

The First Line of Defense

WHEN IT COMES TO PROTECTING THE PUBLIC'S HEALTH, DOCTORS CAN'T HOLD A CANDLE — OR WRENCH — TO PLUMBERS

Story by Geoff Bilau

Several years ago, Elizabeth Ann Volkens was assigned a high school report profiling the profession of one of her parents. The daughter of IAPMO board member Fred Volkens told her teacher she'd like to write about her father, a plumber.

"Her teacher said, 'But your mom's a nurse. Do that instead,'" Volkens recalls. "She didn't think a report about a plumber would be all that interesting. She just thought of the guy who comes out to unclog the drain or fix the pipe."

Elizabeth Ann was undeterred, however, and her completed report earned her not only high marks, but a heartfelt apology from her teacher, who admitted she learned more about the plumbing profession than she had ever expected.

"She never considered all of the infrastructure that goes in before that pipe gets clogged, nor the health benefit that good plumbing ensures," Volkens says. It had not occurred to her that a great deal of the work performed by plumbers actually prevents the very maladies that are treated by doctors and nurses.

That teacher was not alone in her limited perspective, of course. Plumbers have long battled against simple stereotypes while performing vital work that is frequently taken for granted.

"There's so much negative out there about plumbers: butt crack jokes, we charge too

much ... but what price do you place on your health?" Volkens asks. "Isn't it important that somebody knows what he or she is doing?"

Some Background

If history is any indicator, the answer to that question is yes. The Romans are generally credited with developing and refining the first plumbing systems, moving enormous amounts of water via their famed aqueducts, but even with their advances, sanitation was more of an afterthought than a specified purpose. It would be several hundred more years before science would uncover the threat of bacteria and disease that existed in the stagnant, unfiltered waters of the Roman public baths.

Still, the Romans did develop the sewer, which improved sanitation around the home — while unfortunately turning the rivers into cesspools.

The fall of the Roman Empire, however, took sanitation back to its most rudimentary levels and ushered in the Dark Ages and the Black Plague. One-third of the population of Europe was wiped out as flea-ravaged vermin ran rampant in man's filth. In successive years, dysentery, typhus and typhoid epidemics were even more directly born of poor sanitation practices. The latter, however, did afford one plumber to distinguish himself as more than a guy who unclogs the pipes.

In 1871, the son of England's Queen Victoria, Edward, succumbed to typhoid fever, the same disease believed to have killed his father



The Plumber Protects the Health of the Nation



the preceding 167 years, dating back to the journal's first publication in 1840. In an upset, sanitation received the most votes, outpacing medical breakthroughs like antibiotics and anesthesia.

"The general lesson, which still holds, is that passive protection against health hazards is often the best way to improve population health," said Johan Mackenbach of Erasmus University Medical Centre in Rotterdam in the Jan. 19, 2007, issue of the *Guardian* about the results of the survey.

A Not-So-Subtle Reminder

Early in the 20th century, American plumbers began to adopt a slogan as both a point of professional pride and a public reminder of the important role they play: "The Plumber Protects the Health of the Nation." And for a time, when plumbers were rebuilding and revitalizing the country's infrastructure as part of the Works Progress Administration, that fact seemed plainly evident to most Americans. The downfall was, perhaps, that things got working so well, and the public was protected so efficiently, people forgot how it got and remained that way.

One need only look outside our borders, however, to rediscover the vital importance of plumbers. In a country like the United States, where safe plumbing practices are governed by codes and standards and implemented by licensed, highly

skilled personnel, it's much easier to take these things for granted. But in a developing nation like India, where waterborne disease continues to threaten the public, the effects are much more readily apparent.

"Plumbing is a profession with direct relevance to the health and safety of the citizens," said Sudhakaran Nair, president of the Indian Plumbing Association, in an article on the Website clskillschool.com. "As high as 7.5

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10 years earlier. As luck would have it, a plumber discovered a contamination in the pipes of a newly installed water closet. He fixed the problem and Edward survived. Popularity of the indoor water closet soared as this news spread, promulgating the competence of plumbers and their wares.

In January 2007, the *British Medical Journal* released the results of a survey it conducted to determine the greatest medical milestone of

percent of deaths in India are attributed to water and sanitation related causes; 88 percent of diarrhea cases worldwide are due to unsafe water and inadequate sanitation and hygiene. The World Health Organization has acknowledged that the SARS virus that caused havoc in the Asian countries a few years back, causing hundreds of deaths and billions of dollars in expenditures, was spread through inadequate plumbing.

There are provisions in the codes and standards that govern plumbing implements and installations that protect against:

- waterborne disease, contaminants
- lead poisoning
- scalding
- hair entrapment and drowning
- disembowelment via suction
- hazardous building damage due to flooding
- electrocution
- asphyxiation and toxic gas exposure
- explosion
- lacerations
- loss of balance, slippage
- premature product failure

Each and every one a potential malady that could send someone to an emergency room or worse.

A September 2001 U.S. Environmental Protection Agency white paper titled “Potential Contamination Due to Cross-Connections and Backflow and the Associated Health Risks” detailed the frequency and magnitude of water related health incidents in the United States since 1900. Among its findings:

“From 1981 to 1998, [the] CDC documented 57 waterborne disease outbreaks related to cross-connections, resulting in 9,734 illnesses. These include 20 outbreaks (6,333 cases of illness) caused by microbiological contamination, 15 outbreaks (679 cases of illness) caused by chemical contamination, and 22 outbreaks (2,722 cases of illness) where the contaminant was not reported.

“Craun and Calderon (2001) report that 30.3 percent of waterborne disease outbreaks in community water systems during 1971-1998 were caused by contamination of water in the

distribution systems. Of these waterborne disease outbreaks caused by distribution system deficiencies, 50.6 percent were due to cross-connection and backflow.”

Just fewer than 10,000 waterborne illnesses over a 17-year span in a nation of 300 million speaks volumes to the preventive work of plumbing professionals. How much higher would that figure be without the infrastructure they install and maintain and the codes and standards that ensure its safety?

Dr. Lewis Thomas, medical author and former president of New York’s Sloan Kettering Cancer Research Center, wrote in *The Foreign Policy Journal*, Spring 1984: “There is no question that our health has improved spectacularly in the past century. One thing seems certain: It did not happen because of improvements in medicine, or medical science, or even the presence of doctors; much of the credit should go to the plumbers and sanitary engineers of the western world.

“The contamination of drinking water was at one time the single greatest cause of human disease and death for us. It remains so, along with starvation and malaria, for the third world. Typhoid fever, cholera and dysentery were the chief threats to survival in the early part of the 19th century. Today, cholera is unheard of in this country. It would surely reappear if not for sanitary plumbing practices.”

For Fred Volkers and his fellow plumbing professionals, such words are music to their ears — but it’s essentially preaching to the choir. These guys already understand just how misunderstood their profession is.

“That publicity has got to get out there,” Volkers says. “People don’t understand it. On inspections, the number of homeowners who have done things themselves that cause cross connections is unreal. They think they’re saving themselves a few bucks, but they’re putting themselves and everybody else in their neighborhood at risk.”

Thankfully, there’s usually a plumber around to fix things before anybody faces the consequences. What Volkers hopes these families and their neighbors will someday understand, however, is that he’s been there the whole time. 📷



“The plumber is the nation’s health worker. His skill level — or lack thereof — can have serious implications to the society at large.”

SUDHAKARAN NAIR
PRESIDENT OF THE INDIAN
PLUMBING ASSOCIATION