Quick Guide, Chapter 2: Hand Hygiene Infrastructure

Expanded information, case studies, references and other important items related to hand hygiene infrastructure are available in Chapter 2 of this publication.

Hand hygiene is essential to safe health care, and the infrastructure to support hand hygiene plays an important role in how well hand hygiene compliance is maintained. That infrastructure includes the design and placement of sinks, faucets, hand-drying facilities and dispensers of alcohol-based hand rub.

Studies show that the location of sinks is more influential than the number of sinks. One study found that each additional meter between the patient's immediate surroundings and the nearest sink decreased the likelihood of handwashing by 10 percent. However, pathogens can be spread by water splashed from sinks, so water pressure should be optimized and flow should be offset from the drain. Some studies have shown that sinks designated for handwashing, and not for patient use, improved hygiene.

Valves within faucets that automatically turn on and off by themselves have been shown to contribute to pathogen transmission, even though the design intention is to reduce transmission by negating the need for users to touch the handle. These faucets may have low flow, tepid temperature and internal components (valves) that may harbor biofilm, which can contribute to microbial amplification.

Paper towels are preferable to warm-air blowers for drying hands, because the towels can be used to turn off the faucet after use and the blowers may spread pathogens. However, pathogens can be spread by contaminated towel dispensers.

Availability of alcohol-based hand rub dispensers has been shown to improve hand hygiene compliance. The optimal location for dispensers appears to be just outside the doorways to patient rooms. In that location, the dispenser is typically highly visible, it is on the route of the caregiver, and the action of entering the room is a trigger for the caregiver to perform hand hygiene. Dispensers immediately near or on patient beds also help compliance. The design of the dispenser also is important – a bright color and a design that differentiates the hand rub dispenser from soap dispensers improve usage.

Designers should consider human factors when designing hand hygiene facilities. These principles can be put into effect in the following ways:

- Minimize the complexity of hand hygiene.
- Provide design features that force appropriate behaviors.
- Minimize the time spent on hand hygiene.
- Provide cues to prompt hand hygiene.
- Assess the usability of new hand hygiene systems.
- Test new systems in real-life conditions.

Best practices related to the design of hand hygiene facilities include:

- Ensure handwashing sinks are separate from patient-use sinks and are not used for waste disposal. Handwashing sink placement should be near the point of care.
- Ensure adequate space between areas used for medical preparation, and use splash guards where appropriate.
- Faucets should be operable without using hands, such as with foot controls or wrist

blades, and the water should angle away from the drain and flow at moderate pressure to minimize splashing.

- Choose paper towel dispensers that can be operated without touching, and avoid warm air dryers where noise or dispersion of bacteria would present patient risk.
- Install alcohol-based hand rub dispensers at patient room doors and at every bed.
- Evaluate the location of soap and glove dispensers at the hand hygiene sink during design.
- Ensure adequate space for waste containers is provided at the hand hygiene sink.
- During the design process, make hand hygiene processes an explicit point of concern.