An Indirect Method of Assessment of Hand Hygiene: Simple, Easy and Fairly Predictive

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Healthcare associated infections (HCAs) are of major concern in modern days even though there is significant advancement in medical care and life support system. HCAs lead to prolonged hospital stay, increased development of resistant microorganisms to antimicrobials, additional financial burden for patients, increased mortality and other resources. Although the risk of acquiring HCAs is universal and affects every health-care facility and system around the world, the global burden is unknown because of the difficulty of gathering reliable diagnostic data. Overall estimates indicate that more than 1.4 million patients worldwide are affected at any time. In developed countries, HCAs concerns 5–15% of hospitalized patients and 9–37% of those admitted to intensive care units (ICUs). Mortality due to HCAs in Europe is estimated to be 1% (50 000 deaths per year), but HCAs contributes to death worldwide in at least 2.7% of cases (135 000 deaths per year). The estimated HCAs incidence rate in the USA was 4.5% in 2002, corresponding to 9.3 infections per 1000 patient-days and 1.7 million affected patients; approximately 99,000 deaths were attributed to HCAs. The importance of hand hygiene in preventing health care associated infections has been well known since the study carried out by Semmelweis in 1844. For generations, hand washing with soap and water has been considered a measure of personal hygiene. Hand-hygiene promotion has been challenging for >150 years. There is a temporal relationship between improved hand-hygiene practices and reduced infection rates. We have very little data available on hand hygiene practices among healthcare personnel in India. Hand hygiene performance in health care can be monitored directly or indirectly. Direct methods include direct observation, patient assessment or HCW self-reporting. Indirect methods include monitoring consumption of products, such as soap or handrub, and automated monitoring of the use of sinks and handrub dispensers.

This issue of JAPI has published an article by Chakravarthy M. and coauthors looking at correlation of indirect method of hand hygiene monitoring and HCAs. They showed a decrease in HCAs with increase in use of hand rubs and tissue paper towel. The incidence of hospital-acquired infection was 8.5 ± 6.7 (range 2 – 27) per month. This wide range could be due to wide variation in hospital occupancy during study period as their institute started a year before current study. Author could give us a clear picture by analyzing number of hospital occupancy with frequency of hand hygiene measured by indirect method and frequency of HCAs. Secondly information on HCAs in different ICUs, wards and level of hand hygiene is not described. This can give us an important information on level of hand hygiene and HCAs in medical vs surgical vs pediatric ICUs. Another Indian study carried out during same time period (July 2007 to April 2008) in different wards and ICUs, at teaching hospital in Gujarat found incidence of HCAs for catheter associated urinary tract infection, catheter related blood stream infection, and ventilator associated pneumonia was 0.6, 0.48, and 21.92 per 1000 device days respectively. Author in this study also concludes that duration of indwelling devices was found to be the major risk factor for acquiring device associated infections.

Limitations of study done by Chakravarthy M. are assumptions used in study as described by authors and other limitations are associated with the indirect method used to assess level of hand hygiene like it cannot determine if hand hygiene actions were performed at the right moment during care or if the technique was correct. Another important consideration could be the amount of alcohol-based handrub used may not exactly reflect the product consumption by health care workers, as it could include the amount used by visitors or patients, especially if the dispensers are located also in public areas of the health-care setting and they are wall-mounted.

However this method is simple, can be continuous, and provide a global picture that remains unaffected by selection or observer bias and, most likely, observation bias. This study also gives important message and need to implement simple and effective monitoring method to monitor level of hand hygiene by health care workers.

Direct observation that is detection of hand hygiene compliance by a validated observer is currently considered the gold standard in hand hygiene compliance monitoring. Trained and validated observers usually perform observations. Drawback of direct observation are (1) It is time-consuming, (2) Skilled and validated observers are required, (3) Prone to observation, observer, and selection bias.

Experts have used the consumption of hand hygiene products such as paper towels, alcohol-based handrub or liquid soap to estimate the number of hand hygiene actions. To make these monitoring techniques more meaningful, the quantity of handrub was translated into a number of hand hygiene actions by using the average amount per action as a divider. Some studies have shown that the consumption of products used for hand hygiene correlated with observed hand hygiene compliance, whereas others have not. Thus, the use of this measure as a surrogate for monitoring hand hygiene practices deserves further validation. Other studies found that feedback based on measured soap and paper towel consumption did not have an impact on hand hygiene.

The take home message from this study is, increase in hand hygiene reduces the HCAs.

References


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