Methicillin-resistant *Staphylococcus aureus* (MRSA): "missing the wood for the trees"

Peter J Collignon

Hand hygiene should be the highest priority

In this issue of the Journal (*page 5*) there is yet another article showing that methicillin-resistant *Staphylococcus aureus* (MRSA) can easily be found on environmental surfaces — this time on identity badges and lanyards.[1] This adds to an increasing array of items such as neckties, stethoscopes, pens, computer keyboards and coats that can be colonised by pathogenic bacteria (although usually only in low numbers).

While it is helpful to know all the places we may find MRSA, these types of studies really just confirm what should be blindingly obvious — that MRSA readily disseminates within our health care environment. Thus, the hands of health care workers will frequently come into contact with MRSA.

The real issue with the control of MRSA is not the need for more information on environmental contamination, but the need to use the abundant information we already have to curtail the *principal* way that MRSA spreads in hospitals — via the hands of health care workers.[2-4]

Our inability to adequately address the key issues[2] means that, increasingly, others will intervene, sometimes with mistaken emphasis and priorities. The United Kingdom has just mandated a "bare below the elbows" dress code in its hospitals.[5] This means no more coats or even wristwatches, despite a lack of evidence that these items play a major role in transmitting MRSA. The UK Prime Minister has called for better cleaning of wards, in the belief that this is the key to controlling MRSA.[5] While there is some merit in these proposals, they are focusing on elements that are minor compared with the most important one — how best to stop MRSA spreading via hands.

We already know more than enough to control MRSA.[2] If we use regular hand hygiene procedures with alcohol/disinfectant solutions we can reduce serious infections caused by MRSA. Better screening policies will identify people carrying MRSA and help to keep them away from those not already carrying the organism. If we wear appropriate gowns and gloves when dealing with patients (especially those known to have MRSA), then clothing and other inanimate articles will less often become contaminated with MRSA. Having more single rooms in hospitals and reducing overcrowding in emergency departments and other areas will make it easier to separate patients with MRSA from those without. We need to follow "isolation" rules, such as preventing staff from bringing their own stethoscopes or other equipment into a room where a patient with MRSA is being cared for. If we use hand hygiene procedures before and after seeing each patient, even if our hands have been in contact with MRSA on an inanimate surface, any MRSA organisms should be killed before our hands transmit them to patients. The question is, how do we change our current work practices and behaviour to ensure that these important elements are followed, not just *some* of the time but *all* the time?

We don't need more environmental-type studies without clinical endpoints. We need studies in which we intervene and show that the interventions reduce the number of people infected with MRSA.[3,4] Surprisingly, there are few such studies, which is likely a reflection of how we regard quality improvement (QI) programs. QI research is not "sexy". It is often difficult to attract funding for QI studies and get them published, because the realities of clinical practice mean that it is frequently hard to control all variables. Nevertheless, it is peer-reviewed QI programs with successful interventions that are most likely to lead to long-term reductions in MRSA infections.

MRSA is a major and increasing problem worldwide. Unfortunately, the extent of infections caused by MRSA is not measured consistently or accurately (and often not at all). Timely data are not readily available for the vast majority of Australian hospitals. In England, it was mandated in April 2001 that all MRSA bacteraemia episodes be notified.[6] Data from individual hospital trusts are now accessible on the Internet.[7] While making the data available has generated disagreements,[8,9] this intervention coincided with the first sustained year-by-year fall in the number of MRSA bacteraemia episodes (from 7700 in 2003–04 to 6378 in 2006–07).

In Australia, over 4500 episodes of health care-related *S. aureus* bacteraemia occur per year.[10] Of those, about 2000 episodes involve MRSA, with a 35% mortality rate. We need the health care profession to better define the extent of disease caused by MRSA and other serious pathogens using practical and robust outcome measures.[7,11] Data from a broad range of institutions need to be made available to enable meaningful comparisons, so that institutions with higher rates of infection can learn from their colleagues with lower rates. Hospital managers need to be part of this process.

We also need to ensure that we not only measure what is going on, but, more importantly, do something about it.[11] It is possible for us to achieve much better control of MRSA. Denmark, The Netherlands and Western Australia, for example, have kept the number of health care-acquired MRSA infections down to low levels.[2]

We know what the problem is. What we appear to lack is an understanding of human behaviour and the political and medical will to really do something about it. It is time to change. We have been missing the big picture for too long.

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