There is a significant body of evidence on how handwashing can reduce the spread of Hospital Acquired Infections (HAI). The directive for design is to aid handwashing compliance by the design and placement of sinks. This study is one of the earliest studies that links how access to sinks can increase handwashing compliance.

A graduate student observed personnel in a medical and surgical ICU at a teaching hospital. The medical ICU contained seven beds and seven sinks in an open unit. The 16 bed ICU unit contained four isolation rooms with separate sinks and 12 beds in an open unit with access to three sinks.

Staff were not told the purpose of the study to ensure that their behavior was not biased. Physicians, nurses and technicians were surveyed and a record was made of all handwashing after direct contact with patients or their support equipment. Number of patients were not counted, only the number of contacts. Six periods of observation, lasting 3 hours each, were conducted between 6:30 am and 9:30 am which allowed the observation of two shifts. Personnel were observed from the moment of their first interaction with a patient up to and including the first activity not including the observed patient. Only the number of handwashes was recorded; handwashing technique was not evaluated.

8 physicians, 30 nurses and 4 technicians were observed. The medical ICU nursing personnel washed their hands more frequently (76%) compared with the surgical ICU nurses (51%). The difference was statistically significant. Physician
handwashing was lower than nursing. Overall there were significantly greater number of handwashes per contact in the medical ICU where more sinks were available, based on observations of nursing personnel (physicians and other personnel were not included because of their low numbers).

**Limitations**

The study is an old one and today a 1:1 ratio for bed to sink has become the norm. It is of value however to understand the origins of the norm.

The study does not give a lot of detail on how only one graduate student managed to observe so many beds and handwashing locations. No plan is provided for the reader to understand the spatial layout and if distances and location, in addition to the ration, may play a role in compliance.

**Design Implications**

- It is important to have a 1:1 bed to sink ratio
- Accessibility to sinks will improve handwashing compliance
- Physican compliance is lower than nursing compliance so special thought must be given to design from a physician's perspective.