

## **Sterility of Light Guide – Need of an Hour!**

**“Prevention is Always Better than Cure”**

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Visible light cure units (LCUs) are playing crucial role in restorative dentistry nowadays. However, while using it intraorally, there are significant chances of light guide (LG) of LCU getting contaminated due to presence of saliva and blood at treatment site. Failure to sterilize LG may cause cross infection among the patients, dentist and auxiliaries [1]. Center for Disease Control and Prevention (CDC) guidelines have placed the LCUs under “semi critical category” as they have potential for getting contaminated with saliva and blood without actually penetrating the vital tissue [2]. So, maintaining the sterility of LGs is very essential to prevent the cross-infection of diseases like Hepatitis B, Acquired Immuno-Deficiency Syndrome (AIDS) and its associated infection [1].

Presently, there are 4 frequently used methods for maintaining LG sterile: (a) use of suitable disinfectant like glutaraldehyde for wiping LG after every use, (b) use of pre-sterilized single use plastic LG (c) use of autoclavable guides, (d) use of disposable infection control barriers over LG of LCU [3]. Everyone should be aware of advantages and disadvantages of these methods.

Many disinfectant solutions such as 70% ethanol, 2% glutaraldehyde, 3.4% glutaraldehyde, benzalkonium chloride, iodine detergent scrubs are used for wiping the LG [1,3]. This is simple and convenient method to perform but more than 10 minutes of contact with solution is recommended for effective bactericidal and sporicidal action [1]. Long exposure of LGs to the chemicals have reported to cause irreversible destruction of glass fibres leading to scattering of light and reduced light transmission [4]. This may lead to inadequate curing, degradation of properties and biocompatibility of restorative material [5].

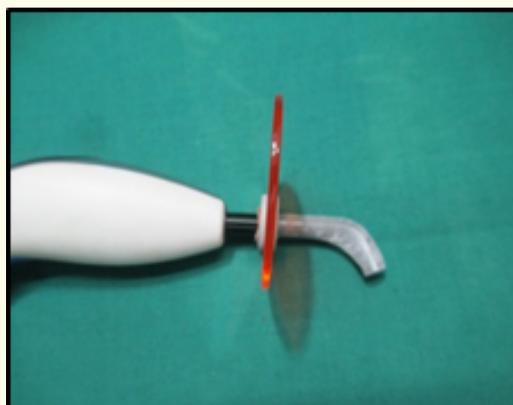
Single use plastic LGs eliminates the time and costs of sterilization and maintenance of LG. Use of clear plastic LGs will lead to significant reduction in light intensity if it comes in contact with oral tissues [6].

Autoclaving procedures ensures the complete sterility of LGs. However, it may result into deposition of tenacious scales on tip surface resulting in reduction in light transmission [7]. Use of distilled water while autoclaving and polishing the tips may help in reducing scales. However, frequent autoclaving and polishing may cause permanent damage to LG; adding financial burden to dentist and patient [4].

Use of disposable barriers like plastic wrap, light tip sleeves (Figure 1) and finger cots (Figure 2) can be a cost effective option to prevent contamination of LG [3]. These are easy to place, non-invasive and prevents the contaminating agents to come in direct contact with the LG [3]. It also eliminates the risk of damaging the LG which occurs during autoclaving or chemical disinfection [8]. However, these type of disposable infection control barrier may affect the power output of LCU depending upon its thickness, transparency, wrinkles or folds and formation of air pouch between light tip and barrier [9]. Choosing the barriers of appropriate thickness, transparency, and preventing the formation of wrinkles and air pouches in light tip area will reduce these problems [9]. Hence, with very few disadvantages, use of disposable infection control barriers can be effectively used to maintain the sterility of light guide [9].



**Figure 1:** Disposable plastic Light tip Sleeve.



**Figure 2:** Disposable latex based finger cots.

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