more than two decades ago. However, it has gained huge prominence in the vascular catheter community, has been cited more than 400 times, and was influential in helping to shape catheter guidelines around the world.1–3 Practically everyone who read and cited it believes that it unequivocally shows that chlorhexidine is better than either of the two competitors. We do not support this conclusion based on the evidence presented in the Article. We declare no competing interests.

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Author’s reply

We stand by the findings and conclusions of our Article.1 Cutaneous antisepsis with the 2% aqueous chlorhexidine solution studied was statistically superior to 70% isopropyl alcohol or 10% povidone-iodine for prevention of catheter-related bloodstream infection (CRBSI) with short-term non-cuffed vascular catheters in an intensive care unit.

We made no claim that chlorhexidine was superior to isopropyl alcohol or povidone-iodine individually, although strong trends were found showing much less local catheter-related infection—the prelude to CRBSI—with chlorhexidine than each of the other two agents. We also made no claims about alcoholic solutions of chlorhexidine, the only form of chlorhexidine currently approved and commercially available for vascular access in the USA. We believe that 1–2% aqueous chlorhexidine is as effective as 1–2% chlorhexidine in isopropyl alcohol, but we agree with Maiwald and colleagues that adequate studies to support or reject this hypothesis have not yet been done. Chlorhexidine in an alcoholic solution, however, is clearly superior to povidone-iodine for prevention of vascular catheter-related bloodstream infection.1–3

Maiwald and colleagues have been arguing since 2010 that the fact that isopropyl alcohol is in alcoholic solutions of chlorhexidine is the main reason why it is better than povidone-iodine, and infer that isopropyl alcohol alone might be the best cutaneous antiseptic for prevention of vascular CRBSI, but provide no outcome study data; rather, they publish repeated critiques of the studies of chlorhexidine, including ours.1, 2, 3 They should test their belief in the comparable effectiveness of 70% isopropyl alcohol to 2% aqueous chlorhexidine or 2% chlorhexidine in isopropyl alcohol in an adequately powered randomised clinical trial.

If such a study was done, we would predict that 2% chlorhexidine, even in an aqueous solution, would prove superior to isopropyl alcohol alone because of the prolonged anti-infective activity chlorhexidine exerts at the skin surface after application, which is not seen with isopropyl alcohol because the anti-infective activity of alcohol ceases as soon as it has evaporated. This attribute of chlorhexidine is unique and we believe clinically highly relevant. Application of an aqueous chlorhexidine-impregnated dressing about the catheter immediately after insertion has been shown conclusively in large trials to substantially reduce the incidence of CRBSI,1 strongly affirming the importance of long-term antisepctic activity at the insertion site for maximum protection against CRBSI with short-term, non-cuffed catheters and the effectiveness of aqueous chlorhexidine.

Moreover, scheduled oral care with aqueous chlorhexidine has been shown in randomised trials to significantly reduce the incidence of
ventilator-associated pneumonia, and scheduled total body bathing of patients in intensive care units with aqueous chlorhexidine has been shown in large multicentre randomised trials to independently reduce incidence of central venous CRBSI and surface colonisation by methicillin-resistant Staphylococcus aureus and other multidrug-resistant nosocomial pathogens. As we concluded in our Article, “we do not claim to have answered the question of which is the most effective antiseptic for cutaneous disinfection with vascular catheters...we strongly encourage other investigators to examine this important issue in randomised clinical trials...”

I declare no competing interests.

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Chronic whiplash-associated disorders

We read the Article from Zoe Michaleff and colleagues (July 12, p 133) on different physiotherapeutic regimens in chronic whiplash-associated disorders (cWAD) with great interest. Any treatment concept must be a trial-and-error process as long as the mechanism of action is not understood. How can an injury caused by a low velocity accident trigger such a broad variety of symptoms? The many positron and single-photon emission tomography studies of the brain and cervical soft tissue in patients with cWAD are inconclusive in terms of the mechanism of action of this disease. They only show indirect effects—ie, the reaction to the trauma (musculoskeletal inflammation or hypoperfusion of the posterior parietal occipital region), but not the origin. There are three main hypotheses regarding the origin: first, is the hypothesis that whiplash does not exist. The second is the nociceptive-vascular hypothesis. According to Moskowitz and Buzzi, there is a widespread effect on local vasoactive peptides and the cranial vascular system, caused by stimulation of pain-sensitive afferents in the trigeminal system. The third hypothesis is the midbrain hypothesis. Vállez García and colleagues reported that there is a mismatch between aberrant information from the neck muscles and the vestibular and visual systems, which is integrated in the mesencephalic periaqueductal gray and adjacent regions. The fact that there is no accepted concept or proof for what causes the symptoms leads to endless discussion about this condition. Moreover, as long as we treat only some aspects of the various symptoms of this syndrome there will be no substantial treatment effect either.

We declare no competing interests.

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Equity in health care in Nepal

While the Asian hubs for medical tourism such as India, Malaysia, Singapore, and Thailand continue to harvest increasing revenues from exports of health services, some Nepalese political elites, including some of the most influential leaders, fly abroad to receive medical treatment. Although healthy leaders might be a prerequisite for a healthy nation, trends such as politicians travelling to foreign countries for costly health care negatively affect the national economy, seriously undermine local expertise, and most importantly, contribute to inequity in health care.

The effect of medical tourism on the public health equity of the exporting

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