

Drug Prescribing For Dentistry

Dental Clinical Guidance

Third Edition



The Scottish Dental Clinical Effectiveness Programme (SDCEP) is an initiative of the National Dental Advisory Committee (NDAC) in partnership with NHS Education for Scotland. The programme provides user-friendly, evidence-based guidance on topics identified as priorities for oral health care.

SDCEP guidance aims to support improvements in patient care by bringing together, in a structured manner, the best available information that is relevant to the topic, and presenting this information in a form that can be interpreted easily and implemented.

Supporting the provision of safe, effective, person-centred care



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Disclaimer

This product contains information from the British National Formulary (BNF). For more comprehensive prescribing and drug information, refer to the complete current edition of the British National Formulary or www.bnf.org.

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1 Introduction

Registered dentists are legally entitled to prescribe from the entirety of the *British National Formulary* (BNF) and *BNF for Children* (BNFC). However, dental prescribing within the National Health Service (NHS) is restricted to those drugs contained within the *List of Dental Preparations* in the *Dental Practitioners Formulary* (DPF). Since 2005 the DPF, which was formerly a distinct publication, has been incorporated into the body of the *British National Formulary* and the *BNF for Children*. Both the BNF and BNFC are available as print and online editions, with an updated volume of the BNF print edition issued every six months and an updated volume of the BNFC print edition issued yearly. The online editions of both the BNF and BNFC are updated monthly which enables access to the latest prescribing information (www.bnf.org).

To facilitate easy access to information that is most relevant to drug prescribing for dentistry, the Scottish Dental Clinical Effectiveness Programme (SDCEP; www.sdcep.org.uk) convened a Guidance Development Group in 2005 to produce guidance that brings together the essential information from the BNF and BNFC. Further details about SDCEP and the development of this guidance are given in Appendix 1. Edition one of this guidance was published in April 2008, with updates provided periodically. A second edition was published in August 2011. This third edition of the *Drug Prescribing For Dentistry* guidance is based on BNF 70¹ and BNFC 2015-16² and supersedes the first two editions and their updates. An app, (*Dental Prescribing*) was released in 2012 and is regularly updated in line with changes to the print editions of the BNF.

The list of drugs that can be prescribed by dentists within the NHS in Scotland includes all drugs in this guidance (see *List of Dental Preparations* in BNF 70¹). Although dentists can prescribe additional drugs within the NHS, they have a duty to prescribe only within their competence and to adhere to guidance from their local formulary committees.

1.1 Scope of this Guidance

This guidance aims to facilitate drug prescribing within primary care dental practice by bringing together advice on dental prescribing from the BNF and BNFC and presenting it in a readily accessible, problem-orientated style. The information on drug prescribing contained in this guidance is based on BNF 70¹ and BNFC 2015-16,² whose advice is constructed from the clinical literature and reflects, as far as possible, an evaluation of the evidence from diverse sources. The drugs recommended in this guidance were identified by the Guidance Development Group as most relevant to primary care dental practice.

Advice on drugs used to manage medical emergencies is also provided. This advice is based on information provided in BNF 70¹ and BNFC 2015-16,² and guidance published by the National Dental Advisory Committee (NDAC) in 2015.³

The diagnosis of dental disease is outwith the scope of this guidance and is not discussed in detail. The SDCEP *Management of Acute Dental Problems*⁴ guidance provides more information on the diagnosis, initial management and subsequent care for a wide variety of conditions that may present in primary care.

1 Introduction

This guidance is suitable for informing dental practitioners in the primary care sector, and applies to all patients, including adults, children and those with special needs, who would normally be treated in the primary care sector. The guidance does not include advice on prescribing for those in a secondary care environment or for practitioners with special expertise who may prescribe a wider range of drugs.

Drug regimens with dosages are included but the intention is for this guidance to be used in conjunction with the BNF and BNFC. Consult the most up-to-date volume of the BNF (www.bnf.org) before prescribing for adults and be aware that prescribing for some patient groups, including the elderly, patients who are immunocompromised or with hepatic or renal problems, patients who are pregnant and nursing mothers, might differ (see Section 1.1.4). Consult the most up-to-date volume of the BNFC (www.bnf.org) before prescribing for children.

1.1.1 Medical Emergency Information

All general dental practitioners and dental care professionals are required to be able to manage medical emergencies, which includes the administration of drugs in a life threatening situation. A list of drugs for use in medical emergencies is included in Section 2, together with information about their administration. This list reflects the emergency drugs recommended in BNF 70¹ and included in NDAC guidance³ published in 2015. In addition, brief details of the signs and symptoms of medical emergencies that might occur in primary care dental practice are provided.

Information regarding administration of drugs used in medical emergencies is provided in white boxes on the left, with any differences in the doses or formulations for children provided in blue boxes on the right.

This advice is based on information provided in BNF 70¹ and BNFC 2015-2016,² and guidance published by the NDAC.³ Refer to guidance from the Resuscitation Council (UK)⁵⁻⁷ for details of the equipment and training required to be able to deal with cardiorespiratory arrest effectively. The SDCEP *Practice Support Manual*⁸ (www.psm.sdcep.org.uk) also contains further information and guidance concerning medical emergencies and life support.

1.1.2 Prescribing Information

In Sections 3–11, prescribing information is presented for all patients: information is provided for adults in yellow boxes on the left, and differences in the doses and formulations used for different age ranges of children are provided in blue boxes on the right.⁹ For those drugs where a range in the dose or frequency of administration is provided by the BNF, a dose and frequency of administration that is most relevant to primary care dental practice is recommended based on the

⁹Be aware that, for clarity and to aid selection of the correct dose, age and weight ranges for children have been adjusted in the most recent versions of the BNF and BNFC so that they no longer overlap. This change is reflected in this edition of the guidance.

1 Introduction

opinion of experienced practitioners. Advisory notes and cautions are provided in footnotes to the prescribing boxes to help inform the decision of the practitioner. For more detailed information on cautions, contraindications and side-effects, refer to the BNF and BNFC (www.bnf.org).

For practical reasons, the frequency of administration of each drug is generally given as 'X times daily'. However, it is advisable to inform patients that they should take the drug at regular intervals that are as spaced out as possible.

In some cases a drug of choice is recommended for a given dental condition. However, in many cases drug regimens are not listed in order of preference so that the choice of the clinical practitioner is not limited. The availability of sugar-free preparations, as indicated in the BNF, is highlighted; for further details, refer to the BNF and BNFC. A list of all the drugs recommended in this guidance is provided in Appendix 2.

1.1.3 Drug Interactions

Common drug interactions that could have serious consequences are identified within the guidance and include:

- interaction of non-steroidal anti-inflammatory drugs (NSAIDs), carbamazepine, azole antifungals, metronidazole and macrolide antibiotics with warfarin.
- incidence of myopathy after prescribing azoles and clarithromycin in those taking statins.
- asthma symptoms exacerbated following the use of NSAIDs.

It is important that dentists are aware of potential drug interactions. Further information on common drug interactions that may be encountered in dental practice is provided in Appendix 4 of this guidance. However, it is recommended that dentists refer to Appendix 1 of the BNF and BNFC (www.bnf.org) for comprehensive information on drug interactions.

Note that antibiotics which do not induce liver enzymes are no longer thought to reduce the efficacy of combined oral contraceptives.⁹ See Section 4.1 for further information.

1.1.4 Prescribing For Specific Patient Groups

Be aware that special care may be required when prescribing for certain groups who may have additional or complex needs, such as the elderly, patients who are immunocompromised, patients who are pregnant and nursing mothers. Also note that dentists need to be aware of whether any patient suffers from an unrelated medical condition (e.g. renal or liver impairment) or is taking other medication because modification to the management of the patient's dental condition might be required.¹⁰ Refer to the BNF and BNFC (www.bnf.org) for further details.

1 Introduction

1.1.5 Off-label Prescribing

Some drugs, although licensed, are recommended for use outside the terms of their licence ('off-label' use). Some of these drugs have been found to be effective in dental practice and although their specific use in dentistry has not been licensed, their use in the management of certain dental conditions has been endorsed by the BNF. Also, certain drugs which are licensed for use in adults are not licensed for use in children. As most drugs are not usually tested on children, pharmaceutical companies cannot apply to license them for paediatric use. The use of these drugs is, however, sometimes necessary in the treatment of children. For more details see the General Medical Council website: www.gmc-uk.org/guidance/ethical_guidance/14327.asp. The responsibility for prescribing drugs 'off-label' and any other drugs lies with the practitioner who signs the prescription. Note that prescribing or administering drugs that are unlicensed for a particular condition or for use in children alters (and probably increases) the practitioner's professional responsibility and potential liability, and the practitioner should be able to justify and feel competent in using such drugs (see BNF; www.bnf.org). For information, these drugs are indicated within the text.

1.1.6 Local Measures

Drug therapy is only part of the management of dental conditions, which also includes surgical and local measures. In some cases, local measures are sufficient to treat a given dental condition, whereas in other cases drug therapy in addition to local measures is necessary. Information regarding common local measures to be used in the first instance is provided in green boxes before prescribing information.

1.2 Statement of Intent

This guidance is based on information contained in BNF 70¹ and BNFC 2015-2016² and the opinion of experts and experienced practitioners, and reflects current relevant legislation and professional regulations. It should be used in conjunction with the BNF and BNFC and be taken into account when making decisions about a particular clinical procedure or treatment plan in discussion with the patient and/or guardian or carer.

Note that drug therapy is only part of the management of dental conditions, which also includes surgical and local measures.









As guidance, the information presented here does not override the individual responsibility of the health professional to make decisions appropriate to the individual patient. However, it is advised that significant departures from this guidance be fully documented in the patient's case notes at the time the relevant decision is made.

Although primarily provided for dental practitioners in Scotland, this guidance is also likely to be of relevance elsewhere. If using the guidance outside Scotland, it may also be necessary to consult other local or national guidance and to be aware of other prescribing practice initiatives.

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1.3 Prescription Writing

Dental practitioners should only prescribe within their competence and must make an appropriate assessment of the patient's condition, taking into account their medical history and any current medication, when prescribing. Dentists may only write NHS prescriptions for drugs which appear in the *Dental Practitioners' Formulary* (DPF), which is incorporated in the BNF and BNFC (both available at www.bnf.org). NHS prescriptions are written on a specified form (e.g. GP14 in Scotland). If the medicine to be prescribed is not included in the DPF, a private prescription may be provided. Private patients who require medicine as part of their treatment should also be provided with a private prescription, even if the required drug is included in the DPF. Private prescriptions may be written on practice headed notepaper following the same recommendations as for NHS prescriptions. Dental practitioners may only prescribe using the non-proprietary name of the drug. Exceptions to this are detailed in the text under individual drugs. An example of a completed prescription form can be found in the section *Guidance on Prescribing* in general BNF guidance (www.bnf.org).

