

# Longevity of Direct and Indirect Dental Restorations *(Continued from page 2)*

## Are Dentists Advising Patients about Longevity of Restorations?

- CR only studied several of the *commonly accomplished dental restorations*. There are many more types of restorations.
- It is doubtful that many dentists are informing patients about the expected service longevity when suggesting types of fixed and removable restorations.
- Several decades ago, function and long-term service were stressed in dentistry, and esthetic concerns were minimized primarily because of lack of available successful esthetic restorations.
- That emphasis has changed to stressing esthetic concerns more than long-term service. The successful availability of IPS e.max and zirconia indirect restorations have been responsible for this significant change to 90% of fixed indirect restorations being ceramic. Also, implants have greatly improved the clinical success, longevity, and esthetics of removable restorations.

### Informed Consent for Patients

Based on expected patient compliance, patients should be informed about the expected longevity of dental restorations when they are presented with treatment plans. In the following summary of longevity of restorations, the restoration categories are divided into short, moderate, and long term. **It could be used in your practice to support patient education.** IPS e.max and zirconia categories are only estimated because of the lack of long-term data.

Possible Longevity	Restoration Type
A few years ( <i>short</i> )	Large composites
Several years ( <i>moderate</i> )	Large amalgams, small composites, PFM crowns, PFM 3-unit fixed prostheses, IPS e.max single crowns, IPS anterior 3-unit FPDs ( <i>estimated</i> ), zirconia crowns and fixed prostheses ( <i>estimated</i> ), removable partial dentures, complete dentures
Many years ( <i>long term</i> )	Small amalgams, cast gold alloy onlays and crowns

### CR CONCLUSIONS:

- Both CR survey data and literature data show similar conclusions with a few exceptions.
- Amalgam serves more than double the amount of time reported for composite.
- The larger the composite or amalgam restoration, the shorter the expected longevity.
- Gold alloy onlays and full crowns serve far longer than any other tooth restoration.
- PFM crowns serve significantly fewer years than gold alloy crowns.
- PFM three-unit prostheses serve a shorter time than PFM crowns.
- Zirconia and IPS e.max are too new to have conclusive long-term data, but the respondents were hesitant to place them into long-term expectation categories.
- Removable partial and complete dentures have varied and limited longevity expectations, with most responses suggesting 6–15 years.
- The article shows both scientific and empirical data that will greatly assist you when providing informed consent for patients
- **Informed consent and instruction on diet and oral hygiene, as well as all other expected factors relating to restoration longevity, is mandatory for optimum patient understanding of restoration expectations.**
- **Dental restorations have finite lifetimes directly related to proper clinical technique and patient diet and oral hygiene. CR suggests that patients should be informed of these factors during their treatment plans and at completion of treatment.**

# Hearing Loss in Dentistry: Are Clinicians at Risk? *(Continued from page 1)*

## Noise Exposure in Dentistry

A recent CR survey of 920 clinicians showed that two-thirds of respondents either **have** (40%) or **possibly have** (28%) experienced hearing challenges while practicing dentistry. 78% of clinicians who have hearing challenges felt that dental noise had somewhat (40%), or to a great extent (38%), contributed to their hearing loss; 23% felt that their hearing loss was mainly in a single ear (*unilateral*), consistent with noise-induced hearing loss from a directional source. Also, many dentists have a “notch” (*permanent threshold shift*) in their audiograms at around 2–8 kHz, indicative of noise-induced hearing loss.

Various safety organizations have set recommended exposure limits for daily occupational noise exposure at 85–90 decibels. Most studies on dental practice noise levels indicate that dental professionals are generally at low risk of noise-induced hearing loss (*see chart*).

It is generally agreed that dental equipment noise is:

- Intermittent (*often ~2 hours/day*)
- Recurrent (*daily, often for decades*)
- Within allowable limits (*often 68–91 dBA*)

**CR survey data, observational data, and the wide range in dental noise levels indicate that there is potential to exceed exposure limits, and that repeated exposure over decades may have negative effects on hearing. Each clinician should carefully consider individual risk factors.**

### NIOSH Recommended Exposure Limits

Duration (Hours/Day)	Sound Level (dBA)
8	85
4	88
2	91
1	94
0.5	97
≤0.25	100

dBA: A-weighted decibels  
NIOSH: National Institute for Occupational Safety and Health

### Common Noise Levels

Noise Source	Average (Range)
Normal Conversation	60 dB
Electric Handpiece	70 dB (60–76)
HVE Suction	77 dB (72–82)
HVE Suction, obstructed	up to 96 dB
Ultrasonic Scaler	86 dB (83–107)
High-Speed Air Handpiece	87 dB (60–100)
Ultrasonic Cleaner	90 dB (70–92)
Lawn Mower	90 dB
Lab Equipment ( <i>model trimmers, stone mixers, etc.</i> )	95–102 dB
Concert or Sporting Event	92–115 dB

dB: decibels