A rationale for oral care

Date of acceptance: March 28 2001.

Abstract

Background Although oral hygiene is an essential aspect of care for every patient admitted to hospital (Jenkins 1989, Watson 1989), it would appear that oral care procedures are not based on research evidence but on tradition, anecdotal evidence and subjective assessments. This article reviews the research evidence for oral care to identify best practice.

Conclusion There is substantial literature on mouth care, but research does not substantiate current methods of oral care. Research-based education on mouth care should be promoted within the nursing curricula.

Only 50 per cent of the UK population receive dental care (Todd and Lader 1991). This suggests that many people have dental problems before they are admitted to hospital. Hospitalisation and ill-health can aggravate these problems, leading to additional oral complications. For patients with adequate oral health, certain medications or treatments can affect their oral status. Some patients might be incapable of maintaining an acceptable level of routine oral health care. Nurses should assume responsibility for helping hospitalised patients with this aspect of care (Miller and Rubinstein 1987). This article reviews the research evidence for oral care to identify best practice.

Oral assessment

The importance of assessing a patient’s oral status has been well documented (Crosby 1989, Maurer 1977, Speedie 1983, Turner 1996). Characteristics of a healthy mouth are listed in Box 1. Initial assessment aims to provide baseline information to evaluate oral care interventions (Heals 1993).

Such assessment has the potential to reduce the incidence or severity of oral complications (Kenny 1990). However, general admission forms do not always incorporate enough space, if any, to record a patient’s oral status (Barnett 1991). Consequently, the employment of baseline oral assessments can be haphazard, or even absent altogether.

Research conducted by Miller and Rubinstein (1987) and Adams (1996) indicated that nurses, pre- and post-registration, lack the necessary knowledge to assess a patient’s oral status (Table 1). However, nursing staff frequently decide whether patients require assistance with oral care, what methods and agents are chosen and how frequent the care should be (Maurer 1977). The basis on which these decisions are made is not always clear. Many oral assessment tools have been developed for use within nursing practice (Beck 1979, Eilers et al 1988, Passos and Brand 1966). However, the extent to which these instruments meet the criteria for validity and reliability has been questioned (Holmes and Mountain 1993). Poor assessment strategies can lead to inappropriate selection of equipment and agents that can be detrimental to patient care (Bowsher et al 1999).

Jenkins (1989) developed a tool that highlighted those patients ‘at risk’ of developing oral conditions and suggested frequencies for carrying out oral care. This guide is educational as it gives nurses the opportunity to focus on the intrinsic and extrinsic factors that can predispose individuals to oral health problems (Box 2). However, it relies on the subjective interpretations of the user and the tool has not been evaluated in practice.

Equipment for oral care

Levine (1993) stated: ‘...the single most important plaque control method is toothbrushing’.

Gaynor Evans RGN, BN(Hons), is Staff Nurse, The Royal Bournemouth Hospital, Bournemouth. Email: gaynorevans@hotmail.com

Online archive

For related articles visit our online archive at: www.nursing-standard.co.uk and search using the key words below.

Key words

- Dentistry
- Oral health

These key words are based on the subject headings from the British Nursing Index. This article has been subject to double-blind review.
Table 1. Guide to oral assessment

<table>
<thead>
<tr>
<th>Physical feature</th>
<th>Observe for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teeth/dentures</td>
<td>Plaque, debris or dental caries Ill-fitting dentures</td>
</tr>
<tr>
<td>Mucous membranes</td>
<td>Coating, redness, ulceration or bleeding</td>
</tr>
<tr>
<td>Tongue</td>
<td>Coating, cracking/blisters or areas of redness</td>
</tr>
<tr>
<td>Lips</td>
<td>Cracking, bleeding or ulceration</td>
</tr>
<tr>
<td>Saliva</td>
<td>Consistency and quantity</td>
</tr>
<tr>
<td>Gums</td>
<td>Redness, ulceration and bleeding</td>
</tr>
</tbody>
</table>

(Adapted from Beck and Yasko 1993 and Eilers et al 1988)

Box 1. Indicators of a healthy mouth

- Pink moist tongue, oral mucosa and gums
- Teeth/dentures clean and free of debris
- Well-fitting dentures
- Adequate salivation
- Smooth and moist lips
- No difficulties eating or swallowing

Box 2. Factors that predispose patients to poor oral health

- Dehydration
- Absence of oral intake
- Oxygen therapy
- Antibiotic/steroid therapy
- Chemotherapy
- Radiotherapy
- Physical disability
- Diabetes mellitus
- Immunosuppression
- Oral endotracheal tube

Regular brushing of teeth is imperative in the removal of plaque and in the prevention of periodontal disease (Addy et al 1992). The effectiveness of the toothbrush is supported in the nursing literature (Addy et al 1992).

