A Summary of: Delivering Better Oral Health: An evidence-based toolkit for prevention

**Aims:** To discuss the key points of the government publication Delivering Better Oral health: An evidence-based toolkit for prevention. This article aims to assist the reader in understanding the publication and raise awareness of the importance of evidence based dentistry.

**Objectives:** On completion of this verifiable CPD article the participant will be able to demonstrate, through the completion of a questionnaire, the ability to:

- Define evidence based medicine.
- Identify the grades of the hierarchy of evidence.
- Identify some of the topics included in the toolkit for prevention.
- Identify advice that should be given to prevent caries in under 3 year olds.
- Identify advice that should be given to prevent caries from aged 7 and young adults.
- Identify key points of good dietary advice.
- Identify risk factors of periodontal disease.
- Identify sources of acid that may lead to tooth wear.
- Pass an assessment, scoring over 70%.

**Introduction**

Public Health England have provided the third edition of the prevention toolkit for clinical teams. Previous editions have been reviewed and current evidence has been used to revise the toolkit. Oral health plays an important role in general health and the well-being of all individuals and currently there are significant inequalities in oral health across England.

The aim of the toolkit is to assist clinicians in making sure every contact with patients counts so that risk factors for general health (which are also risk factors for dental health) such as: smoking, alcohol misuse and poor diet, can be targeted at every opportunity. Clinical teams play a vital role in advising their patients about how they can make healthy lifestyle choices that can improve and maintain not just their oral health but general health.

Delivering Better Oral Health: An evidence-based toolkit for prevention should be used by the whole dental team to ensure that all patients have access to improved preventive advice and care.
**What is Evidence Based Medicine?**

Evidence based medicine has been defined as “the use of mathematical estimates of the risk of benefit and harm, derived from high-quality research on population samples, to inform clinical decision making in the diagnosis, investigation or management of individual patients”.\(^2\) This indicates that evidence based decision making is much more than believing a newspaper article or something a colleague has told you. It is necessary to further investigate such information in order to make an informed decision as to whether to apply it to your professional practice. Applying evidence based decision making to general dental practice will improve the quality of care that the patients receive.\(^3\)

**The Hierarchy of Evidence**

Research evidence in healthcare can be classified according to the level of quality. This is known as the hierarchy of evidence. The toolkit uses the Muir Gray hierarchy as shown below. It also indicates good practice with the symbol GP✓.\(^4\) The grades of evidence used are as shown in the table below.

<table>
<thead>
<tr>
<th>Grade</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 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>
</tr>
<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>
</tr>
<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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</table>
Why is it important that the toolkit is evidence based?

The toolkit provides clear guidance about the advice and the actions dental teams should take to ensure they are doing the best for their patients in preventing disease. The messages they give need to be consistent, up to date and correct. A number of well-respected experts came together to produce the toolkit which aims to provide practical evidence-based guidance to help clinical teams promote oral health and prevent oral disease in their patients.

The approach taken was to collate available evidence for each piece of advice, confer as a group and establish core messages and actions for which evidence had revealed a preventive benefit. Relevant research was assessed, noting the strength of evidence, then statements were refined to ensure the wording was clear and unambiguous. In many cases this involved reviewing a range of research to enable the group to reach their conclusions.

Throughout the toolkit the level of evidence for each statement is clear and the research with the highest level of evidence is referenced to support the statements.

What topics are included in the toolkit?

The toolkit provides prevention advice on the following subjects:

- Principles of toothbrushing for oral health
- Increasing fluoride availability
  - Fluoridation of water and milk
  - Toothpaste
  - Fluoride varnish
  - Prescribing high concentration fluoride
  - Prescribing additional fluoride
- Healthy eating advice
  - Dietary advice to prevent dental caries
  - General good dietary practice guidelines
  - Diet Diary
- Sugar-free medications
- Improving periodontal health
- Smoking and tobacco use
- Alcohol misuse and oral health
- Prevention of erosion
• Helping patients to change their behaviour

**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).

**Caries Prevention in Children Under 3 Years**

The evidence based (EB) 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 1).
• As soon as teeth erupt they should be brushed twice daily with fluoridated toothpaste (EB 1).
• Brush last thing at night and on one other occasion (EB 1).
• Use fluoridated toothpaste containing no less than 1,000ppm fluoride (EB 1).
• It is good practice to use only a smear of toothpaste (GP ✓).
• The frequency and amount of sugary food and drinks should be reduced (EB 111 and 1).
• Sugar-free medicines should be recommended (EB 111).