-  Write prescriptions legibly in ink, stating the date, the name and address of the patient and the practice address.
-  It is preferable that the age and date of birth of the patient is also stated; this is a legal requirement in the case of prescription-only medicines for children under 12 years.
-  Write the names of drugs and preparations clearly using approved titles only. Do not use abbreviations.
-  State the pharmaceutical form to be dispensed (i.e. tablet, capsule, liquid) and the required strength; this is particularly important for liquid preparations.
 - It is acceptable to abbreviate 'milligrams' to 'mg' but do not abbreviate 'micrograms' or 'nanograms'; these must be written in full.
-  State the dose and the dose frequency.
-  State the quantity or volume to be supplied; this may also be indicated by stating the number of days of treatment required in the box provided on NHS forms.
 - Where a liquid formulation is prescribed, the volume to be dispensed will be calculated by the dispenser provided that the number of days of treatment required is included. Sugar-free versions, where available, should be prescribed.
-  In the case of preparations to be taken 'as required', specify a minimum dose interval and the total quantity to be supplied.
-  Sign the prescription in ink.

1 Introduction

There is no statutory requirement for the dental surgeon to communicate with a patient's medical practitioner when prescribing for dental use. There are, however, occasions when this would be in the patient's interest and such communication is encouraged.

There are no clinical indications for drugs which have controlled drug prescription requirements to be prescribed in primary dental care.

NHS prescription pads must be kept secure to prevent misuse or theft. The Practitioner Services division of NHS National Services Scotland has produced guidance for all prescribers across Scotland. This discusses a range of measures available to prevent and tackle the problem of prescription form theft and misuse at a local level and outlines the recommended action when an incident occurs (see www.psd.scot.nhs.uk/professionals/pharmacy/documents/security_of_prescription_form_guidance-final_July2012_000.pdf).

Further advice on prescription writing is given in the BNF and BNFC (www.bnf.org).

1.4 Adverse Reactions to Drugs

Adverse or unwanted reactions might occur after use of any drug. The Medicines and Healthcare products Regulatory Agency (MHRA; www.mhra.gov.uk) monitors suspected adverse drug reactions through the Yellow Card Scheme (www.yellowcard.gov.uk). Healthcare professionals are advised to record and report any adverse drug reactions using the scheme. Patients and carers can also report suspected adverse reactions to the MHRA using the scheme. More information is available from the BNF (www.bnf.org).

It is also important when prescribing to discuss with the patient any potential side effects, such as nausea or diarrhoea, which may occur.

2 Medical Emergencies in Dental Practice

Each dental practice must stock, and regularly check, a core list of drugs and equipment for use in medical emergencies. All general dental practitioners and dental care professionals are required to ensure that they are competent in the use of both the drugs and the equipment and are able to recognise medical emergencies.^{5,6} The SDCEP *Practice Support Manual*⁸ (www.psm.sdcep.org.uk) contains further information on emergency medical equipment and storage of emergency drugs.

Brief details of the drugs used in the management of medical emergencies are provided here. Refer to guidance from the Resuscitation Council (UK),⁵⁻⁷ the National Dental Advisory Committee³ and the BNF¹ for more-detailed advice on how to recognise, assess and manage medical emergencies and for details of the equipment and training required to be able to deal with medical emergencies and cardio-pulmonary resuscitation (CPR) effectively. It is important to undertake regular training in the management of medical emergencies within the dental environment to keep up to date with current guidance. Training in medical emergencies is a core element of continuing professional development (CPD) for dentists and all dental care professionals and the GDC recommend at least 10 hours of such training every CPD cycle (2 hours per year). Ensuring that you have an up-to-date full medical history for all patients will facilitate the management of medical emergencies.

2 Medical Emergencies in Dental Practice

The current recommended drugs for medical emergencies are:

- Adrenaline, 1-ml ampoules or prefilled syringes of 0.5 ml of 1:1000 solution for intramuscular (i.m.) injection[§]
- Aspirin, 300 mg dispersible tablets
- Glucagon, for i.m. injection of 1 mg
- Glyceryl trinitrate (GTN) spray, 400 micrograms per metered dose
- Midazolam oromucosal solution, 5 mg/ml, for topical buccal administration[¶]
- Oral glucose (there are several alternative forms, including non-diet fizzy drinks, glucose gel, powdered glucose and sugar lumps)
- Oxygen cylinder, two size D or two size CD or one size E[†]
- Salbutamol inhaler, 100 micrograms per actuation

Although the above list includes midazolam for topical administration, parenteral midazolam is a suitable alternative for use by appropriately trained individuals.

[§]Note that pre-filled syringes are convenient in an emergency situation due to their ease of use but those provided for patient use (e.g. EpiPen® etc.) may contain less adrenaline than recommended for the management of medical emergencies.

[¶]Midazolam oromucosal solution is available as pre-filled oral syringes; several sizes are available to allow for exact dosing for different age groups. Midazolam oromucosal solution is not licensed for use in children <3 months or in adults >18 years.

[†]Ensure the supply of oxygen contained in the cylinders will enable adequate flow rates (15 litres/minute) to be maintained until the arrival of the ambulance or the patient recovers fully (at least 30 minutes supply). A full size D cylinder contains nominally 340 litres of oxygen and therefore should provide oxygen for up to ~22 minutes; a full size CD cylinder contains nominally 460 litres of oxygen and therefore should provide oxygen for up to ~30 minutes; a full size E cylinder contains nominally 680 litres of oxygen and therefore should provide oxygen for up to ~45 minutes. For rural practices, it may be prudent to retain two size E cylinders to allow for longer ambulance response times.

2 Medical Emergencies in Dental Practice

Note that the *British National Formulary, Volume 70* (BNF 70)¹ recommends buccal midazolam as an emergency drug for the management of *status epilepticus* in dental practice. Midazolam is a Schedule 3 controlled drug (CD). This means that:

- prescriptions or requisitions for midazolam must comply with the full CD regulations;
- records of midazolam usage do not need to be kept in a CD register;
- invoices for midazolam need to be retained for 2 years;
- midazolam (as other Schedule 3 drugs) should be denatured before being placed in waste containers; see *SDCEP Practice Support Manual*[®] (www.psm.sdcep.org.uk) for guidance on the denaturation of midazolam;
- midazolam is exempt from the safe custody requirements and will not legally require storage in a CD cabinet;
- BNF 70¹ includes the CD3 symbol against midazolam preparations. Information on the legal status of midazolam is also shown in the section *Controlled Drugs and Drug Dependence* in general BNF guidance.

In addition, dental practices might wish to stock the following to aid the management of patients with mild allergic reactions:

- Cetirizine 10 mg tablets or oral solution (5 mg/5 ml)
- Chlorphenamine, 4 mg tablets or oral solution (2 mg/5 ml)
- Loratadine, 10 mg tablets or syrup (5 mg/5 ml)

Use these drugs in the following emergencies in the order stated. Where a patient requires transfer to hospital, ensure that you provide full and complete handover notes with details of any treatment carried out and/or drugs administered.

2 Medical Emergencies in Dental Practice

2.1 Anaphylaxis

Key signs of anaphylaxis:

- Marked upper airway (laryngeal) oedema and bronchospasm, causing stridor and wheezing
- Tachycardia (heart rate > 110 per minute) and increased respiratory rate

Symptoms include:

- Abdominal pain, vomiting, diarrhoea, and a sense of impending doom
- Flushing, but pallor might also occur
- Patients may also display symptoms of mild allergy (see Section 2.2)

Management

The priority is to transfer the patient to hospital as an emergency.

- Assess the patient.
- Call for an ambulance.
- Secure the patient's airway and help to restore their blood pressure by laying the patient flat and raising their feet.
- Remove the source of anaphylaxis, if known, using suction if required.

- Administer 100% oxygen – flow rate: 15 litres/minute.

For children: _____

As for adults

- Administer adrenaline, 0.5 ml (1:1000), i.m. injection repeated after 5 minutes if needed.¹¹

For children: _____

Adrenaline (1:1000)¹¹

6 months-5 years	0.15 ml
6-11 years	0.3 ml
12-17 years [‡]	0.5 ml

[‡]Use 0.3 ml adrenaline for children aged 12–17 years if the child is small or prepubertal.

- If cardiac arrest follows an anaphylactic reaction, initiate basic life support (BLS) and carry out early defibrillation where defibrillator is available.[§] [Refer to Resuscitation Council (UK) guidance⁷ for details of BLS for adults and children.]

[§]In August 2014 the Scottish Government commenced roll-out of defibrillators to NHS dental practices in Scotland. All dental teams should be trained in the use of these devices.


2 Medical Emergencies in Dental Practice

2.2 Treatment of Milder Forms of Allergy

Key signs of mild allergy:

- Urticaria and rash, particularly of chest, hands and feet
- Rhinitis, conjunctivitis
- Mild bronchospasm without evidence of severe shortness of breath

Management

 Administer 1 Cetirizine Tablet, 10 mg.

For children:

Cetirizine[†] Tablet, 10 mg or
Oral Solution, 5mg/5 ml


6-11 years	5 mg
12-17 years	As for adults

NB: Although drowsiness is rare, advise patients not to drive.

Use with caution in patients with hepatic impairment or epilepsy.

[†]Cetirizine tablets are not licensed for use in children under 2 years (see Section 1.1.5).

or

 Administer 1 Chlorphenamine Tablet, 4 mg.

For children:

Chlorphenamine Tablet[‡], 4 mg
or Oral Solution[§], 2 mg/5 ml

2-5 years	1 mg
6-11 years	2 mg
12-17 years	4 mg

NB: Chlorphenamine can cause drowsiness. Advise patients not to drive.

Use with caution in patients with hepatic impairment, prostatic hypertrophy, epilepsy, urinary retention, glaucoma or pyloroduodenal obstruction. Avoid use in children with severe liver disease.


Do not give to children under 2 years, except on specialist advice, because the safety of the use of chlorphenamine has not been established.

[‡]Chlorphenamine tablets are not licensed for use in children under 6 years (see Section 1.1.5).

[§]Chlorphenamine oral solution (syrup) is not licensed for use in children under 1 year (see Section 1.1.5).

or

2 Medical Emergencies in Dental Practice

 Administer 1 Loratadine Tablet, 10 mg.


For children:

Loratadine Tablet, 10 mg or Syrup, 5 mg/ml

2-11 years body weight <30 kg	5 mg
2-11 years body weight ≥30 kg	As for adults
12-17 years	As for adults

NB: Although drowsiness is rare advise patients not to drive.
Use with caution in patients with hepatic impairment or epilepsy.