However, Howarth (1977) and Harris (1980) found that the toothbrush is rarely used by nurses for patient mouth care. Howarth’s (1977) study assessed the oral status of 50 acutely ill patients who were receiving four-hourly hygiene treatments. Foamstick applicators and mouth swabbing with gauze were ineffective, while a small, soft-bristled toothbrush was the most effective tool for cleaning tooth surfaces. However, it is unclear whether oral treatments were standardised in the study.

Pearson (1996) also found that foamsticks were ineffective in removing plaque from ‘sheltered’ areas of teeth and gingival tissue. As only two subjects were used in this research, replication of this study on a larger sample is needed to increase confidence in the findings.

Harris (1980) researched the views of 20 nurses and 22 older patients on their preference of four mouth-care tools: the foamstick; forceps with a swab; toothbrush; and a swab around a gloved finger. The foamstick was selected for 44 per cent (n=35) of 79 mouth hygiene treatments, despite its preference by only 20 per cent (n=4) of patients. As some nurses had prejudged toothbrushing to be unsuitable for endentulous patients with dentures, it was only used for 17 per cent (n=13) of the treatments. Although the majority of patients regarded forceps as tolerable, the same percentage of nurses found them difficult to manipulate and expressed concern that they might cause trauma to the oral mucosa. The toothbrush was the most popular patient choice. The study was situation-specific, concerned solely with older patients, therefore, any conclusions from this research should be accepted with caution.

Kite (1995) explored mouth care practice in an eight-bed intensive care unit and found that qualified nurses did not use toothbrushes for administering oral care to patients. This occurred despite the reasonable assumption that the patients used toothbrushes to maintain their own oral health. The lack of use was related to limited knowledge, priority setting in a ‘no brushing culture’, and concerns over patient comfort and safety. However, the small size (n=10) sample limits the generalisability of the findings. Agents used in oral care are listed in Table 2.

Drug treatment

Drug treatments can have serious effects on oral status. The oral cavity harbours a variety of bacteria that do not normally cause problems (Griffiths and Boyle 1993). However, certain drug treatments such as antibiotics and chemotherapy can cause resident microflora to become pathological, which can increase the risk of systemic infection which occurs secondary to oral infection (Holmes 1991).

Xerostomia (decrease in saliva production) is a side effect of certain types of medication, such as anticholinergics, tricyclic antidepressants, antispasmodics, barbiturates, bronchodilators, diuretics and oxygen therapy (Treloar 1995). Morphine can also cause a dry mouth (White et al 1989). This increases the risk of dental caries, periodontal disease and oral infections (Xavier 2000). Speech and swallowing can also become impaired (Jones 1998). Chemotherapy and radiotherapy can impair and disrupt oral epithelium replication (Holmes 1991). Consequently, there is an increased risk of oral ulceration and thinning, which can lead to infection as well as discomfort and pain. Both treatments can also affect the consistency, amount, pH and protective mechanisms of saliva (Daefller 1980), thus placing the individual at greater risk of infection. Additional oral complications can occur as a result of myelosuppresion and immunosuppression; this can cause opportunistic oral infections, such as candida and herpes simplex, and haemorrhages to develop within the oral cavity (Ostchega 1980).

Frequency of oral care

There is no consensus on the frequency with which oral care is required. DeWalt’s (1975) study of 48 older patients found that oral conditions did not alter significantly following mouth care at two-, three- and four-hour intervals. However, the researcher failed to explore the subjective feelings of the patients who might have stated differences in oral comfort.
DeWalt and Haines (1969) observed the effects of concurrent dehydrating stressors, oral breathing, continuous nasal oxygen, intermittent suction and no oral intake, on an individual's oral status. The subject experienced a dry mouth in two hours. Beyond two hours oral discomfort continued, the tongue had become coated and oral lesions had developed. This highlights the fact that the frequency of oral care needs to be increased in the presence of dehydrating stressors. However, it would be unrealistic to generalise from these findings based on one subject.

