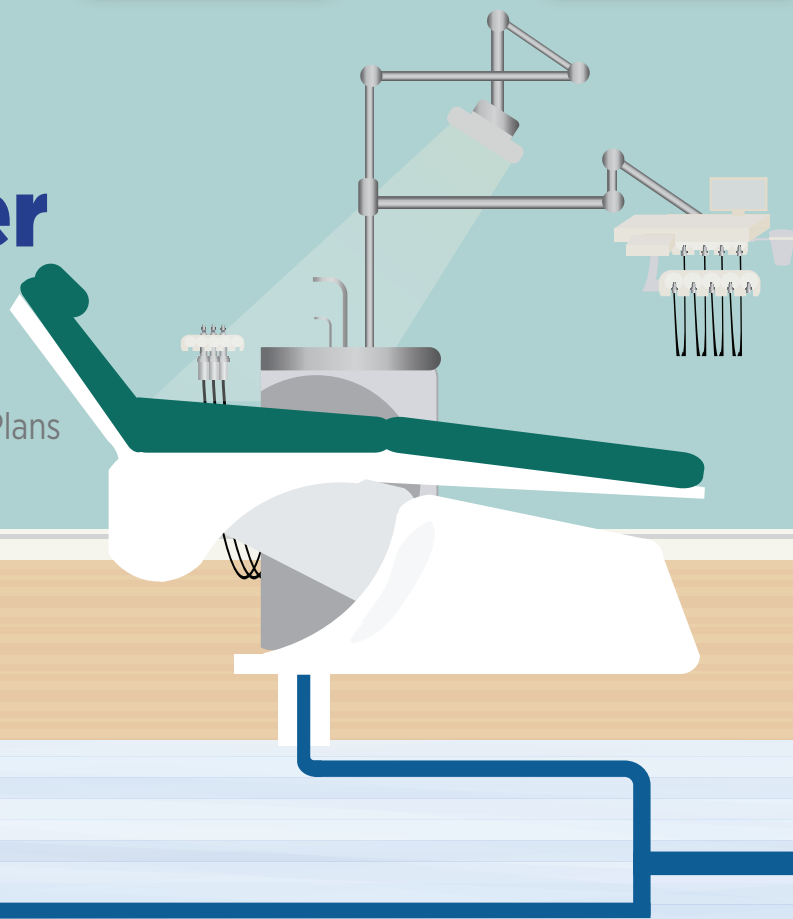
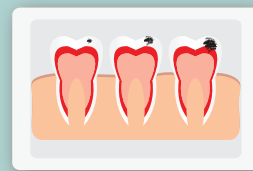
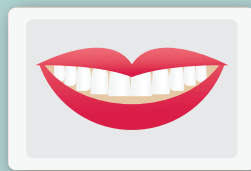


# What You Can Learn from Flint and Other Water Crises

Examining Safety Protocols and Backup Plans

By Erik J. Martin



**T**he water crisis that began in April 2014 in Flint, Michigan, is a wake-up call for dental practitioners everywhere that a water supply crisis can occur suddenly and unexpectedly.

Water crises can happen after a natural disaster such as a flood, hurricane, or earthquake; a water treatment plant failure; or a water main break, repair, or new connection. During these events, the tap water supply can be interrupted, unavailable, and/or contaminated with pathogens

that can trigger a community boil-water advisory — and that can shut down your practice in a hurry, unless you're prepared.

## Evaluating Systems and Protocols and Establishing a Backup Plan

Traci J. Dantzer, DDS, an associate in a private practice in Flint Township, Michigan, and president of the Genesee District Dental Society, says the Flint water crisis motivated her to reevaluate her practice's water system and protocols, and to establish a backup plan in case a

similar emergency arises in the future.

"We are health care providers, and the safety of our staff and patients is our first priority," says Dantzer, who was ready to respond when the Flint water crisis occurred. "The toxic water crisis in Flint has certainly made us all think about the safety of the resources we have historically entrusted to the proper authorities. Many of our patients reside in Flint and are now concerned about the water supply of the various businesses that they patronize. Our patients began asking us about the

## What to Do During and After a Boil-Water Advisory

Follow these recommendations when a boil-water advisory has been issued:

- Water should not be delivered to patients through the dental unit, ultrasonic scaler, or other dental equipment that uses the public water system. This restriction does not apply if the water source is isolated from the municipal water system (e.g., a separate water reservoir or other water treatment device cleared for marketing by the U.S. Food and Drug Administration (FDA)).
- Patients should rinse with bottled or distilled water until the boil-water advisory has been cancelled. During these advisory periods, tap water should not be used to dilute germicides or for hand hygiene unless the water has been brought to a roiling boil for more than one minute and cooled before use.
- For hand hygiene, antimicrobial products that do not require water (e.g., alcohol-based hand rubs) can be used until the boil-water notice is cancelled. If hands are visibly contaminated, bottled water and soap should be used for handwashing; if bottled water is not immediately available, an antiseptic towelette should be used.
- When the advisory is cancelled, the local water utility should provide

guidance for flushing of waterlines to reduce residual microbial contamination. All incoming waterlines from the public water system inside the dental office (e.g., faucets, waterlines, and dental equipment) should be flushed. No consensus exists regarding the optimal duration for flushing procedures after cancellation of the advisory; recommendations range from one to five minutes. The length of time needed can vary with the type and length of the plumbing system leading to the office. After the incoming public water system lines are flushed, dental unit waterlines should be disinfected according to the manufacturer's instructions.