If the patient displays signs of mild bronchospasm:

 Administer a salbutamol inhaler, 4 puffs (100 micrograms per actuation), through a large-volume spacer, repeat as needed.

For children:

Salbutamol inhaler

12-17 years	1 puff via a spacer every 15 seconds (max. 10 puffs), repeat above regime at 10-20 minute intervals as needed.
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 Refer the patient to their general medical practitioner.

Treatment with antihistamines is only suitable in cases of mild allergy; severe allergic reactions must be treated as stated in Section 2.1.

2 Medical Emergencies in Dental Practice

2.3 Asthma

Key signs of life-threatening asthma

- Cyanosis or respiratory rate <8 per minute
- Bradycardia (heart rate <50 per minute)
- Exhaustion, confusion, decreased conscious level

Key signs of acute severe asthma

- Inability to complete sentences in one breath
- Respiratory rate >25 per minute
- Tachycardia (heart rate >110 per minute)

Management

The priority is to transfer a patient displaying symptoms of life-threatening asthma to hospital immediately as an emergency.

Assess the patient.

Sit patient upright.

Administer 100% oxygen
– flow rate: 15 litres/minute.

For children:

As for adults

Administer the patient's own bronchodilator (2 puffs); if unavailable, administer a salbutamol inhaler, 4 puffs (100 micrograms per actuation), through a large-volume spacer, repeat as needed.

For children:

Salbutamol inhaler

2-17 years

1 puff via a spacer every 15 seconds (max. 10 puffs), repeat above regime at 10-20 minute intervals as needed.

If a patient suffering from a severe episode of asthma does not respond to treatment with bronchodilators within 5 minutes of administration, they should also be transferred to hospital as an emergency.

2 Medical Emergencies in Dental Practice

2.4 Cardiac Emergencies

2.4.1 Acute Coronary Syndromes (Angina and Myocardial Infarction)


Key sign:


- Progressive onset of severe, crushing pain in the centre and across the front of chest; the pain might radiate to the shoulders and down the arms (more commonly the left), into the neck and jaw or through to the back

Symptoms include:

- Shortness of breath
- Increased respiratory rate
- Skin becomes pale and clammy
- Nausea and vomiting are common
- Pulse might be weak and blood pressure might fall


Management

 Assess the patient.

 Administer 100% oxygen
– flow rate: 15 litres/minute.

For children: _____


Not relevant for children

 Administer glyceryl trinitrate (GTN) spray, 2 puffs (400 micrograms per metered dose) sublingually, repeated after 3 minutes if chest pain remains.


For children: _____

Not relevant for children

If the patient does not respond to GTN treatment then the priority is to transfer the patient to hospital as an emergency.

 Call for an ambulance.

2 Medical Emergencies in Dental Practice

 Administer aspirin, 300 mg dispersible tablet, orally.


For children:

Do not use in children because, rarely, it can cause Reye's syndrome[‡]

NB: The aspirin tablet should be chewed or dispersed in water.

If aspirin is given, send a note with the patient to inform the hospital staff.

[‡]Aspirin is not licensed for use in children under 16 years (see Section 1.1.5).

 If the patient becomes unresponsive, check for signs of life (breathing and circulation), and if there are no signs of life or no normal breathing, initiate basic life support (BLS) and carry out early defibrillation where a defibrillator is available.[‡] [Refer to Resuscitation Council (UK) guidance⁷ for details of BLS for adults and children.]


2.4.2 Cardiac Arrest


Key signs:

- Loss of consciousness
- Absence of normal breathing
- Loss of pulse
- Dilation of pupils

Management

The priority is to transfer the patient to hospital as an emergency.

 Call for an ambulance.

 Initiate BLS[§], using 100% oxygen or ventilation – flow rate: 15 litres/minute.

For children:

As for adults, with minor modifications to BLS for children[§]

[§]Refer to Resuscitation Council (UK) guidance⁷ for details of BLS for adults and children.

 Where a defibrillator is available, carry out early defibrillation.[‡]

[‡]In August 2014 the Scottish Government commenced roll-out of defibrillators to NHS dental practices in Scotland. All dental teams should be trained in the use of these devices.

2 Medical Emergencies in Dental Practice

2.5 Epilepsy

Key signs:





- Sudden loss of consciousness, patient may become rigid, fall, might give a cry and becomes cyanosed (tonic phase)
- Jerking movements of the limbs; the tongue might be bitten (clonic phase)


NB: Fitting might be associated with other conditions (e.g. hypoglycaemia, fainting).

Symptoms include:

- Brief warning or 'aura'
- Frothing from the mouth and urinary incontinence

Management

-  Assess the patient.
-  Do not try to restrain convulsive movements.
-  Ensure the patient is not at risk from injury.
-  Secure the patient's airway.

-  Administer 100% oxygen
– flow rate: 15 litres/minute.

For children:

As for adults

The seizure will typically last a few minutes; the patient might then become floppy but remain unconscious. Once the patient regains consciousness they may remain confused.

However, if the epileptic fit is repeated or prolonged (5 minutes or longer), continue administering oxygen and:

2 Medical Emergencies in Dental Practice

- Administer 10 mg midazolam (use 2 ml oromucosal solution, 5 mg/ml) topically into the buccal cavity.*

For children:

Midazolam oromucosal solution (5 mg/ml) [†]	
6-11 months	2.5 mg
1-4 years	5 mg
5-9 years	7.5 mg
10-17 years	10 mg

*Midazolam oromucosal solution is not licensed for use in adults in *status epilepticus* (see Section 1.1.5) but is recommended by the BNF to manage these patients (see www.bnf.org).

[†]Midazolam oromucosal solution (5 mg/ml) pre-filled syringes are available in several sizes to allow for exact dosing in different age groups

- After convulsive movements have subsided, place the patient in the recovery position and check the airway. Do not send the patient home until they have recovered fully.
- Only give medication if convulsive seizures are prolonged (last for 5 minutes or longer) or recur in quick succession. In these cases and if this was the first episode of epilepsy for the patient, the convulsion was atypical, injury occurred or there is difficulty monitoring the patient, call for an ambulance.

2 Medical Emergencies in Dental Practice

2.6 Faint


Key signs:


- Patient feels faint, dizzy, light-headed
- Slow pulse rate
- Loss of consciousness


Symptoms include:

- Pallor and sweating
- Nausea and vomiting

Management

 Assess the patient.

 Lay the patient flat and, if the patient is not breathless, raise the patient's feet. Loosen any tight clothing around the neck.

 Administer 100% oxygen – flow rate: 15 litres/minute until consciousness is regained.

For children: _____

As for adults

2 Medical Emergencies in Dental Practice

2.7 Hypoglycaemia

Key signs:

- Aggression and confusion
- Sweating
- Tachycardia (heart rate >110 per min)

Symptoms include:

- Shaking and trembling
- Difficulty in concentration/vagueness
- Slurring of speech
- Headache
- Fitting
- Unconsciousness

Management

- Assess the patient.

- Administer 100% oxygen
– flow rate: 15 litres/minute.

For children: _____

As for adults

If the patient remains conscious and cooperative:


- Administer oral glucose (10-20 g),
repeated, if necessary, after
10-15 minutes.

For children: _____

As for adults

2 Medical Emergencies in Dental Practice

If the patient is unconscious or uncooperative:


 Administer glucagon, 1 mg, i.m. injection.

For children:

Glucagon, i.m. injection

2-17 years body-weight <25 kg	0.5mg
2-17 years body-weight \geq 25 kg	1mg

and

 Administer oral glucose (10–20 g) when the patient regains consciousness.

For children:

As for adults

 If the patient does not respond or any difficulty is experienced, call for an ambulance.

2 Medical Emergencies in Dental Practice

2.8 Other Medical Emergencies


2.8.1 Stroke


Key signs:

- Facial weakness; one eye may droop or patient may only be able to move one side of mouth
- Arm weakness
- Communication problems; slurred speech; patient is unable to understand what is being said to them

Management


The priority is to transfer the patient to hospital as an emergency


 Assess the patient.

 Administer 100% oxygen
– flow rate: 15 litres/minute.

For children: _____

As for adults

 If the patient is unconscious and breathing, secure their airway and place in the recovery position.

 Call for an ambulance.

2 Medical Emergencies in Dental Practice

2.8.2 Aspiration and Choking


Dental patients are susceptible to choking and aspiration due to the presence of blood and secretions in their mouths for prolonged periods, suppressed pharyngeal reflexes due to local anaesthesia or the presence of impression material or dental equipment in their mouths.


Signs and symptoms include:

- Patient may cough and splutter
- Patient may complain of breathing difficulty
- Breathing may become noisy on inspiration (stridor)
- Patient may develop 'paradoxical' chest or abdominal movements
- Patient may become cyanosed and lose consciousness

Management


Aspiration

 Encourage patient to cough vigorously.

 Administer 100% oxygen
– flow rate: 15 litres/minute.

For children: _____

As for adults

 Administer a salbutamol inhaler, 4 puffs (100 micrograms per actuation), through a large-volume spacer, repeat as needed.

For children: _____

Salbutamol inhaler

2-17 years

1 puff via a spacer every 15 seconds (max. 10 puffs), repeat above regime at 10-20 minute intervals as needed.

2 Medical Emergencies in Dental Practice

- ♥ If you suspect that a large fragment has been inhaled or swallowed but there are no signs or symptoms, refer the patient to hospital for x-ray and removal of the fragment if necessary.
- ♥ If the patient is symptomatic following aspiration, refer them to hospital as an emergency.

Choking

- ♥ Remove any visible foreign bodies in the mouth and pharynx.
- ♥ Encourage the patient to cough.
- ♥ If the patient is unable to cough but remains conscious, commence back blows followed by abdominal thrusts.
- ♥ If the patient becomes unconscious, basic life support (BLS) should be started immediately; this may also help to dislodge the foreign body.
- ♥ Call an ambulance and transfer patient to hospital as an emergency.

3 Anxiety

An oral dose of a benzodiazepine may be used as premedication to aid anxiety management before dental treatment. However, note that benzodiazepines are addictive and susceptible to abuse and therefore only the minimum number of tablets required should be prescribed. Advise the patient that they will require an escort and that they should not drive.

Note that such premedication is not a definitive sedation technique. The Scottish Dental Clinical Effectiveness Programme (SDCEP) has provided separate guidance on the provision of conscious sedation in dentistry.¹²

An appropriate regimen to aid anxiety management is:

Diazepam Tablets, 5 mg

Send: 1 tablet

Label: 1 tablet 2 hours before procedure

For children:

Not recommended because it has an unpredictable effect in children

NB: The dose of diazepam can be increased to 10 mg if necessary.

