Bundled
HAI Prevention

Comprehensive Strategies for Reducing Infections

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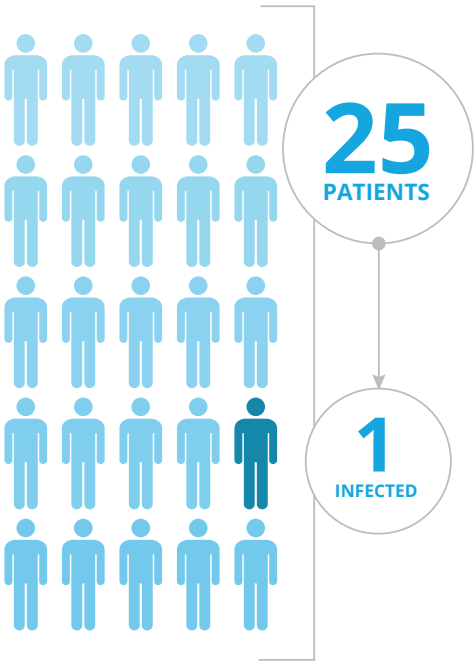
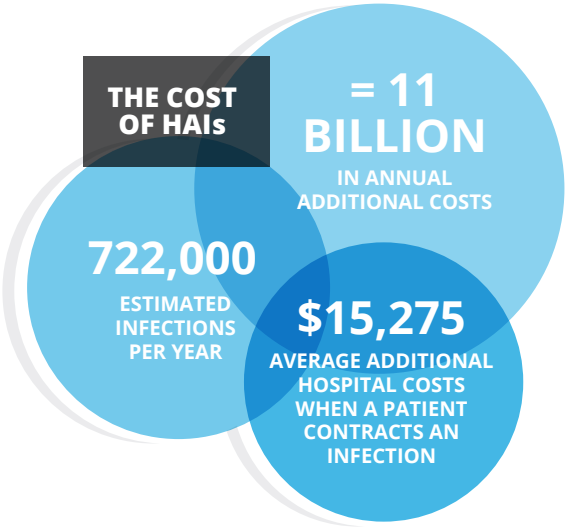
Background

Hospital-associated infections (HAIs) are a serious and often preventable patient safety issue. Despite increased scrutiny and improved prevention efforts, they remain a significant source of morbidity and mortality. Bundled prevention efforts have proven to be a successful approach to reducing HAIs and should take into consideration interventions to address threats from both internal and external sources.

According to the Centers for Disease Control and Prevention (CDC), there are more than 700,000 HAIs every year in the U.S., and more than 75,000 of those patients die as a result. With HAI rates increasing, more superbugs discovered each year and increased public reporting of and financial accountability for infection rates, it's critical for hospitals to implement comprehensive prevention strategies to combat the issue of HAIs. In addition to the patient safety aspect, the financial implications of HAIs can be significant to hospitals, which ultimately impacts the quality of care that can be provided.



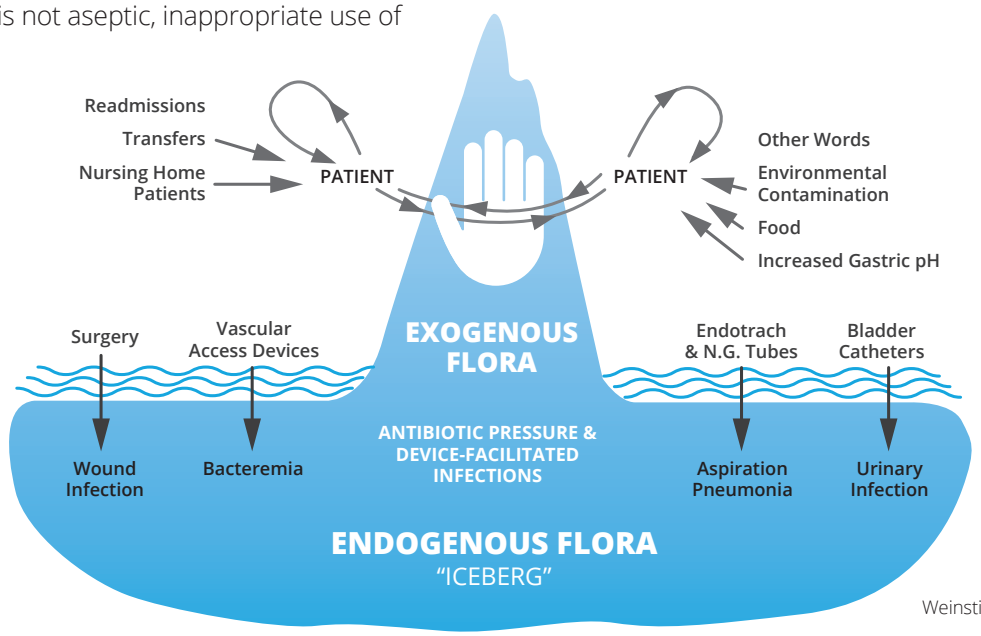


HAI Sources

There are multiple sources of HAIs. A patient's endogenous flora accounts for 40-60%, exogenous (i.e. cross-infection via hands of staff or visitors) contributes 20-40%, antibiotic-driven changes account for 20-25% and the environment and other external sources account for 20%.[1]

Ongoing research has greatly improved the quality of effective HAI prevention strategies to reduce sources of risk from things like clinical care that is not aseptic, inappropriate use of antibiotics and unnecessary testing.[1] However, gaps between recommendations and practice remain.

