Performance indicators and the public reporting of healthcare-associated infection rates

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ABSTRACT

Surveillance of healthcare-associated infections (HCAIs) makes evident the importance of the quality of patient care, and the increasing demand for public reporting of HCAI surveillance data and related quality indicators is thus not surprising. However, there is little evidence that public reporting results in improved patient care. Debate continues about which HCAI-related indicators are the best measures of performance and thus the most appropriate for public reporting. Suitable indicators should allow improvements leading to better patient outcomes, and should be comparable among hospitals and countries. Appropriate examples include central vascular catheter infections, surgical prophylaxis and surgical site infections.

Keywords healthcare-associated infection, performance indicators, quality, safety, surgical prophylaxis, surgical site infections, vascular catheter infections

Clin Microbiol Infect 2008; 14: 892–894

Healthcare-associated infections (HCAIs) should be considered as adverse events arising from specific interventions or arising during residence in acute-care hospitals and other healthcare settings, e.g. nursing homes. Studies indicate that 5–10% of patients admitted to an acute-care hospital develop an HCAI; Harbarth and colleagues have suggested that 10–70% of these are preventable [1].

Increasingly, surveillance systems are making evident the importance of quality and the way in which surveillance data can reflect the level of safety, or the absence of safety, in patient care [2]. For example, the introduction of a quality initiative involving multidisciplinary ward rounds, daily meetings to assess bed availability, the implementation of healthcare bundles and culture changes, in a combined medical and surgical intensive care unit (ICU), resulted in reduced ICU stay, decreased rates of ventilator-associated pneumonia (VAP) and fewer other adverse events [3]. Similar improvements in outcome have been demonstrated with initiatives targeting antibiotic prophylaxis in surgical centres [4] and prudent antibiotic prescribing practice in hospitals [5]. A multidisciplinary initiative resulted in a reduction in HCAIs, including infections caused by methicillin-resistant *Staphylococcus aureus*, and this was associated with an increase in the use of alcohol-based hand disinfectants [6]. Likewise, improvements in hand hygiene practice, in conjunction with other interventions, e.g. reducing the duration of and choosing the correct site for intravascular catheterization, in the form of healthcare bundles, significantly reduced catheter-related bloodstream infections in the ICU [7].

Given the impact of surveillance and patient safety initiatives, it is not surprising that there is an increasing demand for public reporting of surveillance data concerning HCAIs and related quality indicators. It is often assumed that public reporting of such data will serve as an incentive for hospitals to reduce rates of HCAI, but there is little evidence to support this assumption [8]. A systematic review, on behalf of the Healthcare Infection Control Practices Advisory Committee, USA, found inconclusive evidence of the effectiveness of public reporting in improving health-
care, but no study investigated reductions in HCAI as an outcome of public reporting [9]. A more recent systematic review did not demonstrate improvements in clinical outcomes associated with the publication of patient care performance data, but did find an association with increased quality improvement measures in hospitals [10]. Potential disadvantages of the public disclosure of patient care performance data have been reported, however, including an inappropriate focus on what is being assessed [11], and the avoidance of invasive procedures in high-risk patients where they may have been warranted [10].

Another rationale for the public reporting of rates of HCAIs and performance indicators is to inform consumer choice. In the USA, a number of states have introduced mandatory public reporting of such data, based on the model Hospital Infection Disclosure Act, developed by the Consumers Union (http://www.consumersunion.org). There is, however, little evidence that patients, as consumers, use such data to make informed choices about accessing healthcare [12].

Despite the lack of evidence of effectiveness, many agree that the public have a right to information on HCAIs and related quality indicators. It is important, however, that this information is meaningful and appropriate. Furthermore, the provision of quality indicators concerning HCAIs should be underpinned by microbiology laboratories that can avail themselves of new technologies and laboratory-based reporting systems [13].

The HCAI reporting systems mandated by state legislatures in the USA have been criticized as being costly, with considerable resources being dedicated to hospital-wide surveillance, and the collection of data on non-preventable HCAIs [14]. Other jurisdictions have attempted to report more meaningful data to clinicians, health system managers and the public. In France a ‘composite indicator’, based on 31 process and outcome indicators that include infection prevention and control resources, provides a percentage score, and is used for public reporting of HCAI-related data (http://www.sante.gouv.fr). In the UK, individual hospitals are assessed using a ‘balanced scorecard’ with colour coding to summarize the level of compliance with elements of the ‘Saving Lives’ programme (UK Department of Health, http://www.dh.gov.uk).

There is still considerable debate about which HCAI-related indicators are the most appropriate measures of healthcare performance and thus the most appropriate for publication. To date, most of these relate to acute-care hospitals and not necessarily to other healthcare settings. In 2004, the Institute for Healthcare Improvement in the USA launched the 100 000 Lives Campaign, an initiative to save lives in hospitals through improvements in patient safety [15]. Three of the six initiatives relate to the prevention of infection, i.e. central-line infections, surgical site infections (SSIs) and VAP [15]. The Surgical Care Improvement Project, USA, has identified four areas that require improvement, two of which relate to infection, i.e. SSIs and the prevention of respiratory complications [16]. Klompas and Platt argue, however, that VAP is inappropriate because of difficulties in confirming the diagnosis and because even the CDC definitions of VAP are relatively subjective [17]. Similarly, where there is more than one set of quality parameters, there can be confusion about how best to comply. Fong et al. compared three sets of healthcare bundles for severe sepsis, and investigated the factors influencing variability in compliance rates [18]. Compliance with 50% or more of the quality indicators was more likely to occur when patients were in shock, when patients had an APACHE II score ≥25, when two or more organs were failing in a patient, and when patients survived hospitalization [18]. There needs to be clarity in identifying the parameters that are important when reporting quality indicators, and these should reflect the measures most likely to benefit patient care.

Most surveillance systems do have an impact on rates of HCAI and, despite the lack of evidence showing that the public release of data results in lower infection rates, it is likely that there will be increasing demands for such public release. Consequently, when national and other bodies are considering which performance indicators to publish, they should choose meaningful parameters that can be compared among hospitals and countries, and parameters that are likely to allow improvements resulting in better patient outcomes, e.g. those concerning central vascular catheter infections, surgical prophylaxis and SSIs [9]. There is a need for national and European consensus on which data are most important, and how such data can be collected, to improve the
quality of care and to facilitate benchmarking among countries. The decrease in rates of methicillin-resistant *Staphylococcus aureus* bloodstream infection seen in Slovenia and France, as recorded in the European Antimicrobial Resistance Surveillance System, illustrates how benchmarking among countries can contribute to improvements. European agencies should be mindful of the potential impact that such initiatives can have and not hesitate in taking initiatives.

**TRANSPARENCY DECLARATION**

H. Humphreys is in receipt of research funding from Steris Ltd, 3M and Inov8 Science Ltd. He has also received lecture fees from 3M and Novartis Ireland Limited. R. Cunney declares no dual interests.

**REFERENCES**