Rationalizing whole body disinfection

Key points
• The value of whole body disinfection in postoperative infection prevention has been extensively studied, but opinion is mixed.¹⁻¹⁰
• This study aimed to establish the optimum approach for preoperative washes, in preparation for a large prospective trial investigating surgical wound infection rate.
• In practice, the optimum skin disinfection regimen is recommended to be three preoperative showers with 4% chlorhexidine detergent (HiBiScrub®).

Introduction
A variety of preoperative whole body washing regimens and their role in the prevention of postoperative wound infection have been investigated. Results have been conflicting, perhaps due to the wide variety of regimens used – including varying numbers and combinations of pre- and postoperative showers and baths.¹⁻¹⁰

The aims of this volunteer study were to establish the optimum number of preoperative washes required to achieve a maximum level of skin disinfection and to establish if showering or bathing is more effective. It was carried out in preparation for a large prospective trial investigating the effect of preoperative whole body washing on the postoperative wound infection rate.

Methods
• Ten healthy volunteers each had a daily shower with HiBiScrub® (4% chlorhexidine detergent solution) for six days.
• Approximately 50ml of HiBiScrub was used for each shower and a standard set of washing instructions was given to the trial subjects.
• Agar plates were applied to both armpits and groins before and after each shower. These were then incubated and colony counts performed.
• After at least six weeks break, the process was repeated with the same ten volunteers – this time with each volunteer having a daily bath with HiBiScrub for three days. The agar plates were applied and incubated and the colonies counted in the same way.
Results

- There was a significant fall in bacterial colony counts of 94% after one shower.
- After the second shower, an additional reduction of 77% was seen.
- Subsequent showers did not give rise to any further decreases in bacterial colony counts.

After one bath, there was a significant fall in bacterial colony counts of 71%.
There was no further fall in colony counts after subsequent baths.

Conclusion

Under controlled conditions, two preoperative showers with 4% chlorhexidine detergent solution appear to maximise skin disinfection. Bathing gives a less satisfactory reduction in skin flora than showering.

In a real life setting, where patients may wash less thoroughly than the trial volunteers, three showers are advised. The study authors deemed this a practicable routine.