**Caries Prevention in Children Aged 3-6 Years**

• Brush at least twice daily, with a fluoridated toothpaste (EB 1).
• Brush last thing at night and on one other occasion (EB 111).
• A parent or carer should supervise brushing (EB 1).
• A fluoridated toothpaste containing more than 1,000ppm fluoride should be used (EB1).
• It is good practice to use a pea-sized amount of toothpaste (GP ✓).
• After brushing spit out but do not rinse (EB 111). This is to maintain fluoride levels.

• The frequency and amount of sugary food and drinks should be reduced (EB 111 and 1).

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

It is recommended that children in this age group have fluoride varnish (2.2 % NaF-) 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. They can carry out this skill if they are trained, competent and indemnified. They can apply fluoride varnish either on prescription from a dentist or direct as part of a structured dental health programme.

**Caries Prevention in Children Aged 0-6 Giving Concern**

The advice for children who are likely to develop caries for example those with special needs or a high level of decay present at first assessment is as follows:

All advice as above plus:

• Use fluoridated toothpaste containing 1,350-1,500ppm fluoride (EB1).

• Use a smear or pea size amount (GP✓).

• If medication is given frequently or long term request that it is sugar free (GP✓).

**Additional Advice and Professional Interventions to Children Giving Concern**

It is recommended that individuals in this category have fluoride varnish (2.2 % NaF-) professionally applied to the teeth 2 or more times yearly (EB 1). In addition, recall intervals may be reduced (EB V) and the diet should be investigated to assist the patient to adopt good dietary practice in line with the eatwell plate (EB 1). Where medication is given frequently or long term liaise with the medical practitioner to request it is sugar free, or used to minimise cariogenic effects (GP✓).

**Caries Prevention in Children Aged From 7 Years and Young Adults**

• Brush twice daily (EB 1).

• Brush last thing at night and on one other occasion (EB 111 and 1).

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

• After brushing spit out but do not rinse (EB 111).
- The frequency and amount of sugary food and drinks should be reduced (EB 111 and 1).

It is recommended that children in this age group have fluoride varnish (2.2 % NaF-) professionally applied to the teeth twice yearly (EB 1).

**Additional Advice and Professional Interventions for Children and Young Adults Giving Concern** (such as those with current active caries, those undergoing orthodontic treatment, dry mouth or other predisposing factors 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 2 or more times yearly (EB 1), and children over 8 years with active caries should be prescribed a daily fluoride mouth rinse (0.05 % NaF) (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 either a toothpaste containing 2,800 or 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 in line with the eatwell plate (EB 1).

![Duraphat 2800 ppm Fluoride Toothpaste](https://example.com/duraphat)

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

**Caries Prevention in Adults**

- Brush twice daily (EB 1).

- Brush last thing at night and on one other occasion (EB 111 and 1).

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

- After brushing spit out but do not rinse (EB 111).
- The frequency and amount of sugary food and drinks should be reduced (EB 111 and 1).

**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 % NaF-) professionally applied to the teeth twice yearly (EB 1). Those with obvious active coronal or root caries should use a daily fluoride mouthrinse 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 in line with the eatwell plate (EB 1).

**General good dietary practice guidelines**

The two most important elements of a healthy diet are: eating the right amount of food relative to how active a person is to be a healthy weight and eating a range of foods in line with the eatwell plate.

The eatwell plate shows the types and proportions of the main food groups that we should eat as part of a healthy, balanced diet:

- Plenty of fruit and vegetables (at least five portions of a variety every day)
- Plenty of starchy foods, such as bread, rice, potatoes, and pasta, choosing wholegrain varieties and potatoes with their skins on whenever possible
- Some milk and dairy foods
- Some meat, fish, eggs, beans and other non-dairy sources of protein

Foods and drinks high in fat, sugar and/or salt should be consumed infrequently and in small amounts.
Key messages for a healthier diet:
- Base meals on starchy foods.
- Eat lots of fruit and vegetables.
- Eat more fish.
- Cut down on saturated fat.
- Cut down on the amount and frequency of sugary food intake.
- Eat less salt – no more than 6g a day.
- Drink plenty of water.

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 prevention.

All Adolescents and Adults

- Remove plaque effectively using methods shown by the dental team (EBV).
- This will prevent gingivitis and reduces the risk of periodontal disease (EB111).
- Daily effective plaque removal is more important to periodontal health than tooth scaling and polishing by the clinical team (EB111).
- Brush gum line and each tooth twice daily (EBV).
- Use either Manual or powered toothbrush (EB1). Small toothbrush head, medium texture (EBV).

