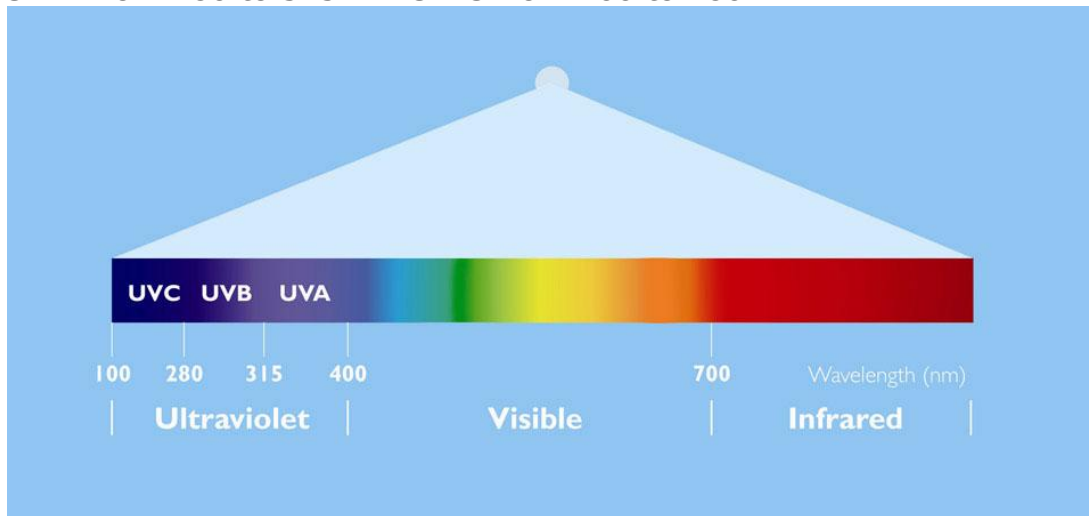


# What is UV Technology

Ultra-Violet (UV) light is invisible to human eyes. It can be subdivided into three categories: UVA, UVB and UVC. UV-A from 315 to 400 nm UV-B from 280 to 315 nm UV-C from 100 to 280 nm.



UVC radiation is known to break the DNA of bacteria, viruses and spores. As a result, they are rendered harmless.

UV radiation can be used for multiple purposes in water and air treatment, but is primarily employed as a disinfection process that inactivates micro-organisms without chemicals. For other applications, UV is used for the removal of organic and inorganic chemicals, including chlorine, chloramines, ozone and Total Organic Carbon (TOC) emerging contaminants.

## **Benefits of UV disinfection** are:

Effective for all types of microorganisms, including bacteria, viruses, fungi, and protozoa such as Cryptosporidium and Giardia

- No disinfection by-products (DBPs) of health concern formed
- UVC acts instantly
- Low capital and operating cost
- Easy to operate and maintain
- Does not change the taste of water
- Safe and environmentally-friendly
- No overdose issues and dose can be easily adapted to specific needs.

Hospital acquired infections affect around 10% of patients during their stay. There is increasing evidence that up to 20% of these infections are transmitted via the air. UV disinfection lamps deactivate microorganisms, contributing to a safer indoor working environment.

Airborne viruses and bacteria contaminate the air trapped indoors and can pose a real health threat in hospitals, both to patients and staff. That is why maximum protection against airborne bacteria and viruses is paramount. As a result you can be sure to comply with the health and safety regulations. So you can concentrate on what matters most – your patients.

The air we breathe in at the office is often anything but clean. It is frequently re-circulated along with bacteria, viruses, pollen and toxic gases. By installing UV lamp systems in in-duct air units, you can contribute to a healthier indoor environment.

## Safe, Effective, Efficient.

UV radiation, allows hospital staff to easily and confidently disinfect virtually any environment, including patient rooms, intensive care units, operating rooms, emergency rooms and public areas – killing pathogens, including the most common health care associated infections (HAI) culprits *Clostridium difficile* (C. diff.), Methicillin-resistant *Staphylococcus aureus* (MRSA), carbapenem-resistant Enterobacteriaceae (CRE) and other bacteria that compromise patient outcomes.

