

# FDA Public Health Notification: Patient Burns from Electric Dental Handpieces

**Issued : December 12, 2007**

Dear Dental Health Professional:

This is to inform you about serious patient injuries, including **third degree burns**, associated with the use of poorly maintained **electric dental handpieces**, and to recommend specific actions to prevent or minimize the problem. While this notification is directed to dental health professionals, the following information may be useful to all users of electric handpieces.

## **Background**

Patients have been severely burned when poorly maintained electric dental handpieces were used during dental procedures. Some patients had third degree burns which required plastic surgery. Burns may not be apparent to the operator or the patient until after the tissue damage has been done, because the anesthetized patient cannot feel the tissue burning and the handpiece housing insulates the operator from the heated attachment.

Although the reported burns have occurred during cutting of tooth and bone, tooth extraction and other dental surgical procedures, overheating could occur during any dental procedure.

Note that this problem is not limited to dentistry. Rotary surgical handpieces can cause patient burns during orthopedic procedures, as reported in the July 2003 edition of FDA Patient Safety News (<http://www.fda.gov/cdrh/psn/show17-burns.html>).

## **Air-driven vs. electric handpieces**

With high and low speed air-driven handpieces, sluggish handpiece performance will alert the dental practitioner to maintenance issues such as a dull bur or worn or clogged gears or bearings. A poorly maintained electric handpiece does not provide a similar warning that maintenance is needed. Instead, if an electric handpiece is worn or clogged, the electric motor sends increased power to the handpiece head or attachment in order to maintain handpiece performance. This increased power can rapidly generate heat at the head of the handpiece attachment. Because the heat buildup is so rapid, and is efficiently conducted through the metal handpiece, a burned patient may be the first indication of handpiece problems that the practitioner receives.

## Recommendations

- Be vigilant about maintaining electric dental handpieces according to manufacturer's instructions.
- Verify with the manufacturer the appropriate routine service interval for your dental practice based on the actual use of your handpieces.
- Train personnel to properly clean and maintain the electric dental handpieces and to follow specific device maintenance requirements.
- Develop a method for tracking maintenance and routine service for each handpiece used.
- Examine the handpiece attachments prior to use. Do not use worn drills or burs.
- Do not use poorly maintained electric dental handpieces.

## Reporting Adverse Events to FDA

To report your experience regarding the devices in this notification, please use MedWatch, the FDA's voluntary reporting program. You may submit reports to MedWatch by phone at 1-800-FDA-1088; by FAX at 1-800-FDA-0178; by mail to MedWatch, Food and Drug Administration, 5600 Fishers Lane, Rockville, MD 20857-9787; or online at <http://www.fda.gov/medwatch/report.htm>.

### Getting More Information

If you have questions about this notification, please contact Ann Ferriter, Office of Surveillance and Biometrics (HFZ-510), 1350 Piccard Drive, Rockville, Maryland, 20850, by Fax at 240-276-3356, or by e-mail at [phann@cdrh.fda.gov](mailto:phann@cdrh.fda.gov). You may also leave a voicemail message at 240-276-3357 and we will return your call as soon as possible.

FDA medical device Public Health Notifications are available on the Internet at <http://www.fda.gov/cdrh/safety.html>. You can also be notified through email on the day the safety notification is released by subscribing to our list server. To subscribe, visit: [http://service.govdelivery.com/service/subscribe.html?code=USFDACDRH\\_10](http://service.govdelivery.com/service/subscribe.html?code=USFDACDRH_10).

Sincerely,

Daniel G. Schultz, MD  
Director  
Center for Devices and Radiological Health  
Food and Drug Administration

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