Halve the adult dose for elderly or debilitated patients.

Advise all patients that they will require an escort and that they should not drive.

4 Bacterial Infections

Prolonged courses of antibiotic treatment can encourage the development of drug resistance and therefore **the prescribing of antibiotics must be kept to a minimum** and used only when there is a clear need.

The emergence and spread of antibiotic resistance is a global concern and is a major threat to public health. The indiscriminate use of antimicrobials in primary care, including dentistry, has been identified as one of the drivers of antibiotic resistance. Dental antimicrobial prescribing in Scotland has been increasing year on year and although in 2013/14 there was a 5.5% reduction in items dispensed compared to the previous year, dental prescriptions still accounted for almost 9% of all oral antibacterials dispensed in NHS primary care.¹³ It has been estimated from clinical audit that around 50% of dental prescriptions for antibacterials are inappropriate.^{14,15} Prudent, appropriate use of antibacterials will slow the emergence of bacterial resistance and will preserve the usefulness of existing drugs for future generations.

The use of broad-spectrum antibiotics has also been associated with the rise in *Clostridium difficile*-associated disease observed in both primary and secondary care. Care should therefore be taken when prescribing these antibiotics to vulnerable groups, such as the elderly and those with a history of gastrointestinal disease, including those using proton pump inhibitor (PPI) drugs for dyspepsia and gastro-oesophageal reflux diseases.

As a first step in the treatment of bacterial infections, use local measures. For example, drain pus if present in dental abscesses by extraction of the tooth or through the root canals, and attempt to drain any soft-tissue pus by incision. However, do not attempt to drain a cellulitis-type swelling. Antibiotics are only appropriate for oral infections where there is evidence of spreading infection (cellulitis, lymph node involvement, swelling) or systemic involvement (fever, malaise). In addition, other indications for antibiotics are cases of necrotising ulcerative gingivitis or pericoronitis where there is systemic involvement or persistent swelling despite local treatment. Antibiotics are also appropriate for sinusitis where there are persistent symptoms and/or purulent discharge lasting at least seven days or where symptoms are severe. Use antibiotics in conjunction with, and not as an alternative to, local measures.

Note that patients who have recently taken a course of antibiotics (within the preceding six weeks) have an increased risk of harbouring bacteria resistant to that drug and should therefore be prescribed an alternative. Where there is significant trismus, floor-of-mouth swelling or difficulty breathing, transfer patients to hospital as an emergency. A guide which outlines the management of bacterial infections is presented in Appendix 5.

There is no evidence to support the prescription of antibiotics for the treatment of pulpitis or the prevention of dry socket in patients undergoing non-surgical dental extractions. Dental pain arising from these conditions is due primarily to an inflammatory response which should be managed by the appropriate use of analgesics and local measures. Antibiotics should not be used as prophylactic prescriptions to prevent infections after a routine dental surgical procedure.

4 Bacterial Infections

A poster for dental practices, which explains to patients that drainage and analgesics are often the most effective treatments for dental infections, is available to download from the Scottish Medicines Consortium website (see www.scottishmedicines.org.uk/files/sapg/Dental_poster.pdf).



Before prescribing antibiotics, refer to the BNF and BNFC for drug interactions (www.bnf.org). Advise patients to space out doses as much as possible throughout the day. Review patients with bacterial infections who have been treated with local measures or who have received a course of antibiotic treatment within two to seven days.

4.1 Antibiotics and Contraception

Until recently, some broad-spectrum antibiotics were thought to reduce the efficacy of combined oral contraceptives and contraceptive patches or rings. However in *Drug Interactions with Hormonal Contraception: Clinical Guidance*,⁹ the Faculty of Sexual and Reproductive Healthcare of the Royal College of Obstetricians and Gynaecologists states that additional contraceptive precautions are no longer necessary when antibacterials that do not induce liver enzymes are taken with combined oral contraceptives, unless diarrhoea or vomiting occurs. Also, no additional contraceptive precautions are required when contraceptive patches or vaginal rings are used with antibacterials that do not induce liver enzymes. These recommendations are reflected in BNF 70.¹ The antibiotics included in this publication do not induce liver enzymes therefore additional contraceptive precautions are not required for patients taking short courses of these drugs unless diarrhoea or vomiting occurs.

4 Bacterial Infections

4.2 Infective Endocarditis

Previously, in dentistry, antibiotics were prescribed as prophylaxis for the prevention of infective endocarditis. In 2008, the National Institute for Health and Care Excellence (NICE) issued Clinical Guideline 64¹⁶ which states that antibiotic prophylaxis against infective endocarditis is not recommended for people undergoing dental procedures. In 2015, a NICE standing committee reviewed the recommendations and published an addendum to the guideline which reiterated that there is no evidence that antibiotic prophylaxis prior to dental treatment is of any benefit to patients. In addition, there is no evidence that prophylaxis is of any benefit in patients with prosthetic joints and it is unacceptable to expose patients to the potential adverse effects of antibiotics in these circumstances.

4.3 Dental Abscess

Dental abscesses are usually infected with viridans *Streptococcus* spp. or Gram-negative organisms. Treat dental abscesses in the first instance by using local measures to achieve drainage, with removal of the cause where possible. A guide which outlines the management of dental abscess is presented in Appendix 5.

Antibiotics are not appropriate in cases where the infection is localised to the peri-radicular tissues as this indicates that the infection is being adequately managed by the immune system. Also, in these cases the abscess is mostly isolated from the circulation, resulting in very little antibiotic penetration. Antibiotics are only required if immediate drainage is not achieved using local measures or in cases of spreading infection (swelling, cellulitis, lymph node involvement) or systemic involvement (fever, malaise), all of which suggest that the immune system alone is not able to adequately manage the infection.



It is good practice to measure the temperature of patients with suspected bacterial infections, with temperatures $<36^{\circ}\text{C}$ or $>38^{\circ}\text{C}$ indicative of systemic involvement. However be aware that the absence of pyrexia does not preclude the prescribing of antibiotics if other signs and symptoms of spreading infection or systemic involvement are present.

Amoxicillin is usually effective at treating such infections, and is as effective as phenoxymethylpenicillin (penicillin V) but is better absorbed. The duration of treatment depends on the severity of the infection and the clinical response, but drugs are usually given for 5 days. However, do not prolong courses of treatment unduly because this can encourage the development of resistance. For severe infections the dose of amoxicillin, phenoxymethylpenicillin and metronidazole should be doubled. Severe infections include those cases where there is extra-oral swelling, eye closing or trismus but it is a matter of clinical judgement. Where there is significant trismus, floor-of-mouth swelling or difficulty breathing, transfer patients to hospital as an emergency. If the patient does not respond to the prescribed antibiotic, check the diagnosis and consider referral to a specialist.

4 Bacterial Infections

Dental abscesses should be treated with local measures in the first instance.

Local Measures – to be used in the first instance

-  If pus is present in a dental abscess, drain by extraction of the tooth or through the root canals.
-  If pus is present in any soft tissue, attempt to drain by incision.

If local measures have proved ineffective or there is evidence of cellulitis, spreading infection or systemic involvement, one of the following first-line antibiotics can be prescribed. The antibiotic doses recommended in this guidance are based on the doses recommended by the BNF. However dentists should be aware that local formulary recommendations may differ.

An appropriate 5-day regimen is a choice of:

Amoxicillin Capsules, 500 mg

Send: 15 capsules

Label: 1 capsule three times daily

For children:

Amoxicillin Capsules, 250 mg, or Oral Suspension*, 125 mg/5 ml or 250 mg/5 ml

6-11 months	125mg three times daily
1-4 years	250 mg three times daily
5-11 years	500 mg three times daily
12-17 years	500 mg three times daily

NB: The dose of amoxicillin should be doubled in severe infection in adults and children aged 12-17 years. In severe infection in children aged 6 months to 11 years, the dose of amoxicillin should be increased up to 30 mg/kg (max 1 g) three times daily.

Amoxicillin, like other penicillins, can result in hypersensitivity reactions, including rashes and anaphylaxis, and can cause diarrhoea. Do not prescribe amoxicillin to patients with a history of anaphylaxis, urticaria or rash immediately after penicillin administration as these individuals are at risk of immediate hypersensitivity.

*Sugar-free preparation is available.

or

4 Bacterial Infections

Phenoxymethylpenicillin Tablets, 250 mg

Send: 40 tablets

Label: 2 tablets four times daily

For children:

Phenoxymethylpenicillin Tablets, 250 mg, or Oral Solution*, 125 mg/5 ml or 250 mg/5 ml

6-11 months	62.5 mg four times daily
1-5 years	125 mg four times daily
6-11 years	250 mg four times daily
12-17 years	500 mg four times daily

NB: For severe infection in adults, the dose of phenoxymethylpenicillin should be doubled. For severe infection in children up to 11 years, increase dose up to 12.5 mg/kg four times daily. For severe infection in children aged 12-17 years increase dose up to 1 g four times daily.

Phenoxymethylpenicillin, like other penicillins, can result in hypersensitivity reactions, including rashes and anaphylaxis, and can cause diarrhoea. Do not prescribe phenoxymethylpenicillin to patients with a history of anaphylaxis, urticaria or rash immediately after penicillin administration as these individuals are at risk of immediate hypersensitivity.

*Sugar-free preparation is available

4 Bacterial Infections

Metronidazole is effective against anaerobic bacteria and is a suitable alternative for the management of dental abscess in patients who are allergic to penicillin. It can also be used as an adjunct to amoxicillin in patients with spreading infection or pyrexia. (NB: Both drugs are used in the same doses as when administered alone.)

In patients who are allergic to penicillin, an appropriate 5-day regimen is:

Metronidazole Tablets, 200 mg

Send: 15 tablets

Label: 1 tablet three times daily

For children:

Metronidazole* Tablets, 200 mg, or Oral Suspension, 200 mg/5 ml

1-2 years	50 mg three times daily
3-6 years	100 mg twice daily
7-9 years	100 mg three times daily
10-17 years	200 mg three times daily

NB: For severe infection, the dose of metronidazole should be doubled in adults and children aged 12-17 years. For severe infection in children up to 11 years, increase dose up to 7.5 mg/kg (max. 400 mg) three times daily. Advise patient to avoid alcohol (metronidazole has a disulfiram-like reaction with alcohol). Do not prescribe metronidazole for patients taking warfarin.
*Metronidazole is not licensed for use in children under 1 year (see Section 1.1.5).