## What is UVC Light, and How Does It Kill Germs?

There are three UV light wavelength categories: UV-A, UV-B and UV-C. Tru-D produces UV-C, the only wavelength to be known as germicidal. UV-C utilizes short-wavelength ultraviolet radiation (shorter than UV-B and UV-A which are NOT germicidal) that is harmful to microorganisms.

### Continuous UVC vs. Pulse Broad Spectrum UV

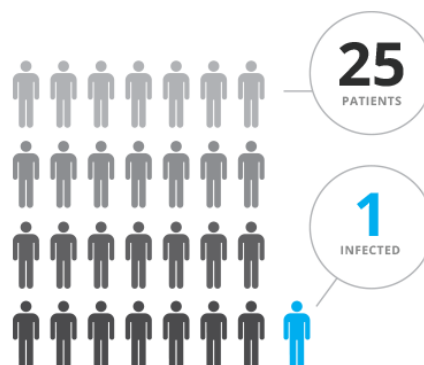
Broad Spectrum UV disinfection is not more effective than Continuous UVC light, because UV-C is the **only** germicidal wavelength.

# What is an HAI?

Healthcare-Associated Infections, or HAIs, is an infection that patients receive while in the care of a healthcare environment, that was neither present nor developing when original treatment began. HAIs can be caused by a number of bacteria, viruses, fungi or parasites and are the most common form of preventable hospital complication, affecting millions each year.

## How do HAIs affect patients?

CDC healthcare-associated infection (HAI) prevalence survey provides an updated national estimate of the overall problem of HAIs in U.S. hospitals. Based on a large sample of U.S. acute care hospitals, the survey found that on any given day, about 1 in 25 hospital patients has at least one healthcare-associated infection. In 2011, about 75,000 hospital patients with HAIs died during their hospitalizations. More than half of all HAIs occurred outside of the intensive care unit.

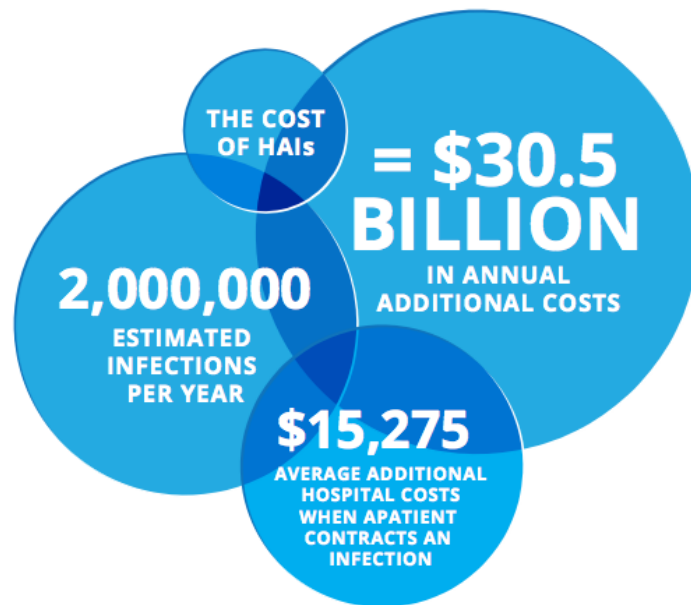


## How HAIs spread

Young children, the elderly and those with compromised immune systems are at higher risk to contracting an HAI, however, other risks include long hospital stays, unsanitary conditions and overuse of antibiotics. Washing hands, cleaning all surfaces and sterilizing instruments are the best practices to preventing these infections.

# HAIs cost hospitals billions of dollars a year.

The direct medical cost of HAI's to health care facilities exceeds \$30 billion dollars annually. Tru-D lowers the risk of patients/residents developing unnecessary and preventable infections transmitted by high touch surfaces during their treatment. Reducing the incidences of healthcare infections by eradicating the pathogens that lie hidden in the healthcare environments is Tru-D's guarantee of an immediate cost avoidance.



Source: [www.cdc.gov](http://www.cdc.gov), "The Direct Medical Costs of Healthcare-Associated Infections in U.S. Hospitals and the Benefits of Prevention," March 2009