

The case for **disposable 3:1 tips**

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Good infection control protocols are essential in all dental practices. Failure to follow good practice can leave a practitioner open to a charge of serious professional misconduct (General Dental Council, Standards for dental professionals, 2005) and the consequence of this is potential loss of livelihood. For the patient there is the risk of acquiring a serious transmissible infection.

Central to any practice infection control policy are sound decontamination protocols coupled with the use of single-use disposable instruments where appropriate (British Dental Association, Infection control in dentistry, 2003). Where instruments and equipment are simple in design and construction successful decontamination is relatively straightforward. Where the instrument or equipment is complex, decontamination protocols and procedures are challenged. This is likely to be the case where a lumen with a fine diameter is present. In order to reliably sterilise any piece of equipment it is first necessary to clean all surfaces, then ensure that steam from the steriliser condenses on all these surfaces. This can be prevented if the surface is not clean or if trapped air inhibits the free penetration of steam. It is therefore recommended that instruments or equipments containing lumens should be sterilised in an autoclave that includes active air removal as part of its cycle.

3:1 Tips are very difficult to clean and sterilise with any degree of confidence because the very fine lumen is likely to act as air trap. The walls of the lumen are also susceptible to becoming coated with a biofilm, as is the rest of the dental unit waterline. Some of the organisms that make up this biofilm may originate from the oral cavity as a result of aspiration in use.

Biofilms are characteristically difficult to remove and over time as they build up will also make the diameter of the lumen smaller, thus further inhibiting the penetration of steam. The removal of this biofilm is almost impossible because of its inaccessibility, preventing the condensation of steam on the walls of the lumen and hence making sterilisation impossible.

It therefore makes sense to consider the merits of single-use disposable 3:1 tips. These are now widely available to fit most makes of 3:1 handpiece and are relatively inexpensive. When choosing a disposable 3:1 tip system the following features should be considered:

- The ability to deliver dry air many plastic 3:1 tips have separate air and water channels
- Adaptors available for a wide range of 3:1 syringes to allow for appropriate fitting
- Mechanical locking mechanism to prevent the accidental detachment of the tip in use
- Cost-effectiveness

It has been estimated that approximately 50 per cent of UK dentist are now using 3:1 tips, and it seems sensible for the remaining 50 per cent to consider following suit.

Martin Fulford has been a principal in general dental practice and has an active interest in research in general practice. Martin was a medical microbiologist for 13 years before taking up dentistry. He was elected to serve on the Executive Board from 2004-2009 and was previously also Chair of the BDA Events Working Group, and a member of the BDA Health and Science and Ethics committees. He remains a dental adviser to Somerset PCT.