4 Bacterial Infections

Second-line antibiotics for dental abscess

The empirical use of other antibiotics such as clindamycin, co-amoxiclav and clarithromycin offers no advantage over the first line drugs amoxicillin, phenoxymethylpenicillin and metronidazole for most dental patients. Their routine use in dentistry is unnecessary and could contribute to the development of antimicrobial resistance. Also the use of broad-spectrum antibiotics is associated with the increase in *Clostridium difficile* infection observed in both primary and secondary care.

However, if a patient has not responded to the first-line antibiotic prescribed, check the diagnosis and either refer the patient or consider speaking to a specialist before prescribing clindamycin, co-amoxiclav or clarithromycin.

Clindamycin is active against Gram-positive cocci, including streptococci and penicillin-resistant staphylococci, and can be used if the patient has not responded to amoxicillin or metronidazole. It should be noted, however, that clindamycin can cause the serious adverse effect of antibiotic-associated colitis more frequently than other antibiotics.

Co-amoxiclav is active against beta-lactamase-producing bacteria that are resistant to amoxicillin, and can be used to treat severe dental infection with spreading cellulitis or dental infection that has not responded to first-line antibacterial treatment.

Clarithromycin is active against beta-lactamase-producing bacteria.

As the use of broad-spectrum antibiotics, especially co-amoxiclav and clindamycin, can result in *Clostridium difficile* infection, use of these drugs should be restricted to second-line treatment of severe infections only.

If patients do not respond to first-line amoxicillin or metronidazole treatment, or in cases of severe infection with spreading cellulitis, an appropriate 5-day regimen is:

Clindamycin Capsules, 150 mg

Send: 20 capsules

Label: 1 capsule four times daily,
swallowed with water

For children:

12-17 years

As for adults

NB: Advise patient that capsule should be swallowed with a glass of water.

Do not prescribe clindamycin to patients with diarrhoeal states.

Advise patient to discontinue use immediately if diarrhoea or colitis develops as clindamycin can cause the side-effect of antibiotic-associated colitis.

or

4 Bacterial Infections

Co-amoxiclav 250/125 Tablets

Send: 15 tablets

Label: 1 tablet three times daily

For children:

12-17 years

As for adults

NB: Co-amoxiclav 250/125 tablets are amoxicillin 250 mg as trihydrate and clavulanic acid 125 mg as potassium salt.

Cholestatic jaundice can occur either during or shortly after the use of co-amoxiclav; this condition is more common in patients above the age of 65 years and in men. Do not prescribe co-amoxiclav to patients who have a history of co-amoxiclav-associated or penicillin-associated jaundice or hepatic dysfunction.

Co-amoxiclav, like other penicillins, can result in hypersensitivity reactions, including rashes and anaphylaxis, and can cause diarrhoea. Do not prescribe co-amoxiclav to patients with a history of anaphylaxis, urticaria or rash immediately after penicillin administration as these individuals are at risk of immediate hypersensitivity.

or

An appropriate 7-day regimen is:

Clarithromycin Tablets, 250 mg

Send: 14 tablets

Label: 1 tablet two times daily

For children:

Clarithromycin Tablets, 250 mg or Oral Suspension 125 mg/5ml or 250 mg/5 ml

1-11 years Body weight 8-11 kg	62.5 mg two times daily
1-11 years Body weight 12-19 kg	125 mg two times daily
1-11 years Body weight 20-29 kg	187.5 mg two times daily
1-11 years Body weight 30-40 kg	250 mg two times daily
12-17 years	250 mg two times daily

NB: Use with caution in patients who are predisposed to QT interval prolongation including electrolyte disturbances and those with hepatic impairment or renal impairment. Do not prescribe for pregnant women or nursing mothers. Do not prescribe clarithromycin for patients taking warfarin or statins.

For more information on the clinical management of dental abscess, refer to the SDCEP guidance *Management of Acute Dental Problems*,⁴ which is available to download at www.sdcep.org.uk. A web app of the guidance is also available at <http://madp.sdcep.org.uk/>.

4 Bacterial Infections



4.4 Necrotising Ulcerative Gingivitis and Pericoronitis

Necrotising ulcerative gingivitis (NUG) is a painful, superficial infection of the gingival margins associated with anaerobic fuso-spirochaetal bacteria and is more common in patients who smoke, the immuno-suppressed and those with poor oral hygiene. In mild cases of NUG, local measures (see below) may be sufficient but more severe cases may also require treatment with antibiotics, metronidazole being the drug of first choice

Pericoronitis is a superficial infection of the operculum, with occasional local spread, that is often associated with anaerobic bacteria. In most cases treatment with local measures will be sufficient for resolution of the symptoms. However, where there is systemic involvement or persistent swelling despite local measures, a three day course of metronidazole can be prescribed.

A suitable alternative for both conditions is amoxicillin. A guide which outlines the management of necrotising ulcerative gingivitis and pericoronitis is presented in Appendix 5.

Local Measures – to be used in the first instance

-  In the case of necrotising ulcerative gingivitis, remove supra-gingival and sub-gingival deposits and provide oral hygiene advice.
 - Due to the pain associated with NUG, the patient may only be able to tolerate limited debridement in the acute phase.
-  In the case of pericoronitis, carry out irrigation and debridement.

If drug treatment is required, an appropriate 3-day regimen is:

Metronidazole Tablets, 200 mg

Send: 9 tablets

Label: 1 tablet three times daily

For children:

Metronidazole* Tablets, 200 mg, or Oral Suspension, 200 mg/5 ml

1-2 years	50 mg three times daily
3-6 years	100 mg twice daily
7-9 years	100 mg three times daily
10-17 years	200 mg three times daily

NB: Advise patient to avoid alcohol (metronidazole has a disulfiram-like reaction with alcohol).
Do not prescribe metronidazole for patients taking warfarin.

*Metronidazole is not licensed for use in children under 1 year (see Section 1.1.5).

4 Bacterial Infections

or

Amoxicillin Capsules, 500 mg

Send: 9 capsules

Label: 1 capsule three times daily

For children:

Amoxicillin Capsules, 250 mg, or Oral Suspension*, 125 mg/5 ml or 250 mg/5 ml

6-11 months	125 mg three times daily
1-4 years	250 mg three times daily
5-11 years	500 mg three times daily
12-17 years	500 mg three times daily

NB: The dose of amoxicillin should be doubled in severe infection in adults and children aged 12-17 years. In severe infection in children aged 6 months to 11 years, the dose of amoxicillin should be increased up to 30 mg/kg (max 1g) three times daily.

Amoxicillin, like other penicillins, can result in hypersensitivity reactions, including rashes and anaphylaxis, and can cause diarrhoea. Do not prescribe amoxicillin to patients with a history of anaphylaxis, urticaria or rash immediately after penicillin administration as these individuals are at risk of immediate hypersensitivity.


*Sugar-free preparation is available.

For more information on the clinical management of necrotising ulcerative gingivitis and periocoronitis, refer to the SDCEP guidance *Management of Acute Dental Problems*,⁴ which is available to download at www.sdcep.org.uk. A web app of the guidance is also available at <http://madp.sdcep.org.uk/>. The SDCEP guidance *Prevention and Treatment of Periodontal Diseases in Primary Care*¹⁷ also provides advice on the management of these conditions.

4.5 Sinusitis

Sinusitis is a generally self-limiting condition that has an average duration of 2½ weeks. Therefore, in suspected cases of sinusitis local measures should be advised in the first instance. Antibiotic therapy should only be used for persistent symptoms and/or purulent discharge lasting at least seven days or if symptoms are severe. A guide which outlines the management of sinusitis presented in Appendix 5.

Local Measures – to be used in the first instance

 Advise the patient to use steam inhalation[†]

[†]not recommended for children.

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If drug treatment is required, an appropriate regimen is:

Ephedrine Nasal Drops, 0.5%

Send: 10 ml

Label: 1 drop into each nostril up to three times daily when required

For children:

Ephedrine Nasal Drops*, 0.5%

12-17 years

As for adults

NB: Advise patient to use for a maximum of 7 days. In adults and children over 12 years, the dose of ephedrine nasal drops can be increased to 2 drops 3 or 4 times daily, if required.

Do not use in patients with high blood pressure.

*Not licensed for use in children under 12 years (see Section 1.1.5).

If an antibiotic is required, an appropriate 7-day regimen is a choice of:

Amoxicillin Capsules, 500 mg

Send: 21 capsules

Label: 1 capsule three times daily

For children:

Amoxicillin Capsules, 250 mg, or Oral Suspension*, 125 mg/5 ml or 250 mg/5 ml

6-11 months

125 mg three times daily

1-4 years

250 mg three times daily

5-11 years

500 mg three times daily

12-17 years

500 mg three times daily

NB: The dose of amoxicillin should be doubled in severe infection in adults and children aged 12-17 years. In severe infection in children aged 6 months to 11 years, the dose of amoxicillin should be increased up to 30 mg/kg (max 1 g) three times daily.

Amoxicillin, like other penicillins, can result in hypersensitivity reactions, including rashes and anaphylaxis, and can cause diarrhoea. Do not prescribe amoxicillin to patients with a history of anaphylaxis, urticaria or rash immediately after penicillin administration as these individuals are at risk of immediate hypersensitivity.

*Sugar-free preparation is available.

or

4 Bacterial Infections

Doxycycline Capsules[§], 100 mg

Send: 8 capsules

Label: 2 capsules on the first day,
followed by 1 capsule daily

For children:

Doxycycline* Capsules[§], 100 mg

<12 years	Not recommended for use because it causes intrinsic staining of developing teeth [†]
≥12 years	As for adults

NB: Advise patient to swallow capsules whole with plenty of fluid during meals, while sitting or standing.

For severe infection in adults and children aged 12 years and over, 2 capsules daily can be given.

Use with caution in patients with hepatic impairment or those receiving potentially hepatotoxic drugs. Do not prescribe for pregnant women, nursing mothers or children under 12 years, as it can deposit on growing bone and teeth (by binding to calcium) and cause staining and, occasionally, dental hypoplasia.

Doxycycline can cause nausea, vomiting, diarrhoea, dysphagia, oesophageal irritation and photosensitivity.

Do not prescribe doxycycline for patients taking warfarin.

[§]Doxycycline is also available as doxycycline dispersible tablets.

[†]Doxycycline is not licensed for use in children under 12 years (see Section 1.1.5).

For more information on the clinical management of sinusitis, refer to the SDCEP guidance *Management of Acute Dental Problems*,⁴ which is available to download at www.sdcep.org.uk. A web app of the guidance is also available at <http://madp.sdcep.org.uk/>.

