treatment). Thus, although the results of the Honeypot study[1] show the efficacy of mupirocin versus Medihoney, the important question of whether patients with a healthy catheter exit site for peritoneal dialysis should receive prophylactic treatment remains to be addressed. In our view, and according to the principle of primum non nocere (first do no harm), the key to preservation of exit-site integrity is optimal catheter fixation and avoidance of unnecessary manipulations. We realise, however, that this approach of let nature do the work is difficult to assess in a randomised controlled trial and probably not endorsed in modern medicine.

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Antimicrobial resistance in intensive care units

More than two-thirds of cases of ICU-acquired bacteraemia are caused by multidrug-resistant or extensively drug-resistant bacteria.[1] Although the prevalence of meticillin-resistant *Staphylococcus aureus* is decreasing, glycopeptide-resistant enterococci, extended-spectrum β-lactamase-producing Enterobacteriaceae, and Gram-negative bacteria resistant to carbapenems have become a cause for concern.[2] The effectiveness of universal strategies based on hand hygiene and decolonisation or active surveillance culture and contact precautions for the control of multidrug-resistant bacteria in ICUs is unclear.

Active surveillance with contact precautions for carriers was effective for controlling meticillin-resistant *S aureus* in one study[3] but not in another,[4] despite use of similar interventions. However, the negative study had several flaws,[4] whereas the other was quasi-experimental, with other interventions possibly accounting for the effect.[3] Universal decolonisation with chlorhexidine body-washing—with[5] or without[6] nasal mupirocin—can decrease acquisition of meticillin-resistant *S aureus* and glycopeptide-resistant enterococci, with some reduction in infections. These studies raised more questions than they answered, did not address the spread of resistant Gram-negative bacteria, and collected, at best, incomplete data for compliance with hand hygiene and contact precautions.

In *The Lancet Infectious Diseases*, Lennie Derde and colleagues[7] report a sophisticated and ambitious study, with epidemiological and statistical analysis of 13 European ICUs, involving almost 9000 patients and more than 40 000 hand-hygiene opportunities. The researchers aimed to answer two major questions. Should we use a universal approach—ie, improving hand hygiene and chlorhexidine body-washing or a strategy of active surveillance with contact precautions for carriers? And which bacteria will be affected?


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The acquisition rate of extended-spectrum β lactamase-producing Enterobacteriaceae (n=1966) was much higher than that of vancomycin-resistant enterococci (n=346) or meticillin-resistant *S aureus* (n=508). The universal strategy was effective for controlling meticillin-resistant *S aureus* with no additional efficacy from active surveillance with contact precautions. But no reduction occurred with any type of intervention for highly resistant Enterobacteriaceae (mostly extended-spectrum β lactamase-producing Enterobacteriaceae) despite an impressive hand-hygiene compliance of 77%.

How can we explain the failure to control extended-spectrum β lactamase-producing Enterobacteriaceae? First, 77% compliance might not be high enough in view of the high prevalence of extended-spectrum β lactamase-producing Enterobacteriaceae at admission, the high colonisation pressure, and the ease of cross-transmission. However, higher compliance would be very difficult to achieve, perhaps impossible, in routine clinical practice.

Second, some factors that drive the spread of extended-spectrum β lactamase-producing Enterobacteriaceae were not taken into account, such as other routes of transmission and the role of antimicrobial selective pressure. Indeed, mathematical modelling suggested differences in the predominant routes of acquisition of different multidrug-resistant bacteria, with highly resistant Enterobacteriaceae possibly originating from an endogenous source, whereas meticillin-resistant *S aureus* is predominantly acquired through cross-transmission.[8] Finally, different epidemiological features at each centre could be a result of levels of compliance with the prevention programme, in addition to compliance with hand hygiene.

The combined effect of improving hand hygiene and chlorhexidine body-washing helped to control meticillin-resistant *S aureus*, but which part of the intervention was effective is unclear. Other studies suggest that universal chlorhexidine body-washing can control transmission of meticillin-resistant *S aureus* and glycopeptide-resistant enterococci.[6,9,10] Anecdotally, chlorhexidine body-washing was not effective for control of highly resistant Enterobacteriaceae.

