Single-use hand instruments
Making a case for their use in general dental practice
By Robert Jagger, UK

A wide range of single-use disposable dental and surgical instruments is now produced by a number of manufacturers. Instruments are available for purchase either singly or as procedure kits and are priced to be a realistic alternative to decontaminating reusable instruments.1 Paradoxically, single-use instrumentation is rarely seen as a viable alternative by dental professionals, who typically associate single-use instruments with cheap unreliable plastic devices and a very limited product range. In reality, there are mirrors, probes, restorative instruments, endodontic instruments, minor oral surgical instruments and extraction forceps for both adult and paediatric use.

Procedure packs too are available for specific procedures and contain all of the necessary instruments. Examples of packs include those for dental and periodontal examination, restorative procedures, maxillofacial biopsy, minor oral surgery, and periodontal microscopy. This article seeks to challenge current clinician perceptions of single-use instrumentation by examining the potential benefits of high-quality single-use instruments in daily practice.

Quality
Single-use instruments can be of extremely high quality and may be almost indistinguishable in use from reusable instruments. Clinicians often comment that they are impressed by their quality and functionality and that they appear far too good to throw away after just one use. These instruments are a significant step forwards from the poorer quality equipment that was previously available.

Before selecting a supplier of single-use instruments, however, it is critical to ensure that they comply fully with all relevant British and European medical device regulatory standards and that they are manufactured from medical-grade surgical steel and undergo rigorous quality assurance checks and batch testing. Purchasing instruments from a supplier approved by the British Dental Industry Association will provide practitioners with assurance that they are dealing with an appropriately regulated manufacturer.

Sterilisation
One of the most significant changes to have affected the dental profession in recent years has been the introduction of rigorous sterilisation and cross-contamination procedures (HTM 01-05). Decontamination in Primary Care Dental Practice,2 Dangers posed by prion diseases, such as variant Creutzfeldt-Jakob Disease (vCJD), remain even with the most effective dental sterilisation processes. The prion associated with vCJD is able to survive steam autoclaving under standard exposure conditions,3 suggesting that some reusable surgical instruments are potentially being utilised in a contaminated state. Use of single-use disposable instruments ensures that instruments are not contaminated, protecting patients and clinical staff alike.

Costs
Most general dental practices are now equipped with HTM 01-05 compliant equipment. Re-processing dental instrument trays, however, inevitably leads to significant wear and tear and ultimately instrument damage. Regular sharpening and replacement of reusable instruments too is necessary for instruments such as locators, chisels and elevators. Additionally, they can add substantial costs to the reprocessing of reusable instruments. Re-processing protocols dictate that a dental practice must hold significant stock of expensive reusable instruments, much of which often lies redundant at any given point in time.

Single-use instruments can provide a cost-effective continuum to cover unexpected emergency situations in which reusable instruments may be unavailable, for example when managing unplanned surgical complications or when washer disinfectors or sterilisers are inoperable and significant clinical time may be lost while waiting for the arrival of a skilled service engineer. Single-use instruments enable clinicians to forecast true procedure costs accurately, as there are no hidden costs associated with the decontamination, sterilisation and packaging of reusable instrumentation.

Convenience
Among other applications, single-use packs allow rapid and efficient management of dental extractions that become complicated by, for example, crown fracture. Contingency stock of single-use surgical packs (comprising integral single-use scalpel handles and blades, tissue retractors, peri- ostial elevators, dental elevators and suture packs) enables highly convenient, efficient, paid, cost-effective management of complications.

Single-use conservation and examination packs provide a cost-effective means of extending the length of daily clinic treatment sessions, especially towards the end of the day, when access to sterile reusable instruments may be compromised owing to sterilisation equipment downtime or cleaning routines (when nursing staff are therefore unavailable for clinical duties).

In endodontics, clinicians can more effectively identify and control procedure costs and maximise their return on time-consuming and costly procedures with the use of single-use rubber dams and root canal obturation packs. Safety-conscious patients are increasingly requesting that single-use instruments be used for their treatment because they feel more comfortable if the hand instruments used to perform their procedure are brand new and have never been used on another patient. Single-use instruments eliminate infection prevention concerns associated with the reprocessing of reusable instruments.

Single-use dental scalers are an efficient solution for dentists, dental hygienists and dental therapists, since every instrument is guaranteed to be sharp for every procedure, enabling reduced treatment times and less patient discomfort. The Intracap Periodontal Microsurgery Pack (Robinson Healthcare) is designed to facilitate complex periodontal surgical procedures in a cost-effective way, ensuring that are designated as a specialist clinical waste stream and as such must be disposed of in accordance with UK and European clinical waste management regulations. Historically, this has meant that they were disposed of alongside clinical sharps waste and ultimately conveyed to incineration and landfill. This has previously raised serious concerns over their adverse environmental impact.

However, a recent innovative partnership between Robinson Healthcare and one of the country’s largest specialist health care waste management companies, Healthcare Environmental Group (HEG), has led to the development of a unique UK-wide recycling programme for single-use surgical steel instruments. Under this initiative, HEG is now able to provide dental practices with a unique reusable Healthcare Sharps waste container. The company has a fleet of dedicated, regulated-compliant, purpose-designed vehicles and the capacity to service individual dental practices and clinics with scheduled waste collection and deliveries. Contain- ers are tracked from practice to recycling station using GPS track and trace technology. Depending on the annual volume of steel recycled, HEG is potentially able to offer a payback to dental practices that use the Healthcare Sharps recycling service. Overall, HEG operates nine processing and energy recovery sites across the UK, providing an energy recovery programme that maximises the environmental benefits.

Conclusion
The use of high-quality single-use instruments can provide significant advantages to dentists in general dental practice, particularly in terms of sterility, convenience, efficiencies and reduced operating costs. Packs, such as surgical, restorative, periodontal and implant packs, can be particularly helpful. The purchase costs of the single-use instrument option are less significant when the substantially hidden costs of reusable instruments are considered, and their cost in use is typically significantly less than the reusable instrument option. Furthermore, recent advances in the way that these instruments may be recycled have effectively addressed environmental concerns.

Editorial note: A list of references is available from the publisher.

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