5 Fungal Infections

Superficial fungal infections can be treated in a primary care setting. However, chronic hyperplastic candidosis (candidal leukoplakia) is potentially premalignant and therefore refer patients with this condition for specialist treatment. Treatment with a topical antifungal agent, such as nystatin, is effective against superficial infections but compliance is poor because of its unpleasant taste. Thus, miconazole or the systemically absorbed drug fluconazole are preferred unless contraindicated.


Note that fluconazole interacts with many drugs, including warfarin and statins, and therefore do not give fluconazole to patients taking these drugs. In addition, avoid the use of miconazole, a topical azole antifungal agent, in such patients because sufficient drug is absorbed to cause similar interactions.

5.1 Pseudomembranous Candidosis and Erythematous Candidosis

Several patient groups are predisposed to pseudomembranous candidosis and erythematous candidosis infections (e.g. patients taking inhaled corticosteroids, cytotoxics or broad-spectrum antibacterials, diabetic patients, patients with nutritional deficiencies, or patients with serious systemic disease associated with reduced immunity such as leukaemia, other malignancies and HIV infection). If the patient does not respond to appropriate local measures and a course of drug treatment, or there is no identifiable cause, refer the patient to a specialist or the patient's general medical practitioner for further investigation. Fungal infections in immunocompromised patients with serious systemic disease are likely to need intravenous systemic treatment; therefore, refer such patients to a specialist or the patient's general medical practitioner.

When these infections are associated with the use of inhaled corticosteroids for lung disease, use local measures in the first instance to try to avoid the problem.

Local Measures - to be used in the first instance

-  Advise patients who use a corticosteroid inhaler to rinse their mouth with water or brush their teeth immediately after using the inhaler.

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If drug treatment is required, an appropriate 7-day regimen is a choice of:

Fluconazole Capsules, 50 mg

Send: 7 capsules

Label: 1 capsule daily

For children:

Fluconazole Capsules 50 mg or Oral Suspension, 50 mg/5 ml

6 months-11 years	3-6 mg/kg on first day and then 3 mg/kg (max. 50 mg) daily
12-17 years	50 mg daily

NB: Fluconazole can be administered for a maximum of 14 days for the treatment of oropharyngeal candidosis.
Do not prescribe fluconazole for patients taking warfarin or statins.

or

Miconazole Oromucosal Gel*, 20 mg/g

Send: 80 g tube

Label: Apply a pea-sized amount after
food four times daily

For children:

Miconazole Oromucosal Gel*, 20 mg/g

2-17 years	As for adults
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NB: Advise patient to continue use for 7 days after lesions have healed.
Do not prescribe miconazole for patients taking warfarin or statins.
*Sugar-free preparation is available.

5 Fungal Infections

If fluconazole and miconazole are contraindicated, an appropriate regimen is:

Nystatin Oral Suspension, 100,000 units/ml

Send: 30 ml

Label: 1 ml after food four times daily for 7 days

For children:

As for adults

NB: Advise patient to rinse suspension around mouth and then retain suspension near lesion for 5 minutes before swallowing.


Advise patient to continue use for 48 hours after lesions have healed.

For more information on the clinical management of candidal infections, refer to the SDCEP guidance *Management of Acute Dental Problems*,⁴ which is available to download at www.sdcep.org.uk. A web app of the guidance is also available at <http://madp.sdcep.org.uk/>.

5.2 Denture Stomatitis

Denture stomatitis can be treated effectively by local measures (see below). However, antifungal agents can be used as an adjunct to these local measures, particularly to reduce palatal inflammation before taking impressions for new dentures. Chlorhexidine mouthwash is also effective against fungal infections.

Local Measures – to be used in the first instance

 Advise the patient to:

- brush the palate daily to treat the condition;
- clean their dentures thoroughly (by soaking in chlorhexidine mouthwash or sodium hypochlorite for 15 minutes twice daily; note that hypochlorite should only be used for acrylic dentures);
- leave their dentures out as often as possible during the treatment period.

If dentures themselves are identified as contributing to the problem, ensure the dentures are adjusted or new dentures are made to avoid the problem recurring.

5 Fungal Infections

If drug treatment is required, an appropriate 7-day regimen is a choice of:

Fluconazole Capsules, 50 mg

Send: 7 capsules

Label: 1 capsule daily

For children:

Fluconazole Capsules 50 mg or Oral Suspension, 50 mg/5 ml

6 months-11 years	3-6 mg/kg on first day and then 3 mg/kg (max. 50 mg) daily
12-17 years	50 mg daily

NB: Fluconazole can be administered for a maximum of 14 days for the treatment of denture stomatitis.
Do not prescribe fluconazole for patients taking warfarin or statins.

or

Miconazole Oromucosal Gel*, 20 mg/g

Send: 80 g tube

Label: Apply a pea-sized amount to
fitting surface of upper denture
after food four times daily

For children:

Miconazole Oromucosal Gel*, 20 mg/g

2-17 years	As for adults
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NB: Advise patient to remove upper denture, apply gel sparingly to fitting surface and then reinsert.
Advise patient to continue use for 7 days after lesions have healed.
Do not prescribe miconazole for patients taking warfarin or statins.

*Sugar-free preparation is available.

5 Fungal Infections

If fluconazole and miconazole are contraindicated, an appropriate regimen is:

Nystatin Oral Suspension, 100,000 units/ml

Send: 30 ml

Label: 1 ml after food four times daily for
7 days

For children:

As for adults

NB: Advise patient to remove dentures before using drug, rinse suspension around mouth and then retain suspension near lesion for 5 minutes before swallowing.
Advise patient to continue use for 48 hours after lesions have healed.

5.3 Angular Cheilitis

Angular cheilitis in denture-wearing patients is usually caused by infection with *Candida* spp. and there is an associated denture stomatitis that should be treated concurrently. In those without dentures, angular cheilitis is more likely to be caused by infection with *Streptococcus* spp. or *Staphylococcus* spp.

Miconazole cream is effective against both *Candida* and Gram-positive cocci and is therefore appropriate to use for all patients, except those taking warfarin or statins. Where the condition is clearly bacterial in nature, sodium fusidate (fusidic acid) ointment can be used. Note that creams are normally used on wet surfaces whereas ointments are normally used on dry surfaces.

Unresponsive cases can be treated with miconazole and hydrocortisone cream or ointment, except those patients taking warfarin or statins. Continue treatment until clinical resolution is achieved. A lack of clinical response might indicate predisposing factors such as a concurrent haematinic deficiency or diabetes. Refer such cases to a specialist or the patient's general medical practitioner.

If dentures themselves are identified as contributing to the problem, ensure the dentures are adjusted or new dentures are made to avoid the problem recurring.

5 Fungal Infections

An appropriate regimen is a choice of:

Miconazole Cream, 2%

Send: 20 g tube

Label: Apply to angles of mouth twice daily

For children:

As for adults

NB: Advise patient to continue use for 10 days after lesions have healed.
Do not prescribe miconazole for patients taking warfarin or statins.

or

Sodium Fusidate Ointment, 2%

Send: 15 g tube

Label: Apply to angles of mouth four times daily

For children:

As for adults

NB: To avoid the development of resistance, do not prescribe sodium fusidate for longer than 10 days.

An appropriate regimen for unresponsive cases is a choice of:

Miconazole (2%) and Hydrocortisone (1%) Cream

Send: 30 g tube

Label: Apply to angles of mouth twice daily

For children:

As for adults

NB: Advise patient to continue use for a maximum of 7 days.
Do not prescribe miconazole for patients taking warfarin or statins.

or

Miconazole (2%) and Hydrocortisone (1%) Ointment

Send: 30 g tube

Label: Apply to angles of mouth twice daily

For children:

As for adults

NB: Advise patient to continue use for a maximum of 7 days.
Do not prescribe miconazole for patients taking warfarin or statins.

6 Viral Infections

6.1 Herpes Simplex Infections


Primary herpetic gingivostomatitis [as a result of herpes simplex virus (HSV)] is best managed by symptomatic relief [i.e. nutritious diet, plenty of fluids, bed rest, use of analgesics and antimicrobial mouthwashes (either chlorhexidine or hydrogen peroxide)]. The use of antimicrobial mouthwashes controls plaque accumulation if toothbrushing is painful and also helps to control secondary infection in general.

Treat infections in immunocompromised patients and severe infections in non-immunocompromised patients with a systemic antiviral agent, the drug of choice being aciclovir. Give patients analgesics regularly to minimise oral discomfort; a topical benzydamine hydrochloride (oromucosal) spray might provide additional relief from oral discomfort and is particularly helpful in children. Refer immunocompromised patients (both adults and children) with severe infection to hospital.

Mild infection of the lips [herpes labialis (cold sores)] in non-immunocompromised patients is treated with a topical antiviral drug (aciclovir cream).

Bell's palsy is sometimes associated with herpes simplex. Refer patients with Bell's palsy to a specialist or the patient's general medical practitioner for treatment.

Local Measures – to be used in the first instance

-  Advise the patient to avoid dehydration and alter their diet (to include soft food and adequate fluids) and use analgesics and an antimicrobial mouthwash.

6 Viral Infections

An appropriate mouthwash is a choice of:

Chlorhexidine Mouthwash, 0.2%

Send: 300 ml

Label: Rinse mouth for 1 minute with
10 ml twice daily

For children:

As for adults

NB: Advise patient to spit out mouthwash after rinsing and use until lesions have resolved and patient can carry out good oral hygiene.

Chlorhexidine gluconate might be incompatible with some ingredients in toothpaste; advise patient to leave an interval of at least 30 minutes between using mouthwash and toothpaste. Also advise patient that chlorhexidine mouthwash can be diluted 1:1 with water with no loss in efficacy.

or

Hydrogen Peroxide Mouthwash, 6%

Send: 300 ml

Label: Rinse mouth for 2 minutes with
15 ml diluted in half a tumbler of
warm water three times daily

For children:

As for adults

NB: Advise patient to spit out mouthwash after rinsing and use until lesions have resolved and patient can carry out good oral hygiene.

Hydrogen peroxide mouthwash can be used as a rinse for up to 3 minutes, if required.

6 Viral Infections

For infections in immunocompromised patients and severe infections in non-immunocompromised patients, an appropriate 5-day regimen is:

Aciclovir Tablets, 200 mg

Send: 25 tablets

Label: 1 tablet five times daily

For children:

Aciclovir Tablets, 200 mg, or Oral Suspension*, 200 mg/5 ml

6 months-1 year	100 mg five times daily
2-17 years	200 mg five times daily

NB: In both adults and children, the dose can be doubled in immunocompromised patients or if absorption is impaired.

*Sugar-free preparation is available.

Antiviral creams such as aciclovir can be used to treat herpes labialis in non-immunocompromised patients. Administer this topical agent at the prodromal stage of a herpes labialis lesion to maximise its benefit.