Howarth (1977) found that four-hourly periods were inadequate to sustain oral comfort in acutely ill patients. Beck (1979), however, administered oral care to 47 patients receiving chemotherapy and found that, in comparison to a control group, the treatment group received 50 per cent fewer oral infections. This reduction in infection did not, however, have an effect on oral comfort. Howarth (1977) maintains that regularity is the crucial factor in the success of oral care. This should be related to the patient’s condition and his or her need for mouth care (Maurer 1977), which cannot be determined unless a baseline assessment has been made.

It appears that oral care procedures are not based on research evidence but on tradition, anecdotal evidence and subjective assessments. This suggestion is supported by Adams (1996), whose study demonstrated that registered nurses lacked knowledge relating to the frequency of oral care, the type of drugs that affect oral health, the effectiveness of tools and solutions used for oral hygiene and the type of patients that should receive oral assessment. Similarly, Miller and Rubinstein's (1987) research found that recently qualified nurses did not have the necessary insight to assess a patient's oral status. These findings are of concern, particularly in view of the suggestion that oral care is frequently undertaken by junior nursing staff (Barnett 1991, Peate 1993).

DeWalt and Haines (1969) observed the effects of concurrent dehydrating stressors, oral breathing, continuous nasal oxygen, intermittent suction and no oral intake, on an individual's oral status. The subject experienced a dry mouth in two hours. Beyond two hours oral discomfort continued, the tongue had become coated and oral lesions had developed.

This highlights the fact that the frequency of oral care needs to be increased in the presence of dehydrating stressors. However, it would be unrealistic to generalise from these findings based on one subject.

Howarth (1977) found that four-hourly periods were inadequate to sustain oral comfort in acutely ill patients. Beck (1979), however, administered oral care to 47 patients receiving chemotherapy and found that, in comparison to a control group, the treatment group received 50 per cent fewer oral infections. This reduction in infection did not, however, have an effect on oral comfort. Howarth (1977) maintains that regularity is the crucial factor in the success of oral care. This should be related to the patient’s condition and his or her need for mouth care (Maurer 1977), which cannot be determined unless a baseline assessment has been made.

Howarth (1977) found that four-hourly periods were inadequate to sustain oral comfort in acutely ill patients. Beck (1979), however, administered oral care to 47 patients receiving chemotherapy and found that, in comparison to a control group, the treatment group received 50 per cent fewer oral infections. This reduction in infection did not, however, have an effect on oral comfort. Howarth (1977) maintains that regularity is the crucial factor in the success of oral care. This should be related to the patient’s condition and his or her need for mouth care (Maurer 1977), which cannot be determined unless a baseline assessment has been made.

Howarth (1977) found that four-hourly periods were inadequate to sustain oral comfort in acutely ill patients. Beck (1979), however, administered oral care to 47 patients receiving chemotherapy and found that, in comparison to a control group, the treatment group received 50 per cent fewer oral infections. This reduction in infection did not, however, have an effect on oral comfort. Howarth (1977) maintains that regularity is the crucial factor in the success of oral care. This should be related to the patient’s condition and his or her need for mouth care (Maurer 1977), which cannot be determined unless a baseline assessment has been made.
cent) who had received dental input had a greater depth of oral care coverage in their nursing curriculum. Surprisingly, 38 per cent of the NTEs had no exclusive coverage of mouth hygiene in their curriculum. Longhurst (1998) recommended that NTEs should receive contemporary information from the dental profession. However, the validity of this research was compromised by the absence of reliability data.

**Conclusion**

Although there is substantial literature pertinent to nurse-administered mouth care, research findings do not substantiate present methods of oral care. There is a clear need to promote the development of a research-based nursing curriculum in relation to mouth care. Theory and practice need to be closely integrated to discourage ritualistic practice (Walsh and Ford 1989). Instruments are required by nurses for assessing the oral care needs of patients and adequate products should be provided to help fulfill this role. There is a need to develop and update mouth care protocols for hospitalised patients. Although evidence is available to guide the formulation of these guidelines, more sound research into the effectiveness and safety of mouth care products and the frequency of oral care is required.

**Implications for practice**

- Nurses should help patients maintain an acceptable level of oral hygiene
- A baseline evaluation of oral status would help to ensure that mouth care problems are identified early and oral care provided
- A toothbrush should be the equipment of choice to maintain oral health
- Nurses need to be aware that drug treatments can have adverse effects on oral health
- Mouth care should be research based

**REFERENCES**