Active surveillance by culture with contact precautions for carriers of meticillin-resistant *S aureus* identified either by conventional or rapid PCR screening had no incremental effect on acquisition. The cost-benefit balance of isolating ICU patients is still controversial,[11,12] and this result raises many methodological questions that need to be answered before contact isolation is abandoned. Active surveillance with contact precautions was added in the third phase of the study, but was done in several ICUs during the first two phases. Moreover, compliance with contact isolation was not assessed. Because only 18% of rooms were single, contact isolation precaution might have been difficult to implement immediately. All rooms in new ICUs should be single rooms.[13] Finally, the lack of contribution of active surveillance with contact precautions might be partly explained by the high hand-hygiene compliance.

In conclusion, this pragmatic study provides important evidence for systematically including hand-hygiene strategies in any programme to control multidrug-resistant bacteria. The absence of an effect on antibiotic-resistant Gram-negative bacteria is worrisome. Strategies to prevent overgrowth of endogenous flora—such as selective digestive decontamination—should be investigated[14] although results of preliminary studies are unclear.[15] Methods to reduce antibiotic selection pressure should also be explored.

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The HIV care cascade through time

HIV care and treatment can prevent morbidity, mortality, and virus transmission. Optimum care for individuals and communities of people living with HIV involves identification of infected individuals, linkage to initial HIV care, long-term retention in care, and treatment adherence—the so-called cascade of care.[1] However, in many settings, the scope of the cascade is such that few patients actually achieve undetectable viral loads, the end goal of engagement in care. Understanding how to measure and intervene to improve engagement in HIV care is a subject of intense debate.

In *The Lancet Infectious Diseases*, Bohdan Nosyk and colleagues[2] from the STOP HIV/AIDS Study Group chart the longitudinal changes in the cascade of HIV care in British Columbia, Canada, from 1996 to 2011. Their study is the first longitudinal examination of the HIV care cascade. The investigators assessed the numbers and proportions of individuals in eight distinct stages of the cascade: HIV infected, diagnosed, linked to HIV care, retained in care, antiretroviral treatment indicated, receiving antiretroviral treatment, adherent to antiretroviral treatment, and virologically suppressed.

The study's strengths derive from the extensive use of comprehensive linked databases from national and provincial health programmes, and population-based registries from the BC Centre of Excellence in HIV/AIDS (Vancouver, BC, Canada)—the sole provincial agency providing HIV diagnostic testing and distribution of all antiretroviral drugs. Additional information was derived from provincial hospital, pharmacy, and vital statistics databases. The analysis shows that overall engagement in care and use of antiretroviral treatment improved between 1996 and 2011, but that substantial numbers of individuals are still lost from each step of the cascade. In 2011, an estimated 29% of HIV-infected individuals remained undiagnosed, an additional 4–10% were not linked to HIV care, and another 20% were not retained in care. Overall, viral suppression increased from 1% to 35% of the HIV-infected population over the study period.

Nosyk and colleagues' study shows us the value of looking longitudinally at the use of HIV care. Although changing standards for when to begin antiretroviral treatment limit the ability to analyse trends in viral suppression over time, increasing numbers of individuals are achieving this important benchmark. However, only a minority of HIV-infected individuals in British Columbia are virologically suppressed, and this finding is surprising and disappointing. As the investigators suggest, emigration from the province might account for some losses to follow-up; in a recent US study,[3] about 15% of individuals emigrated from the state in which they were diagnosed during 3–5 years of follow-up. Other potential losses of data in British Columbia, such as receiving care through participation in clinical trials, seem to have had little effect on estimates of viral suppression.

The implications of persistent gaps in cascade steps before administration of antiretroviral treatment and viral suppression are particularly worrying. Compared with research from the USA,[1,4] the investigators in British Columbia report fairly similar proportions of HIV underdiagnosis, linkage to care, and retention in care.

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