An appropriate regimen is:

Aciclovir Cream, 5%

Send: 2 g

Label: Apply to lesion every 4 hours (five times daily) for 5 days

For children:

As for adults

NB: Aciclovir cream can be applied for up to 10 days, if required.

6 Viral Infections

6.2 Varicella-zoster Infections

In patients with herpes zoster (shingles), systemic antiviral agents reduce pain and reduce the incidence of post-herpetic neuralgia and viral shedding. Aciclovir is the drug of choice. However, valaciclovir and famciclovir are suitable alternatives (although they can only be prescribed using a private prescription). Start treatment ideally at diagnosis or within 72 hours of the onset of the rash; even after this point antiviral treatment can reduce the severity of post-herpetic neuralgia. In addition, refer all patients with herpes zoster to a specialist or their general medical practitioner.

An appropriate 7-day regimen is:

Aciclovir Tablets, 800 mg (shingles treatment pack)

Send: 35 tablets

Label: 1 tablet five times daily

For children:

Not relevant for children in dental setting[†]

[†]Aciclovir tablets and oral suspension are not licensed for the treatment of herpes zoster in children (see Section 1.1.5).

For more information on the clinical management of viral infections, refer to the SDCEP guidance *Management of Acute Dental Problems*,⁴ which is available to download at www.sdcep.org.uk. A web app of the guidance is also available at <http://madp.sdcep.org.uk/>.

7 Odontogenic Pain

Most odontogenic pain can be relieved effectively by non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen and aspirin, which have anti-inflammatory activity. Paracetamol is also effective in the management of odontogenic or post-operative pain but has no demonstrable anti-inflammatory activity. Aspirin is a potent and useful NSAID but avoid its use in children and those with an aspirin allergy, and do not prescribe following a dental extraction or other minor surgery. Pyrexia in children can be managed using paracetamol or ibuprofen. Both drugs can be given alternately to control ongoing pyrexia without exceeding the recommended dose or frequency of administration for either drug.

Cautions

Paracetamol is a safe, well tolerated drug with few side effects when used as directed. However, staggered overdose, where an excessive dose of paracetamol or paracetamol-containing preparations is ingested over a period of hours, can lead to hepatotoxicity. Acute dental pain may lead to such unintentional overdose, as patients may unknowingly take more than one paracetamol-containing preparation in order to control their discomfort.

All patients, including children, should be referred to an emergency department if they have ingested paracetamol at a dose of 75 mg/kg or greater, either as a single acute dose or staggered across a 24 hour period.¹⁸ Patients who are uncertain about the timing of doses or the total amount ingested should also be referred. Note that patients who have taken the appropriate recommended therapeutic dose (e.g. for adults this 8 x 500 mg paracetamol tablets in 24 hours) do NOT need to be referred. However an adult patient, for example, who weighs 60 kg (9 stone 6 lbs) or less and has ingested nine paracetamol tablets within a 24 hour period should be referred. For more information, see the National Poisons Information Service (www.npis.org).

Avoid the use of all NSAIDs in patients with a history of hypersensitivity to aspirin or any other NSAID, including those in whom attacks of asthma, angioedema, urticaria or rhinitis have been precipitated by aspirin or any other NSAID. All NSAIDs cause gastrointestinal irritation and therefore avoid in patients with previous or active peptic ulcer disease. However, if NSAIDs are required to provide pain relief in these patients, a proton pump inhibitor can be prescribed in conjunction with the NSAID. In addition, use NSAIDs with caution in the elderly, patients with allergic disorders, pregnant women, nursing mothers, those taking oral anticoagulants such as warfarin, those with coagulation defects and those with an inherited bleeding disorder. NSAIDs might impair renal function and so use with caution in patients with renal, cardiac or hepatic impairment. Some patients may already take a daily low-dose of aspirin, in these cases do not prescribe NSAIDs as these can increase the risk of gastro-intestinal side-effects. More information on potential NSAID drug interactions is provided in Appendix 4.

7 Odontogenic Pain

The NSAID diclofenac is also effective against moderate inflammatory or post-operative pain. However, be aware that diclofenac is contra-indicated in ischaemic heart disease, cerebrovascular disease, peripheral arterial disease and mild to severe heart failure and should be used with caution in patients with a history of cardiac failure, left ventricular dysfunction, hypertension, in patients with oedema for any other reason, and in patients with other risk factors for cardiac events.

The BNF (BNF 70¹) does not recommend the use of dihydrocodeine as it is relatively ineffective against dental pain and also causes nausea and constipation. There is also the potential for abuse of dihydrocodeine; therefore, if the drug is to be used, prescribe only the minimum number of tablets required.

Prescribe analgesics only as a temporary measure for the relief of pain, and ensure the underlying cause is managed. Base the choice of analgesic on its suitability for the patient. If the following regimens are ineffective, refer the patient to their general medical practitioner.

7 Odontogenic Pain

For mild to moderate odontogenic or post-operative pain, an appropriate 5-day regimen is:

Paracetamol Tablets, 500 mg

Send: 40 tablets

Label: 2 tablets four times daily

For children:

Paracetamol Tablets or Soluble Tablets, 500 mg, or Oral Suspension*, 120 mg/5 ml or 250 mg/5 ml

6 months-1 year	120 mg four times daily (max. 4 doses in 24 hours)
2-3 years	180 mg four times daily (max. 4 doses in 24 hours)
4-5 years	240 mg four times daily (max. 4 doses in 24 hours)
6-7 years	240-250 mg four times daily (max. 4 doses in 24 hours)
8-9 years	360-375 mg four times daily (max. 4 doses in 24 hours)
10-11 years	480-500 mg four times daily (max. 4 doses in 24 hours)
12-15 years	480-750 mg four times daily (max. 4 doses in 24 hours)
16-17 years	500 mg-1 g four times daily (max. 4 doses in 24 hours)

NB: Advise patients that paracetamol can be taken at 4-hourly intervals but not to exceed the recommended daily dose (maximum of 4 g for adults). Overdose with paracetamol is dangerous because it can cause hepatic damage that is sometimes not apparent for 4-6 days and can be fatal. Note that a patient who ingests a therapeutic excess (defined as more than the recommended daily dose [8 x 500 mg tablets for adults] **AND** more than or equal to 75 mg/kg in any 24 hour period) should be referred for assessment in an emergency department (for more information see page 49).

*Sugar-free preparation is available.

7 Odontogenic Pain

For mild to moderate odontogenic, post-operative or inflammatory pain, an appropriate 5-day regimen is:

Ibuprofen Tablets, 400 mg

Send: 20 tablets

Label: 1 tablet four times daily,
preferably after food

For children:

Ibuprofen Oral Suspension*, 100 mg/ 5 ml or Ibuprofen Tablets, 200 mg

6-11 months	50 mg four times daily, preferably after food
1-3 years	100 mg three times daily, preferably after food
4-6 years	150 mg three times daily, preferably after food
7-9 years	200 mg three times daily, preferably after food
10-11 years	300 mg three times daily, preferably after food
12-17 years	300-400 mg four times daily, preferably after food

NB: In adults, the dose of ibuprofen can be increased, if necessary, to a maximum of 2.4 g daily.

Avoid use in those with a hypersensitivity to aspirin or any other NSAID, including those in whom attacks of asthma, angioedema, urticaria or rhinitis have been precipitated by aspirin or any other NSAID. Do not prescribe for patients taking a low dose of aspirin daily. Avoid use in pregnant patients and avoid in those with previous or active peptic ulcer disease, unless a proton pump inhibitor is co-prescribed (see page 54).

Use with caution in the elderly, patients with allergic disorders, nursing mothers, those taking oral anticoagulants such as warfarin, those with coagulation defects, those with an inherited bleeding disorder, and those with renal, cardiac or hepatic impairment. Restrict ibuprofen use to 5 days or less in those patients taking antihypertensive drugs. See Appendix 4 for more information on potential drug interactions.

*Sugar-free preparation is available.

In cases where paracetamol or ibuprofen alone is not effective, both paracetamol and ibuprofen can be given alternately (i.e. ibuprofen can be taken first and then paracetamol 2 hours later, and so on, using the normal daily doses given in the prescription boxes above). This regimen controls ongoing pain and pyrexia without exceeding the recommended dose or frequency of administration for either drug.

7 Odontogenic Pain

For mild to moderate odontogenic or inflammatory pain, an appropriate 5-day regimen is:

Aspirin Dispersible Tablets, 300 mg

Send: 40 tablets

Label: 2 tablets four times daily,
preferably after food

For children:

<16 years

Do not use in children because, rarely, it can cause Reye's syndrome[†]

≥16 years

As for adults

NB: Advise patient that aspirin can be taken at 4-hourly intervals but not to exceed the recommended daily dose. In adults and children 16 years and over, up to 3 tablets (900 mg) can be given in one dose (maximum daily dose of 4 g).

Do not prescribe aspirin following a dental extraction or other minor surgery.

Avoid use in those with a known allergy to aspirin or hypersensitivity to aspirin or any other NSAID, including those in whom attacks of asthma, angioedema, urticaria or rhinitis have been precipitated by aspirin or any other NSAID. Avoid use in nursing mothers and patients with previous or active peptic ulcer disease and use with caution in the elderly, patients with allergic disorders, pregnant women, those taking oral anticoagulants such as warfarin, those with coagulation defects, those with an inherited bleeding disorder, and those with renal, cardiac or hepatic impairment. See Appendix 4 for more information on potential drug interactions.

[†]Aspirin is not licensed for use in children under 16 years (see Section 1.1.5).

Diclofenac is also effective against moderate inflammatory or post-operative pain. An appropriate 5-day regimen is:

Diclofenac Sodium Tablets, 50 mg

Send: 15 tablets

Label: 1 tablet three times daily

For children:

Not recommended for dental use in children[†]

NB: Advise patient not to exceed the recommended daily dose (maximum of 150 mg).

Diclofenac is contra-indicated in ischaemic heart disease, cerebrovascular disease, peripheral arterial disease and mild to severe heart failure. It should be used with caution in patients with a history of cardiac failure, left ventricular dysfunction, hypertension, in patients with oedema for any other reason, and in patients with other risk factors for cardiac events. Avoid use in those with a hypersensitivity to aspirin or any other NSAID, including those in whom attacks of asthma, angioedema, urticaria or rhinitis have been precipitated by aspirin or any other NSAID. Do not prescribe for patients taking a low dose of aspirin daily. Avoid use in pregnant patients and avoid in those with previous or active peptic ulcer disease, unless a proton pump inhibitor is co-prescribed (see page 54). Use with caution in the elderly, patients with allergic disorders, nursing mothers, those taking oral anticoagulants such as warfarin, those with coagulation defects, those with an inherited bleeding disorder, and those with renal, cardiac or hepatic impairment. See Appendix 4 for more information on potential drug interactions.

