

Water & Healthcare Sector Interdependencies: *Working Together Towards Resiliency*

What are Water Sector Interdependencies?

Water is a basic human need, fundamental to the well-being of individuals and society; and the protection of our nation's drinking water and wastewater supplies is vital to human health. In addition, all other critical infrastructure sectors rely on water services to operate and the Water Sector relies on these other sectors in order to provide safe, reliable drinking water and wastewater services. This relationship is known as an *infrastructure interdependency*.



The Water and Healthcare Sectors have both been designated by the U.S. Department of Homeland Security (DHS) as Critical Infrastructure/Key Resource (CI/KR) sectors. The protection of these critical infrastructures is a top priority for DHS and the Sector-Specific Agency (SSA) responsible for overseeing each sector's critical resources. Recognizing the interdependencies between CI/KR sectors, such as those between the Water and Healthcare Sectors, can help to strengthen the overall resiliency of a community in the face of all-hazards threats, including natural and man-made disasters, crimes, and acts of terrorism.

Overview of Healthcare Infrastructure

The healthcare sector consists of over 6,600 hospitals, 492,000 ambulatory care facilities, and 70,000 nursing and residential care facilities. Other healthcare-related facilities include pharmacies, blood and organ banks, pharmaceutical manufacturing sites, and public health laboratories. The Healthcare Sector relies on drinking water and wastewater for a variety of services and functions, including:

- Infection control
- Renal dialysis
- Heating and air conditioning
- Manufacturing and storage of pharmaceuticals
- Sterilization
- Maintenance of blood and organ banks
- Drinking water for patients and staff
- Transportation of supplies and equipment



Demonstrated Need for Water and Healthcare Sector Partnership

A variety of natural and man-made disasters, contamination episodes, and other incidents demonstrate the impacts water service interruptions can have on hospital and other healthcare services. As the SSA for the Water Sector, the U.S. Environmental Protection Agency (EPA) has considered the potential impacts that water service interruptions could have on the Healthcare Sector and is working with other sectors to reduce these impacts. Some recent incidents that have impacted water services include:



- **2003 Northeast Blackout**

As a portion of the approximately 50 million people affected by the Northeast Blackout in 2003, hospitals throughout the northeastern United States experienced power-outages, compromising water services. This resulted in a lack of heating, ventilation, and air conditioning (HVAC) services, complications with sterilization, and the breakdown of certain equipment that required water to cool.

- **Hurricane Katrina**

Patients in New Orleans area hospitals could not be released or transported due to overcrowding at other area hospitals and congested or collapsed roadways. Newborns, ICU patients, and those receiving routine dialysis, amongst other critical services, required continued hospital stay. Area hospitals experienced hot, uncomfortable climates, wastewater back-up, as well as staff and supply limitations.

- **2008 Hospital and Water Sector Interdependency Summit – Keeping Patients Safe**

U.S. EPA Region 5 and a Chicago-area medical group co-sponsored a day-long summit to discuss water safety, security, and preparedness measures, particularly in relation to hospitals. Recommended next steps included developing and distributing notification procedures and regional response plans for water service interruptions; identifying alternative water sources that serve multiple facilities; and facilitating discussions between hospitals and their water suppliers to understand capabilities and limitations.

Tips for Strengthening <YUH WUFYUbX'Di V'JW<YUH Sector Resiliency

- Identify the services that must remain in operation to ensure the health and continued care of patients
- Conduct a water audit to help determine the quantity of water that would be necessary to continue operating during a water service interruption
- Plan for the potential impacts of water loss on all aspects of healthcare (patient and supply needs, transportation, financial, etc.)
- Determine alternative water sources and incorporate these into emergency response planning
- Communicate with other local and regional infrastructure sectors to coordinate sharing resources in the event of a water – or other critical resource – service interruption

CONTACT US For more information on Water Sector interdependencies and the Community-Based Water Resiliency (CBWR) initiative, please contact WSD-Outreach@epa.gov or visit us at <http://water.epa.gov/infrastructure/watersecurity>.