Professional Interventions for Adults

The clinician should assess the patient's preferences for interdental plaque control and decide on appropriate interdental kit, demonstrate the method and types of kit, assess plaque removal abilities and confidence with kit and set patient targets for interdental plaque control.

Risk Factor Control for Periodontal Disease

The following are considered risk factors for periodontal disease and the recommended advice is as follows:

Tobacco - Patients should be advised not to smoke (EB111). Smoking increases the risk of periodontal disease, reduces benefits of treatment and increases the chance of losing teeth. Clinicians should ask, advise and act, take a history of tobacco use, give brief advice to users to quit and recommend local stop smoking services (EB1).
Diabetes - Patients with diabetes should try to maintain good diabetes control as they are at a greater risk of developing serious periodontal disease (EB111) and less likely to benefit from periodontal treatment if the diabetes is not well controlled (EBV). Clinicians should explain the risk related to diabetes to patients (GP✓).

Medications - Patients should be advised some medications can affect gingival health (EB1). For patients who use medication that cause dry mouth or gingival enlargement the clinician should explain oral health findings and risk related to medication and assess and discuss clinical management (GP✓).

Prevention of Peri-implant Disease

All adults with dental implants should be advised that:

- Dental implants require the same level of oral hygiene and maintenance as natural teeth (EBV).
- To clean both between and around implants carefully with interdental kit and toothbrushes (EBV).
- To attend for regular check of the health of gum and bone around implants (EBV).
- Clinicians should advise the best methods for self-care plaque control both toothbrushing and interdental cleaning (EBV).
Prevention of Oral Cancer

All adolescents and adults should be advised: not to smoke (EB111), not to use smokeless tobacco (eg, paan, chewing tobacco, gutkha) (EB1) and to reduce alcohol consumption to moderate levels (EB1). They should be advised to increase their intake of non-starchy vegetables and fruit (EB111).

Clinicians should ask, advise and act by giving brief advice about the use of tobacco (EB1), take a history of tobacco use, and give brief advise to signpost users to local stop smoking services (EB1).

Clinicians should ask, advise and act by giving brief advice about alcohol (EB1) and establishing if the patient is drinking above low risk (recommended) levels. If appropriate signpost to GP or local alcohol misuse support services.

Evidence-based Advice and Professional Intervention about Alcohol and Oral Health

All adolescents and adults should be advised that drinking alcohol above recommended levels adversely affects general and oral health with the most significant oral health impact being the increased risk of oral cancer (EBIV). Alcohol consumption should be reduced to low risk (recommended) levels (EB1).

Clinicians should establish and record if the patient is drinking above low risk levels (EB1). Offer brief advice to those drinking above recommended levels (EB1). If required refer or signpost high risk drinkers to their GP or local alcohol support services.

The recommended units of alcohol that are safe to consume has changed since the toolkit was produced. The current levels are as follows:

The Chief Medical Officers’ guideline for both men and women is that:

- You are safest not to drink regularly more than 14 units per week, to keep health risks from drinking alcohol to a low level.
- If you do drink as much as 14 units per week, it is best to spread this evenly over 3 days or more. If you have one or two heavy drinking sessions, you increase your risks of death from long term illnesses and from accidents and injuries.
- The risk of developing a range of illnesses (including, for example, cancers of the mouth, throat and breast) increases with any amount you drink on a regular basis.
- If you wish to cut down the amount you’re drinking, a good way to help achieve this is to have several drink-free days each week.
- No level of alcohol is safe to drink in pregnancy.

The following table shows a useful training resource for dental professionals. It takes approximately three minutes to complete and offers direct and personalised feedback to the patient, identifying excessive drinking within the last year.
AUDIT (C): Alcohol use disorder identification test

<table>
<thead>
<tr>
<th>Questions</th>
<th>Scoring system</th>
<th>Your score</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often do you have a drink containing alcohol?</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>How many units of alcohol do you drink on a typical day when you are drinking?</td>
<td>1-2</td>
<td>1</td>
</tr>
<tr>
<td>How often have you had 6 or more units if female, or 8 or more if male, on a single occasion in the last year?</td>
<td>Never, Less than monthly</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Never</td>
<td>Monthly or less</td>
<td>2 - 4 times per month</td>
<td>2 - 3 times per week</td>
<td>4+ times per week</td>
</tr>
<tr>
<td>1-2</td>
<td>3 - 4</td>
<td>5 - 6</td>
<td>7 - 9</td>
<td>10+</td>
</tr>
</tbody>
</table>

Once a total score has been established the following advice should be given:

**Patients with a total score of 0-4**
- Feedback that the patient is at a lower risk of harm from alcohol
- Give advice on the safe limits
- Encourage and congratulate them

**Patients with a total score of 5-9**
- Feedback that the patient is at increasing or higher risk from alcohol related problems

**Examples of Units of Alcohol**
Prevention of Pathological Tooth Wear

Tooth wear is a natural part of ageing and so the extent and seriousness of any visible wear must be judged against a patient’s age to determine whether or not it is pathological. Severe tooth wear may lead to poor aesthetics and/or sensitivity and therefore should be identified, and actively managed, as early as possible.

