

# Anti-fog solution for the hygienist

Mirror Magic overcomes limitations of mirror visualisation and fogging during clinical procedures and digital photography, says **Shannon Pace Brinker**

Whether they are performing routine activities or assisting a clinician, dental hygienists rely on mouth mirrors to provide a clear view of the working area without impinging the lip or nearby tissues or obstructing the view of areas of interest. Mouth mirrors accomplish this by facilitating tongue retraction, enhancing indirect vision of restricted areas in the mouth and illuminating the workspace (Nugent, 2007). By creating a clear view of the patient's dentition or tissues, mirrors better equip dental professionals to diagnose and treat conditions in the oral cavity.

Most everyday dental treatments require the utilisation of mouth mirrors as indirect light sources that reflect light onto the treatment area (Mittal et al, 2014). This illumination enables hygienists to complete a variety of responsibilities. Additionally, mirrors are essential armamentarium for capturing accurate photographs of difficult-to-reach teeth and for seeing teeth and oral tissues. The mirror is placed within the oral cavity and reflects the intended image back on the mirror for the camera. Without dental mirrors, it would not only be difficult to diagnose oral conditions, but also challenging to visually access several locations in the oral cavity.

## Current challenges

Although dental mouth mirrors provide clinicians with many benefits, several challenges exist with their use. Poor ergonomics from the mirror design or operator technique can irritate muscles, nerves, joints, tendons and ligaments in the hygienist's hands, shoulders, forearms, neck and back. These irritations can lead to short-term or permanent disabilities due to repetitive stress injuries. An ideal mirror shape, handle and weight, as well as proper technique, minimise the risk of injury while using dental mirrors.

Poor ergonomics can be associated with another common mouth mirror problem: fogging. Vapour or fogging of mouth mirrors — which visually obstructs an already limited visual workspace — poses a daily challenge to many hygienists during the delivery of care (Zirc Dental Products, 2014). Operators will likely change their hand or mirror position to avoid fogging the mirror. Mouth-mirror operators also struggle with combatting moisture and debris buildup during examination, cleaning and restoration procedures. These complications also contribute to poor ergonomics, more time-consuming treatments and frustration for the dental team. Considering the frequent, essential and daily use of mouth mirrors in practice, a solution to vapour and fogging is necessary to ensure ease of use and predictable outcomes.

## Anti-fog methods

The challenges of fogging mirrors have existed since mirrors were first used in dentistry and can be significant with any type of mirror, and several techniques and products have been introduced to minimise fogging and improve visualisation. One technique involves the operator

sliding the surface of the mouth mirror across the patient's buccal mucosa and coating the mirror surface with saliva while warming the metal (Nugent, 2007).

Unfortunately, while effective for a short period of time, with today's influx of patients with xerostomia issues, this approach is less practical (Nugent, 2007). Another technique to reduce fogging utilises warm tap water on the mouth mirror to bring its temperature closer to that of the patient's mouth (Nugent, 2007). This technique, however, works for only a limited amount of time and does not guarantee improved visualisation.

Manufacturers have also provided products in attempts to improve visualisation and reduce mouth-mirror fogging. Introduced as a spray or liquid, anti-fog solutions can be applied to the mirror prior to insertion in the mouth to minimise fogging. However, solutions or sprays have required the use of 2"x2" gauze for application, which can leave residue on the mirror. Utilising a similar chemical formula, anti-fog wipes also coat the mirror to prevent fogging and eliminate the need for gauze, but they fail to aid in removing debris buildup while using the mirror.

Additional developments to the mouth mirrors themselves have led to anti-fog mirrors. However, these mirror present limited options in terms of ergonomics, cost-effectiveness, sterilisation and personal/practice preference. To truly improve mouth-mirror visualisation, an alternative solution that utilises anti-fog properties and facilitates prevention of debris buildup is now available.

## Mirror Magic anti-fog system

Designed for use during dental procedures, the Mirror Magic anti-fog system (Zirc Company) prevents dental mirrors from fogging and provides hygienists with a quick method for removing debris during procedures. Its unique system includes a disposable, self-adhesive swipe pad and anti-fog solution.

With the 'peel-stick-drip-swipe' technique, hygienists 'peel' off a self-adhesive swipe pad and 'stick' the swipe pad to the back of a gloved hand or patient bib. The hygienist can then 'drip' a few drops of Mirror Magic solution onto the pad and then gently 'swipe' the mirror over the pad prior to initiating the procedure. The swipe pads may also be used to quickly and effectively remove debris from the instrument during treatment.

With an easy-to-follow protocol, Mirror Magic effectively decreases fogging to provide the outstanding visualisation necessary for accomplishing quality dentistry. The swipe pad requires only a small amount of anti-fog solution for 100% effectiveness, and with a 6mL anti-fog solution bottle, Mirror Magic is economical and easy to store. Unlike other products, this solution can be used with any mouth mirror, and the swipe pads eliminate the typical fuzz residue left when using cotton 2"x2" squares.

Mirror Magic combines the benefits of previous anti-fogging products, yet provides additional benefits to dental hygienists. The Mirror Magic solution ensures a clear view every time, while the swipe pad acts similarly to a wipe. However, unlike a wipe, the swipe pad creates a place for quick debris removal. The system is cost effective and successful for avoiding fogging on all types of mirrors, including occlusal mirrors used for digital photography.

## Digital photography and Mirror Magic

Easy to use and effective on all types of mirrors, Mirror Magic is ideal for assisting dental hygienists in achieving clear digital images. Digital photography has been shown to improve patient case acceptance by providing an excellent tool for communicating with patients and among the dental team. Images can be used as diagnostic tools and for treatment planning; they require accuracy and precision as



digital photographs continue to be established as necessary and routine parts of standard care.

The American Academy of Cosmetic Dentistry digital photography guidelines propose 12 extraoral and intraoral photographic views of patient documentation. In addition to demonstrating proper patient and camera positioning, two of these photographs also require the use of mirrors to capture images of the dentition. The maxillary occlusal photograph is taken by reclining the patient to approximately 45° and raising the patient's chin. Retractors are placed to pull the lips upward and outward. An occlusal mirror with Mirror Magic can then be placed with the edge extended behind the most posterior tooth and then rotated downward so that the backside touches the lower incisor, and the image can be captured.

Similarly, the photograph of the mandibular occlusion is taken by reclining the patient to a minimum of 45°, but with the patient's chin raised in maximum neck extension. The retractors are positioned to pull the lips downward and outward. Mirror Magic can then be utilised and the mirror positioned so that the end rests on the soft tissue behind the most posterior teeth. After rotating the mirror upward so that its back rests against the maxillary incisor, the camera should be focused on the premolars and the image can be taken.

## Conclusion

Capturing digital photographs and performing dental treatments require the use of mirrors to facilitate visualisation of, and access to, hard-to-see and hard-to-reach areas respectively.

Using a well-established method such as the Mirror Magic anti-fog system provides dental hygienists with the ideal solution to avoid fogging and maintain a clear view.

This system combines an anti-fog solution with disposable swipe pads for application and quick and convenient debris removal. By applying the Mirror Magic solution to a mouth mirror, dental hygienists can effectively decrease fogging while improving visualisation of the intended area. **D**

## References

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