The Prevention of Caries and Periodontal Disease: Evidence-Based Recommendations for Patients

Aims:

- To explain the Department of Health Publication ‘An evidence-based toolkit for prevention’ and its application to clinical practice.
- To outline the evidence based recommendations for the prevention of caries (tooth decay) and periodontal disease (also known as gum disease).

Learning Outcomes:

After reading this article you will be able to demonstrate, through completion of a multiple choice questionnaire, the ability to:

- Identify where to locate evidence-based recommendations for the prevention of caries and the prevention of periodontal disease.
- Identify the evidence-based recommendations for the prevention of caries and periodontal disease.

Introduction

In the article ‘Evidence-based practice’ (a previous verifiable article provided by Cpd4dentalnurses) an introduction to evidence-based practice and the importance of basing advice on reliable research was explained.

The Department of Health (DoH) Publication ‘Choosing Better Oral Health: An Oral Health Plan for England’ was published in 2005 and acknowledges how the dental
The health of people in England has improved significantly over the last three decades. It was recognised that this improvement would alter the delivery of dental care from a treatment orientated service to one focused more on prevention.

The DoH publication ‘Delivering Better Oral Health: An evidence-based toolkit for prevention’ was devised in order to provide support to dental teams in the delivery of a preventative approach to dental care and to ensure that patients are given consistent advice that is based on the latest available evidence. This article will outline two areas of the evidence based toolkit, caries prevention the prevention of periodontal disease and will therefore assist you in providing evidence-based recommendations to your patients when discussing these subjects.

**The Hierarchy of Evidence**

The hierarchy of evidence was explained in the Cpd4dentalnurses verifiable article ‘Evidence-based Practice’. The Evidence-based Toolkit for Prevention provides a level of evidence for each recommendation. If the evidence is not a high grade it does not necessarily mean that the intervention is not right, it just means that the available evidence is not of the highest quality. This table explains the evidence base grades with EB1 being the highest quality evidence.

<table>
<thead>
<tr>
<th>Evidence Base (EB)</th>
<th>Strength of evidence</th>
</tr>
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<tbody>
<tr>
<td>1 (highest)</td>
<td>Strong evidence from at least one systematic review and critically reviews of multiple, well designed, randomised control trials. (In a systematic review all the information on a particular subject is collected using set criteria to ensure that no information is missed. The results are then put together and considered in detail in order to reach a conclusion.)</td>
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<tr>
<td>11</td>
<td>Strong evidence from at least one properly designed, randomised control trial of appropriate size (a randomised controlled trial is when the participants are randomly assigned to a group which is receiving an intervention that is being tested and one which is receiving another intervention or even a placebo which means it lacks medical or therapeutic value.)</td>
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<tr>
<td>111</td>
<td>Evidence from well-designed trials without randomisation, single group studied pre and post intervention, cohort, time series of matched, case-control studies.</td>
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<tr>
<td>1V</td>
<td>Evidence from well-designed, non-experimental studies from more than one centre or research group.</td>
</tr>
<tr>
<td>V (lowest)</td>
<td>Opinions of respected authorities, based on clinical evidence, descriptive studies or reports of expert committees.</td>
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Caries Prevention

The DoH publication ‘Delivering Better Oral Health: An evidence-based toolkit for prevention’ outlines the following advice for the prevention of caries (tooth decay)².

Caries Prevention in Children Under 3 Years

The evidence based grade for each piece of advice is shown in brackets.

- Breast feeding provides the best nutrition for babies (EB 1).
- Babies from 6 months should be encouraged to drink from a cup, and feeding from a bottle after aged 1 should be discouraged (EB 111).
- When weaning, sugar should not be added to the foods (EB V).
- Parents should brush or supervise brushing (EB V).
- A smear of toothpaste containing no less than 1000 ppm fluoride should be used (EB 1). A smear of toothpaste is a thin film which covers less than three quarters of the toothbrush. It is important that children are supervised to ensure they do not eat the toothpaste from the tube.
- When teeth erupt they should be brushed twice daily (EB IV).
- Sugars should not be consumed more than four times a day and the amount of sugary foods and drinks should be reduced and consumed at meal times (EB 111). The importance of this advice was outlined in the CPD4dentalnurses verifiable article ‘Caries Prevention’.
- Sugar-free medicines should be recommended (EB 111).

Caries Prevention in Children Aged 3-6 Years

- Brush last thing at night and on one other occasion (EB 1).
- An adult should supervise brushing (EB V).
- A pea-sized amount of toothpaste (EBV) containing 1350-1500 ppm fluoride should be used (EB1).
- After brushing spit out but do not rinse (EB IV). This is to increase the availability of fluoride.

- Sugars should not be consumed more than four times a day and the amount of sugary foods and drinks should be reduced and consumed at meal times (EB 111).

- Sugar-free medicines should be recommended (EB 111).

It is recommended that children in this age group have fluoride varnish (2.2 % F-) professionally applied to the teeth twice yearly (EB 1). Within the Scope of Practice of a dental nurse the application of fluoride varnish is an additional skill that dental nurses may be trained to be competent in. The General Dental Council\(^3\) state that this should be part of “a programme which is overseen by a consultant in dental public health or a registered specialist in dental public health.”

