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Hand Hygiene Product Volume Measurement: An Integral Part of a Multiple-Method Program

To the Editor—We all agree there needs to be better standardization of the methods for measuring hand hygiene (HH) compliance. However, we must also recognize that compliance with HH is measured in many ways, and there are advantages and disadvantages to the most common methods. In the March 2010 issue of the journal, Erasmus et al[1] conducted a meta-analysis of HH compliance studies and focused their review on observation and self-reporting methodologies. They excluded another major method for measuring compliance, product volume monitoring (PVM), noting that "[it did] not provide valid information on compliance" (p 289). We believe that this reasoning does not recognize the advantages and appropriate implementation of PVM.

A valid assessment is defined as one that measures what it is intended to measure. PVM is intended to measure HH episodes—or, simply put, how many times healthcare workers get to the sink. It measures what it is intended to measure and, as such, should be considered a valid component of a multiple-method measurement program.

In comparison with the other methods of compliance measurement, PVM is not designed to measure the who, when, and where of HH, which are determined by observation. Therefore, it may be misleading to report that PVM is not valid because it does not measure the same outcomes as observation. PVM is used to gather data that can be used as a surrogate for data missed by the shortcomings of observation, such as biased reporting or small sample size. (PVM results in unbiased reporting and encompasses a much larger sample size.) When used in combination with observation, the advantages of one method compensate for the disadvantages of the other. Other research suggests a strong correlation between HH compliance and availability of feedback on compliance via PVM.[2,3]

We agree with the authors that there needs to be more research on the behaviors that lead to increased HH compliance, and we note that there have been several studies of patient empowerment and involvement and their effect on HH compliance.[4,5] In 2009, a comprehensive literature review on patient empowerment and HH compliance was published as part of the World Health Organization's First Global Patient Safety Challenge; it is included in the *WHO Guidelines on Hand Hygiene in Healthcare.*[6] It was found that the most significant determinant of patient empowerment and HH compliance was to have healthcare workers give explicit direction to patients to remind them about HH.

We hope your readers consider these points on PVM when evaluating HH compliance measurement programs in their future research and practice.

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Reply to McGuckin and Govednik

To the Editor—Hand hygiene compliance is defined as the number of times hand hygiene is performed divided by the number of hand hygiene opportunities, as defined by a rule or guideline.[1] This provides information about how often hand hygiene is performed, but only at those times *when this should have been the case.* If a healthcare worker performs hand hygiene without there being an opportunity, this measurement is not included in the equation. In this way, compliance gives a bare indication of whether people are following (complying with) the rule or violating it.

Hand hygiene product volume measurement (PVM) provides insight into the amount of product you are using but not into whether you are using it when you should. PVM is indeed a valid assessment of the frequency of hand hygiene, but this is only the numerator. For this reason, its results cannot be used as a measure for compliance. This would change should you have information on how much product you should have used. However, because this was not the case in the studies reviewed, PVM was excluded from our analysis—as, indeed, were studies that had measured only frequency of hand hygiene by some other means.

We agree with McGuckin and Govednik[2] that PVM provides many advantages in healthcare improvement packages, particularly when it comes to practicality of use and long-term implementation. Observation studies are expensive and time consuming, and much effort must be made to avoid biases in the data created by the Hawthorne effect. Use of PVM information as an indication for frequency performance feedback can be a valuable addition to a hand hygiene promotion campaign. However, if the research question is related to whether healthcare workers are adhering to the guideline, compliance must be measured to provide an answer.[1]

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An Integrated Clinical Microbiology Service Ensures Optimal Early Empirical Antimicrobial Therapy for Methicillin-Resistant *Staphylococcus aureus* Bloodstream Infection

To the Editor—We read with interest the article by Herzke et al[1] about empirical antimicrobial therapy for bloodstream infection (BSI) due to methicillin-resistant *Staphylococcus aureus* (MRSA). In that study, slightly more than one-half (51.8%) of the patients with MRSA BSI received appropriate empirical therapy. We find this surprising, given that among hospitalized patients, MRSA is the causative organism in up to 20% of BSIs[2] and bearing in mind the well-documented excess mortality for MRSA BSI, compared with methicillin-susceptible *S. aureus* BSI, and findings that improved survival is associated with early appropriate treatment in MRSA BSI.[3]

We reviewed data from patients at Beaumont Hospital (Dublin, Ireland), a 759-bed tertiary care referral hospital with a number of national specialties. Patients whose records were reviewed had *S. aureus* BSI during the period from 2007 through 2009. MRSA accounted for 39% of all *S. aureus* BSIs in 2007, for 34% in 2008, and for 19% in 2009—figures comparable to Irish and UK national data.[4] There were 103 patients with documented MRSA BSI. Eighty-three medical records were available for review, and we noted the antibiotic treatment received in the first 24 hours after suspected *S. aureus* was detected in blood cultures. Final identification and susceptibility data were usually available within the subsequent 24 hours. Only data on the initial MRSA BSI for each patient were included. In each case, the team managing the patient was contacted by the clinical microbiology service when gram-positive cocci were visualized in blood samples and again the following day, when presumptive *S. aureus* was