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Letter to the Editor

Prevention of deep sternal wound infections in cardiac surgery — reply to Vos *et al.*

Sir,

We have read with interest the article by Vos *et al.* [1] which identifies several measures for the prevention of deep sternal wound infections (DSWIs). The specific measures with supporting evidence were: antibiotic prophylaxis with a first-generation cephalosporin for at least 24 h, application of local gentamicin sponges, sternal closure with figure-of-eight steel wires, and postoperative corset or vest. The authors also concluded that clinical guidelines for the prevention of surgical site infections (SSIs) should be updated to include such suggestions.

We would definitely encourage the uptake of such recommendations in clinical guidelines, although the recommendation for prophylaxis with a first-generation cephalosporin has limited evidence to support it. However, we would also like to add some further clarifications. New guidelines from the National Institute for Health and Care Excellence (NICE) on the prevention of SSIs will be published soon [2]. These will cover SSIs in general and will not focus solely on DSWIs. The evidence on gentamicin sponges was highlighted in the 2017 surveillance report [3], and this has been considered in the guideline update. The draft updated guideline advocated sponges as a 'consider' recommendation. The use of 'consider' generally reflects a recommendation for which the evidence of benefit is less certain, in contrast with an 'offer' recommendation where there is clear evidence of benefit.

We appreciate the limitations of gaining significant evidence to support specific interventions in a specialty such as cardiothoracic surgery. However, we believe that other interventions, for which there is strong evidence in general, should also be considered for the prevention of DSWIs.

The authors mentioned that no specific skin antiseptic has been found to be superior for the decontamination of skin before surgery. The majority of studies which have been undertaken are not powered to support such an intervention, but one study [4] has shown moderate-quality evidence to indicate that patients who received 2% chlorhexidine gluconate (CHG) with 70% alcohol for skin preparation before incision had a lower incidence of SSIs (superficial and deep incisional) compared with those who received aqueous povidone iodine scrub (7.5%) and paint (10%). The new World Health Organization (WHO) guidelines [5] also recommend the use of alcohol-based antiseptic solutions based on CHG for surgical site skin preparation.

We encountered the same issue when considering decolonization of nasal *Staphylococcus aureus* carriage. Mupirocin in combination with CHG body wash has been shown to significantly reduce the incidence of SSIs caused by *S. aureus* [6]. The WHO guidelines [5] recommend that patients undergoing cardiothoracic and orthopaedic surgery, with known nasal carriage of *S. aureus*, should receive perioperative intranasal applications of mupirocin 2% ointment with or without a combination of CHG body wash.

Finally, despite the heterogeneity of studies on the use of antimicrobial sutures, there is now mounting evidence that their use for wound closure (triclosan-coated and impregnated sutures) reduces the number of patients who experience an SSI, and the number who require postoperative antimicrobials in comparison with the use of standard sutures [7].

We are hopeful that the review by Vos *et al.* in combination with the new WHO and NICE guidelines will allow standardization of current practice and reduction of variations among different cardiothoracic centres for the prevention of DSWIs.

Conflict of interest statement

All authors are members of the Surgical Site Infection Committee at NICE. However, the views expressed in this letter only reflect the authors' personal opinion. Professor Leaper has acted on advisory, research and teaching sessions for Johnson and Johnson.

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