At present there is insufficient evidence or rationale to recommend a population approach to prevention of tooth wear. The focus, therefore, should be on the identification of individuals who are giving concern because there is evidence of pathological wear.

Advice that may be given to manage erosive tooth wear for affected individuals:

- Avoid frequent intake of acidic foods or drinks.
- Keep acidic drinks to mealtimes and limit the number of fruit drinks (no more than one a day).
- Use toothpaste containing at least 1,450ppmF twice daily.
- Consider high fluoride toothpastes to protect enamel (5000ppm).
- Ensure toothpaste is low abrasive in nature.
- Do not brush immediately after eating or drinking acidic food.
- Do not brush immediately after vomiting (for recurrent vomiters).
- Facilitate patients in seeking medical assistance for management of gastro oesophageal reflux disease (GORD) and eating disorders, as there is evidence that anti-reflux medication reduces enamel loss from gastric.

Sources of Acid that may Lead to Erosive Tooth Wear

<table>
<thead>
<tr>
<th>Extrinsic Sources of Acid</th>
<th>Intrinsic Sources of Acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drinks containing citric acid, including natural fruit juices – e.g. orange, grapefruit, lemon, blackcurrant</td>
<td>Eating disorders including bulimia nervosa</td>
</tr>
<tr>
<td>Acidic fresh fruit, particularly in high quantities – other than banana and avocado – all fruit may be erosive, with lemons, oranges and grapefruit most so</td>
<td>Gastric acid reflux including GORD (gastro oesophageal reflux disease)</td>
</tr>
<tr>
<td>Carbonated drinks</td>
<td>Chronic vomiting</td>
</tr>
<tr>
<td>Alcopops and designer drinks (such as fortified wines with fruity flavours)</td>
<td></td>
</tr>
<tr>
<td>Smoothies</td>
<td></td>
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</tbody>
</table>
Cider
Wine (white and red)
Fruit teas (but not camomile)
Sports drinks which contain acid
Vinegar-based foods, including pickles
Acidic sweets, eg, acid drops, sherbet lemons, etc.
Chewable vitamin C tablets
Aspirin
Some iron preparations
Medications and other conditions reducing salivary flow
Other rare sources
Hydrogen peroxide
Occupational exposure to acid

Sources of Mechanical Tooth Wear

<table>
<thead>
<tr>
<th>Mechanical Wear</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tooth brushing</td>
</tr>
<tr>
<td>Abrasive toothpaste</td>
</tr>
<tr>
<td>Abrasive food</td>
</tr>
<tr>
<td>Bruxism</td>
</tr>
</tbody>
</table>

Helping patients to change their behaviour

All healthcare providers, including dental teams, have a role in making every contact count, helping their patients to change behaviour and improve their health and wellbeing. Dental team members have skills that can support patients to change behaviour, which can positively impact on their oral health. The table below outlines how behaviour change can be approached with patients, using either very brief (between 30 seconds to a minute) or more in depth advice such as a brief intervention (between five and ten minutes).

It is important to consider the most appropriate team member to deliver the intervention. For example, the dentist may give very brief advice (and ensure this is written in the patient’s notes). Brief interventions and/or signposting to local services may be undertaken by dental hygienists and therapists, health educators or dental nurses.
Conclusion

This article discussed the key points of the government publication Delivering better oral health: an evidence-based toolkit for prevention and provided an overview of the document. It highlighted the advice that should be used by the dental team to improve oral health for patients.
Learning Outcomes

This CPD article links to the following new proposed GDC higher learning outcomes for 2017:

- Maintenance and development of knowledge and skill within your field of practice.
- Maintenance of skills, behaviours and attitudes which maintain patient confidence in you and the dental profession and put patients' interests first.

Please note that we will be assisting all our members with formulating a written plan to meet the new requirements when the new enhanced CPD scheme comes into force.

Non-Verifiable CPD Tips

We recommend that you carry out non verifiable CPD related to this subject. New non-verifiable CPD has been added to the website. Please remember to update your non-verifiable CPD Record on the site.

References