- *Alternatives:* Because water from the affected public system should not be delivered to the patient during a boil-water advisory, many dental procedures cannot be performed. Alternative water sources, such as separate water reservoirs that have been cleared for marketing by the FDA, can be used. However, if the alternative water source were to flow through a dental operative unit previously connected to the affected public water supply, the dental operative unit waterlines should first be flushed and disinfected according to the manufacturer's instructions.

Source: Centers for Disease Control and Prevention



quality of the water we use in our practice. We informed them that, because of our location, our water supply comes from Detroit, not the Flint River where the city of Flint was receiving its water. We also reassured them that we utilize a closed-water system that employs distilled water for our handpieces, ultrasonic scalers, air/water syringes, and autoclaves.”

While the closed-water system would have helped matters if Dantzer's practice was located in the Flint city water supply zone, she says she likely would have had to temporarily close her office in this scenario.

**“In a way, the Flint water crisis gave assurance to many local dentists that their offices were prepared to handle this issue, due to steps they had taken in the past.”**

— Connie M. Verhagen, DDS

## Tips for Safeguarding Your Practice

To better safeguard your practice, patients, and staff, consider these tips:

- Get your water tested. “Call your city or county if you have any concerns about your municipal water supply, and if you use a well as your water source, get it tested regularly,” says Dennis G. Charnesky, DDS, MAGD.
  - Install a closed-water system and/or equipment that purifies municipal tap water, such as a whole-practice reverse-osmosis system. “Consult with a plumber or commercial water-purification company to find a suitable system to connect your dental units to,” Charnesky advises.
  - Stock an ample supply of bottled purified water in your office in the event of an emergency.
  - Respond quickly whenever a boil-water advisory is issued.
  - Follow the Centers for Disease Control and Prevention’s (CDC) *Guidelines for Infection Control in Dental Health Care Settings* (2003), *Infection Prevention Checklist*, and
- Use water that meets U.S. Environmental Protection Agency regulatory standards for drinking water (i.e., ≤ 500 CFU/mL of heterotrophic water bacteria) for routine dental treatment output water.
  - Consult with the dental unit manufacturer for appropriate methods and equipment to maintain the quality of dental water.
  - Follow recommendations for monitoring water quality provided by the manufacturer of the unit or waterline treatment product.
  - Use sterile saline or sterile water as a coolant/irrigant when performing surgical procedures.
  - Evaluate and, if necessary, increase the coverage limits for your dental business insurance so that you are better protected from a water disaster.

“If the water supply in our office were to shut down abruptly, then the gallons of distilled water we have could be used on a short-term basis for handwashing and rinsing,” she says. “However, once we completed the procedures on the patients whom we are treating, we would need to close the office until appropriate measures were taken to restore the water supply. Without any running tap water, even the most basic amenities like the use of a restroom could not be provided.”

Dennis G. Charnesky, DDS, MAGD, president of the Michigan Academy of General Dentistry and a practitioner in Troy, Michigan, also recommends a closed-water system, which he relies on in his practice to treat patients and clean his waterlines, with the help of a germicide, to reduce biofilm.

“I have not been affected by a major water crisis, but I do keep a supply of bottled water and five-gallon bottles of distilled water in my office in a cooler if a patient wants a purified source,” Charnesky says.

### Readying for Worst-Case Water Scenarios

Connie M. Verhagen, DDS, a pediatric dentist in Muskegon, Michigan, and past president (2011–2012) of the Michigan Dental Association — who has served on several committees dealing with Occupational Safety and Health

Administration regulations and infection control issues — says, in many cases, the Flint water crisis reaffirmed that practices are ready to handle crises.

“In a way, the Flint water crisis gave assurance to many local dentists that their offices were prepared to handle this issue, due to steps they had taken in the past,” Verhagen says. “In the mid-1990s, a concern arose nationwide about the quality of water used for dental treatment. The issue was biofilm bacteria inherent in municipal water supplies. Immediately, manufacturers responded with self-contained water reservoirs — essentially water bottles connected to dental units — so that dentists were no longer dependent on the municipal water supply.”

At that time, Verhagen adds, many dentists chose to have their old dental units retrofitted with a self-contained system so they could control the quality of the water use during patient treatment.

Howard S. Glazer, DDS, FAGD, a Fort Lee, New Jersey-based general dentist, can vouch for the effectiveness of a retrofitted self-contained system after experiencing two public water crises within the past 10 years — first during a nearby water main break and later during a boil-water advisory issued following Hurricane Sandy in late October 2012. The former would have put his practice out of commission for three

days if Glazer didn’t have a contingency plan in place.

“I thought my overhead insurance would cover my practice’s downtime, but it only provided coverage up to about 20 percent of my scheduled production for each day I was out of commission,” Glazer says. “Thankfully, I found a simple, inexpensive solution that only cost me \$200 to \$400 for each of my two operatories.” Glazer enlisted a trusted dental equipment vendor to install a special system in each operatory that tapped into the water supply line using small tubing and an electric switch. When turned, it cut off the tap water supply and drew water from a quart of purified bottled water.

“This solved the issue for all my intraoral uses, and we also used separate bottled water for extraoral uses like washing my hands and giving my patients rinse water,” says Glazer. “This investment pays dividends because it keeps me fully operational in the event of a public water problem.”

The moral of the story? Glazer touts the overall importance of emergency preparedness.

“You never know when a water disaster is going to strike,” he says, “so you need to be prepared for any possible occurrence.” ♦

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