Additional Advice and Professional Interventions to Children Giving Concern (e.g. children likely to develop caries, children with special needs)

It is recommended that individuals in this category have fluoride varnish (2.2 % F-) professionally applied to the teeth 3-4 times yearly (EB 1). In addition, fluoride supplements may be recommended (EB 11), recall intervals may be reduced (EB V) and the diet should be investigated in order to assist the patient to adopt good dietary practice (EB 111).

Caries Prevention in Children Aged From 7 Years and Young Adults

- Brush twice daily

- Brush last thing at night and on one other occasion (EB 1).

- Use a fluoridated toothpaste containing 1350-1500 ppm fluoride (EB 1)

- After brushing spit out but do not rinse (EB IV).

- Sugars should not be consumed more than four times a day and the amount of sugary foods and drinks should be reduced and consumed at meal times (EB 111).

It is recommended that children in this age group have fluoride varnish (2.2 % F-) professionally applied to the teeth twice yearly (EB 1).
Additional Advice and Professional Interventions for Children and Young Adults Giving Concern (such as those likely to develop caries, those undergoing orthodontic treatment or those with special needs)

For individuals in this category it is recommended that permanent molars are fissure sealed with resin sealant (EB 1), fluoride varnish (2.2 % F-) is professionally applied to the teeth 3-4 times yearly (EB 1), and children over 8 years with active caries should be prescribed a daily fluoride mouth rinse (0.05 % NaF) which should be used at a different time to brushing (EB 1).

In addition, children over 10 years with active caries may be prescribed a 2,800ppm fluoride toothpaste and those over 16 years with active caries may be prescribed a toothpaste containing 5,000 ppm fluoride toothpaste (EB 1. Fig.1). The diet should also be investigated in order to assist the patient to adopt good dietary practice (EB 111).

Fig.1: high fluoride toothpaste which may be prescribed to certain groups who may be considered to be at risk from developing caries.

The Evidence-based toolkit contains a list the fluoride levels within various toothpastes this can be downloaded from the non-verifiable CPD section of Cpd4dentalnurses.

Caries Prevention in Adults

- Brush twice daily
- Brush last thing at night and on one other occasion (EB 1).
- Use a fluoridated toothpaste containing 1350-1500 ppm fluoride (EB 1)
- After brushing spit out but do not rinse (EB IV).
• Sugars should not be consumed more than four times a day and the amount of sugary foods and drinks should be reduced and consumed at meal times (EB 111).

Additional Advice and Professional Interventions for Adults Giving Concern (For example adults with obvious current active caries, dry mouth or other predisposing factors and adults with special needs.)

These individuals should have fluoride varnish (2.2 % F-) professionally applied to the teeth twice yearly (EB 1). Those with obvious active coronal or root caries should use a daily fluoride mouthrinse (0.005 % NaF) at a different time to brushing and may be prescribed toothpaste containing 2,800 or 5,000 ppm fluoride (EB 1). The diet should also be investigated in order to assist the patient to adopt good dietary practice (EB 111).

Prevention of Periodontal Disease (gum disease)

The DoH publication ‘Delivering Better Oral Health: An evidence-based toolkit for prevention’ outlines the following advice for the prevention of periodontal disease. This advice should be used in addition to caries prevention².

All Adolescents and Adults

• Brush teeth systematically twice daily with either: a manual brush with a small head and round end filaments (EB V) or a powered toothbrush with an oscillating/rotating head (EB 1). The methods of improving plaque control should be demonstrated to the patient (EB V).

• Do not smoke (EB 111). A history of tobacco use should be taken and brief advice should be given. Smokers should be directed to the local Stop Smoking Service (EB V).

• Consider using toothpastes containing: triclosan with copolymer (Fig.2) or triclosan with zinc citrate to improve levels of plaque control (EB 1).

Fig. 2: toothpaste that may be recommended to improve levels of plaque control.
The Evidence-based toolkit contains a list of which toothpastes contain Triclosan with co-polymer or zinc citrate. This can be downloaded from the non-verifiable CPD section from the member's page.

- Toothpastes with stannous fluoride may reduce gingivitis (EB 11).
- Clean interdentally using interdental brushes or floss (EB V).
- Maintain good dietary practices in line with The Balance of Good Health (EB V. Fig.3).

![The Balance of Good Health](image)

**Fig.3.** The Balance of Good Health.

In addition to the evidence-based advice outlined in this article, the evidence-based toolkit also contains recommendations for increasing fluoride availability, principles of good brushing, healthy eating, identifying sugar-free medicines, stop smoking guidance, accessing alcohol misuse support and the prevention of erosion.

**Portfolio Tip**

The DoH publication ‘Choosing Better Oral Health: An oral health plan for England’ and ‘Delivering Better Oral Health: An evidence-based toolkit for prevention’ can now be obtained from the non-verifiable CPD section of the website.

These are fairly lengthy publications. Don’t forget to update your non-verifiable CPD log with the hours you spend reading these documents.
References