Additionally, manual environmental cleaning often leaves up to 50% of surfaces contaminated[2] posing risk to future patients ranging from 39-353%.[3,4] Floors in hospitals are also a significant potential source of infection that are often overlooked, resulting in reservoirs of infection and increased risk.[5]



Weinstien (1991)

The **Bundled** Approach

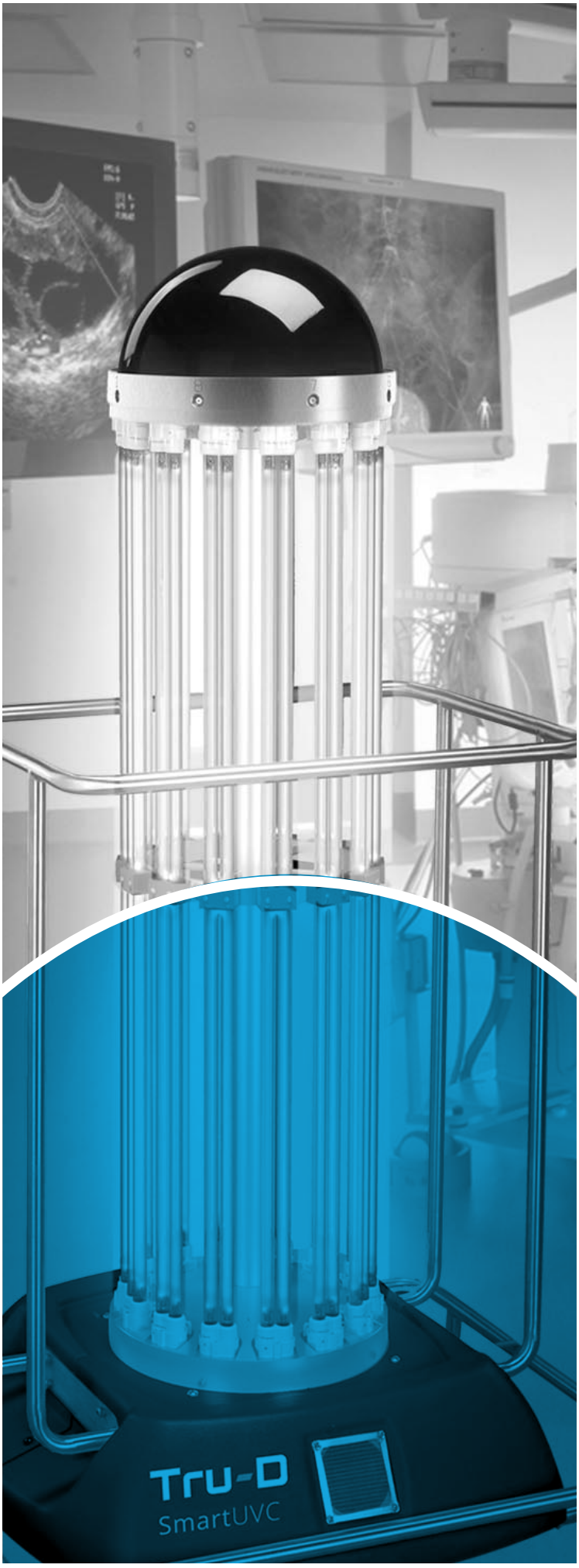
One strategy that has been employed by hospitals across the country is bundles of interventions, with each intervention aimed at reducing a specific source of HAI risk. These bundles have proven successful at reducing the incidence of HAIs. A VA study that utilized a MRSA bundle that included changes to culture practice, active surveillance for infection and screening for colonization saw significant reductions in MRSA infections.[6] Another study looked at a comprehensive *C. difficile* bundle that included measures for antimicrobial prescribing, testing practices, isolation policy and cleaning.

In this particular study, risk of *C. difficile* was initially lower, but was hard to maintain over the long term, due in part to difficulty in ensuring compliance with the infection control measures in the bundle.

Given the significance of the environment as a source of infection, environmental cleaning is considered an important element of prevention bundles. However, the focus has been on manual cleaning practices and hand hygiene and has not yet expanded to enhanced disinfection strategies such as UVC.

"This technology, no-touch systems, should be used. They should be used for terminal room disinfection. If you don't have these systems, you should have the capital budget for them."

William A Rutala, PhD, MPH, CIC
Principal Researcher,
BETR-D Study, UNC



Including UVC in a Bundle

It has been well established that UVC is an effective germicidal strategy. Numerous studies have shown significant reduction of pathogens when UVC is added to standard terminal cleaning methods. The only randomized clinical trial to examine the efficacy of UVC, funded by the CDC, showed a cumulative 30% reduction in acquisition and infection among patients admitted to a room previously occupied by a patient with MRSA, VRE or *C. difficile*[7] and an 11% overall reduction in *C. difficile.*[8]

Given the efficacy of UVC in reducing pathogens in the environment, it should be an important component of any HAI prevention bundle. Unlike many other interventions, particularly those focused on the cleaning practices, it can eliminate the human factor that sometimes leads to inconsistency in compliance with best practice. Tru-D, the device selected for the CDC trial, utilizes single placement in the room which eliminates the need for environmental services technicians to guess how long to run the device and allows them to carry on with other responsibilities instead of waiting to move the device to additional locations in the room.

Summary

Adding UVC to standard cleaning practices builds on the reductions already taking place as a result of interventions focused on aseptic care, testing, treatment and manual cleaning practices. No one strategy within a prevention bundle will by itself completely reduce HAIs, but by working together, a comprehensive collection of interventions can achieve significant reductions. When evaluating whether to use these technologies in your hospital, support and validation should be sought from independent, third-party studies to validate a device's efficacy.

For more information on how UVC can improve your hospital's HAI reduction efforts and to see a list of independent research studies on the efficacy of UVC against pathogens, visit Tru-D at www.tru-d.com.

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