

# Hospitalisation associated with a deterioration in oral health

## Abstracted from

**Terezakis E, Needleman I, Kumar N, Moles D, Agudo E.**

The impact of hospitalization on oral health: a systematic review. *J Clin Periodontol* 2011; Apr 7. [Epub ahead of print]

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## Question: Does hospitalisation impact on oral health?

**Data sources** Ovid MEDLINE and Ovid OLDMEDLINE (January 1950 to January 2010), CINAHL (1982 to January 2010), Cochrane Library (up to 2010) and EMBASE (1981 to January 2010), bibliographies of potentially relevant reports and reviews, handsearching of *Community Dentistry and Oral Epidemiology*, *Gerodontology*, *Journal of Disability and Oral Health* and *Special Care in Dentistry*.

**Study selection** Longitudinal prospective observational studies in individuals of all ages being hospitalised, that assessed changes of the following outcomes: tooth loss, any measures of periodontal health, dental caries and stomatological diseases. There were no language restrictions.

**Data extraction and synthesis** One reviewer scanned the titles and abstracts to select studies. Potentially eligible studies were screened by two reviewers who also data extracted using specially designed forms. Quality was assessed by both reviewers using the Newcastle–Ottawa scale for cohort studies. The authors assessed whether a power calculation was reported for each study and, if so, the magnitude of a change that the study was powered to detect. Heterogeneity between studies was anticipated so a narrative review was planned.

**Results** Five studies were included and all were assessed to be adequately representative and had sufficient follow-up. Outcome assessments were adequate but validity of the outcome measures was found to be subjective. One investigation included children only, whilst the remainder included adults only. Four of the studies were in intensive care units. Duration of hospitalisation was 5–20 days. This was insufficient a period for caries to develop. A power calculation was reported in only one study. Three out of four studies that reported on plaque accumulation found increasing levels of plaque accumulation during hospitalisation, whilst one did not. Two of three studies assessing gingival inflammation found a statistically significant increase. Two studies found a statistically significant increased incidence of mucositis in intubated patients but not in non-intubated patients.

**Conclusions** Hospitalisation is associated with a deterioration in oral health, particularly in intubated patients.

## Commentary

This well-conducted systematic review addresses the impact of hospitalisation on oral health. Although daily oral hygiene measures are an important part of the care of hospitalised patients, it seems often to be given a low priority among the caregivers.<sup>1</sup>

The authors used an exhaustive database search strategy and handsearching to locate relevant studies. Two possibly relevant papers were not possible to retrieve, but the methodology of the review is well described, and in accordance with the recommendations for conducting systematic reviews.

In the five studies that fulfilled the inclusion criteria, the follow-up periods were long enough to be able to assess changes in oral hygiene and in gingival health. However, the validity of the outcome measurements was questionable due to the usage of subjective and epidemiological indices. There was also a substantial variation between the protocols, and in the frequencies of oral care provided.

The presented results indicate that dental plaque accumulation and gingival inflammation increases during hospitalisation, thus leading to deterioration of oral health among the included patient groups, especially among intubated patients.

In addition to deterioration of oral health, it has previously been shown that improved oral hygiene reduces the occurrence of respiratory tract diseases among elderly in ICUs.<sup>2</sup> Moreover, approximately one out of ten cases of death from pneumonia among hospitalised elderly could be prevented by improving their oral hygiene.<sup>3</sup>

All of the included studies were, at least to some extent, conducted in ICU wards and often on intubated patients. Thus, the authors suggest that more studies are needed on non-intubated patients, and outside of ICU settings.

## Practice points

- Oral care needs to be improved and integrated into the care-chain of hospitalised individuals. This is not only a matter of oral health but may also lead to saving lives.

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1. Grap MJ, Munro CL, Ashtiani B, et al. Oral care interventions in critical care: frequency and documentation. *Am J Crit Care* 2003; 12: 113–118.
2. Azarpazhooh A, Leake JL. Systematic review of the association between respiratory diseases and oral health. *J Periodontol* 2006; 77: 1465–1482.
3. Sjögren P, Nilsson E, Forsell M, Johansson O, Hoogstraate J. A systematic review of the preventive effect of oral hygiene on pneumonia and respiratory tract infection in elderly in hospitals and nursing homes: effect estimates and methodological quality of randomized controlled trials. *J Am Geriatr Soc* 2008; 56: 2124–2130.

*Evidence-Based Dentistry* (2011) **12**, 48. doi:10.1038/sj.ebd.6400793