WATER QUALITY & HEALTH COUNCIL
PERSPECTIVES

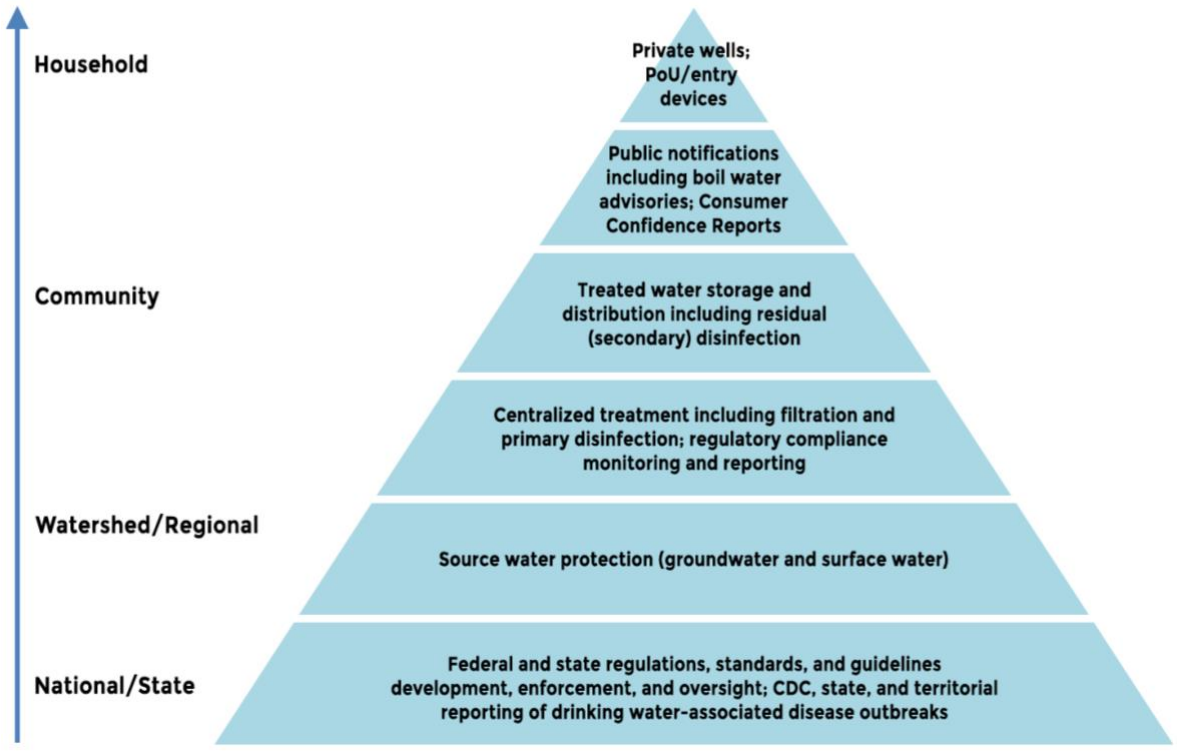
Drinking Water Safety in the United States: Coast to Coast and Source to Tap

By Chris Wiant, MPH, PhD
May 17, 2019

Over the years, the Water Quality & Health Council has written extensively about how most Americans enjoy virtually unlimited, year-round access to safe, treated, and inexpensive drinking water for pennies per gallon. This article highlights how this cornerstone of U.S. public health protection is made possible across our large nation with widely varying climates, landscapes, and access to fresh water. To that end, the figure below conceptualizes the continuum of science/engineering-, regulatory-, and communications-based technologies and activities as a "pyramid" of drinking water safety with each layer supporting the one above and building on those below.

Starting at the national and state level (but recognizing that water availability and quality does not start and end at political borders), and building upward to individual households, these barriers to contamination help keep us healthy and hydrated because next to the air we breathe, nothing is more important to our survival and welfare than safe drinking water. We have focused on virtually every element in the pyramid at some point (and sometimes from multiple perspectives), and I encourage interested readers to click on the hyperlinks and explore our continually growing "library" of articles.

Drinking Water Safety Pyramid



National- and State-Level Protection

The Safe Drinking Water Act (SDWA) and its amendments provide the regulatory blueprint for protecting U.S. drinking water, including over 50,000 community water systems that provide treated water to over 300 million Americans. (Roughly 15 percent, almost 45 million people, get all or part of their water from private wells and are responsible for monitoring and maintaining the safety of their drinking water.) Implementing the SDWA, including the development, enforcement, and oversight of drinking water regulations and standards, is supported by the collaborative work of federal (primarily the U.S. Environmental Protection Agency or EPA), state, tribal, and local governments. Public health agencies in the states and territories report information on waterborne disease outbreaks to the CDC (Centers for Disease Control and Prevention) for national-level reporting.

Watershed and Regional Protection

The susceptibility of a particular surface or groundwater source for drinking water depends on natural/climatic conditions as well as human-related activities in the watershed. Please see our recent article that discusses source water protection for further information.

Community Protection

The availability of safe, treated (finished) drinking water in most U.S. communities, which vary tremendously in size, relies on central collection and treatment of "raw water" (typically by filtering, treating, and disinfecting the source water). It also requires a vast network of pumps, tanks, and pipes, and the maintenance of a chlorine-based residual to safely store and distribute treated water from the plant to individual taps in our homes, businesses, and schools. EPA requires community water systems to deliver a Consumer Confidence Report (CCR; typically online), commonly called an annual drinking water quality report, to their customers every year under the SDWA. CCRs provide information about local drinking water sources and quality, including test results for regulated contaminants. The SDWA also requires community water systems to notify their consumers if there is—or could be—a problem with their drinking water quality through boil water advisories and notices.

Household Protection

Naturally, we consume most treated water in and around our homes, not just for drinking but also for bathing, laundering clothes, cooking, and even filling our swimming pools. For those concerned with water quality in their homes, particularly its taste and odor, a wide variety of PoU (point-of-use) and point-of-entry devices are available, ranging from kitchen tap filters to whole house reverse osmosis treatment systems. We've also written about private well basics including siting, maintenance, disinfection, and water quality testing, as well as managing flooded wells.

But we can always do more to recognize and appreciate the hard work and diligence of water and public health professionals in our communities, universities, states, and the federal government whose work provides multiple, overlapping barriers against drinking water contamination, and that can be viewed as a pyramid of drinking water safety in the United States. Together they help ensure our drinking water is safe and plentiful from coast to coast and from source to plant to tap.

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