Diclofenac tablets are enteric coated and should be swallowed whole, not chewed or crushed.

[†]Diclofenac tablets of >25 mg are not licensed for use in children (see Section 1.1.5).

7 Odontogenic Pain

In patients who have a history of previous or active peptic ulcer disease where paracetamol alone is not sufficient for the treatment of odontogenic pain, and a NSAID (i.e. ibuprofen or diclofenac) is required, prescribe a proton pump inhibitor (i.e. lansoprazole and omeprazole) in conjunction with the NSAID. Prescribe the proton pump inhibitor for the duration of the analgesic course to prevent the occurrence of gastric problems.

In patients who have a history of previous or active peptic ulcer disease and require a NSAID for the treatment of odontogenic pain, an appropriate 5-day regimen to prevent gastric problems is:

Lansoprazole Capsules, 15 mg

Send: 5 capsules

Label: 1 capsule once daily

For children:

Not licensed for children

NB: Use with caution in patients with liver disease, in pregnancy and in patients who are breast-feeding.

or

Gastro-resistant Omeprazole Capsules, 20 mg

Send: 5 capsules

Label: 1 capsule once daily

For children:

Not licensed for children

NB: Use with caution in patients with liver disease, in pregnancy and in patients who are breast-feeding.

8 Facial Pain

Before treatment, ensure the pain is not odontogenic in nature. Non-odontogenic facial pain can be organic or neurogenic in nature. Most non-odontogenic organic facial pain requires specialist care.

8.1 Trigeminal Neuralgia

If a patient with trigeminal neuralgia presents in primary care, control quickly by treatment with carbamazepine. A positive response confirms the diagnosis. Make an urgent referral to a specialist or the patient's general medical practitioner for a full blood count and liver function tests.

An appropriate 10-day regimen is:

Carbamazepine Tablets, 100 mg

Send: 20 tablets

Label: 1 tablet twice daily

For children:

Not relevant for children

NB: Advise patient to space out doses as much as possible throughout the day.

Carbamazepine has the potential to react with multiple other medicines; check Appendix 1 of BNF for interactions.

Carbamazepine can cause reversible blurring of vision, dizziness and unsteadiness (dose-related).

Refer to the BNF for advice which should be given to patients prescribed carbamazepine.

For more information on the clinical management of trigeminal neuralgia, refer to the SDCEP guidance *Management of Acute Dental Problems*,⁴ which is available to download at www.sdcep.org.uk. A web app of the guidance is also available at <http://madp.sdcep.org.uk/>.

8 Facial Pain

8.2 Other Facial Pain

Temporomandibular dysfunction usually responds to reassurance and local therapy; advise the patient to have a soft diet and avoid chewing gum, and consider making an occlusal splint for the patient. Acute temporomandibular dysfunction might respond to analgesics such as ibuprofen (see Section 7 for drug regimen) or a short course of diazepam as a muscle relaxant. However, as benzodiazepines are addictive and susceptible to abuse only the minimum number of tablets required should be prescribed.

An appropriate 5-day regimen is:

Diazepam Tablets, 2 mg

Send: 15 tablets

Label: 1 tablet three times daily

For children:

Not recommended because it has an unpredictable effect in children

NB: The dose can be increased if necessary to 15 mg daily.
Halve the adult dose for elderly or debilitated patients.
Advise all patients that they should not drive.

If the patient does not respond, refer the patient to a specialist or the patient's general medical practitioner.

Chronic neuropathic facial pain and oral dysaesthesia might require to be managed with neuropathic painkillers. Refer such cases to a specialist or the patient's general medical practitioner.

For more information on the clinical management of temporomandibular joint conditions, refer to the SDCEP guidance *Management of Acute Dental Problems*,⁴ which is available to download at www.sdcep.org.uk. A web app of the guidance is also available at <http://madp.sdcep.org.uk/>.

9 Mucosal Ulceration and Inflammation

Mucosal ulceration and inflammation can arise as a result of several different conditions. A diagnosis must be established because the majority of lesions require specific therapy in addition to topical symptomatic therapy. Such specific therapy usually involves specialist care. Temporary relief using topical, symptomatic therapy involves simple mouthwashes, antimicrobial mouthwashes, local analgesics or topical corticosteroids. Review the patient to assess the status of ulcers. If ulcers remain unresponsive to treatment, refer the patient to a specialist. Any ulcer that persists for more than three weeks must be referred for biopsy.

The following treatments are not listed in order of preference so the choice of the clinical practitioner is not limited and so that patient preferences can be taken into consideration when prescribing.

9.1 Simple Mouthwashes

Local Measures – to be used in the first instance

- Advise the patient to rinse their mouth with a salt solution prepared by dissolving half a teaspoon of salt in a glass of warm water to relieve pain and swelling.

Alternatively, compound sodium chloride mouthwashes made up with warm water can be prescribed.

An appropriate regimen is:

**Sodium Chloride Mouthwash,
Compound**

Send: 300 ml

Label: Dilute with an equal volume of warm water

For children:

As for adults

NB: Advise patient to spit out mouthwash after rinsing.

9 Mucosal Ulceration and Inflammation

9.2 Antimicrobial Mouthwashes

Antimicrobial mouthwashes can reduce secondary infection and are particularly useful when pain limits other oral hygiene measures.

An appropriate regimen is a choice of:

Chlorhexidine Mouthwash, 0.2%

Send: 300 ml

Label: Rinse mouth for 1 minute with 10 ml twice daily

For children:

As for adults

NB: Advise patient to spit out mouthwash after rinsing and use until lesions have resolved and patient can carry out good oral hygiene.

Chlorhexidine gluconate might be incompatible with some ingredients in toothpaste; advise patient to leave an interval of at least 30 minutes between using mouthwash and toothpaste. Also advise patient that chlorhexidine mouthwash can be diluted 1:1 with water with no loss in efficacy.

or

Hydrogen Peroxide Mouthwash, 6%

Send: 300 ml

Label: Rinse mouth for 2 minutes with 15 ml diluted in half a glass of warm water three times daily

For children:

As for adults

NB: Advise patient to spit out mouthwash after rinsing, and use until lesions have resolved and patient can carry out good oral hygiene.

Hydrogen peroxide mouthwash can be used as a rinse for up to 3 minutes, if required.

9 Mucosal Ulceration and Inflammation

A tetracycline mouthwash is effective in some patients with recurrent aphthous stomatitis. Doxycycline can be used as a rinse and is usually given for three days. Enough medication to treat several episodes of ulceration can be provided.

An appropriate regimen is:

Doxycycline Dispersible Tablets[§], 100 mg

Send: 48 tablets

Label: 1 tablet to be dissolved in water and rinsed around the mouth for 2 minutes four times daily for three days at the onset of ulceration

For children:

<12 years	Not recommended for use because it causes intrinsic staining of developing teeth [†]
≥12 years	As for adults

NB: Advise patient to spit out mouthwash after rinsing.

Use with caution in patients with hepatic impairment or those receiving potentially hepatotoxic drugs. Do not prescribe for pregnant women, nursing mothers or children under 12 years, as it can deposit on growing bone and teeth (by binding to calcium) and cause staining and, occasionally, dental hypoplasia.

The anticoagulant effect of warfarin might be enhanced by doxycycline.

[§]Doxycycline is also available as doxycycline capsules.

[†]Doxycycline is not licensed for use in children under 12 years and doxycycline dispersible tablets are not licensed for oral ulceration in adults or children (see Section 1.1.5).

9 Mucosal Ulceration and Inflammation

9.3 Local Analgesics

Local analgesics cannot relieve pain continuously but are helpful in severe pain (e.g. major aphthae) to enable eating or sleeping. Lidocaine 5% ointment can be directly applied to the ulcer or lidocaine 10% solution, provided as a spray, can be applied to the ulcer using a cotton bud. Benzydamine hydrochloride mouthwash or spray can also reduce mucosal discomfort.

An appropriate regimen is a choice of:

Benzydamine Mouthwash, 0.15%

Send: 300 ml

Label: Rinse or gargle using 15 ml every 1½ hours as required

For children:

≤12 years	Not recommended for use because of local anaesthetic properties
13-17 years	As for adults

NB: Advise patient that benzydamine mouthwash can be diluted with an equal volume of water if stinging occurs.

Advise patient to spit out mouthwash after rinsing.

The mouthwash is usually given for not more than 7 days.

or

Benzydamine Oromucosal Spray, 0.15%

Send: 30 ml

Label: 4 sprays onto affected area every 1½ hours

For children:

Benzydamine Oromucosal Spray, 0.15%

6 months-5 years	1 spray per 4 kg body-weight (max. 4 sprays) every 1½ hours
6-17 years	4 sprays every 1½ hours

NB: In adults and children of 12 years and over, up to 8 sprays of benzydamine oromucosal spray can be applied at any one time.

or

9 Mucosal Ulceration and Inflammation

Lidocaine Ointment, 5%

Send: 15 g

Label: Rub sparingly and gently on affected areas

For children:

As for adults

NB: Advise patient to take care with the application to avoid producing anaesthesia of the pharynx before meals as this might lead to choking.

or

Lidocaine Spray, 10%[†]

Send: 50 ml

Label: Apply as necessary with a cotton bud

For children:

As for adults

NB: Advise patient to take care with the application to avoid producing anaesthesia of the pharynx before meals as this might lead to choking.

[†]Lidocaine Spray, 10%, is not licensed for oral ulceration (see Section 1.1.5).

9 Mucosal Ulceration and Inflammation

9.4 Topical Corticosteroids

Topical corticosteroids can be used to treat mucosal ulceration and inflammation. Carefully control chronic use to prevent systemic effects. The choice of preparation depends on the extent and location of the lesions. Hydrocortisone oromucosal tablets can be allowed to dissolve next to the lesion. Beclometasone dipropionate inhaler (Clenil Modulite®) sprayed twice daily onto the affected site is suitable for tongue lesions and accessible areas. Betamethasone tablets, dissolved in water and used as a mouthwash, are suitable for extensive inflammation or ulceration but should not be swallowed to minimise the risks of systemic effects.

An appropriate regimen is a choice of:

**Clenil Modulite®†, 50 micrograms/
metered inhalation (beclometasone
pressurised inhalation, CFC-free)**

Send: One 200-dose unit

Label: 1-2 puffs directed onto ulcers
twice daily

†Clenil Modulite® inhaler is not licensed for oral ulceration (see Section 1.1.5).

For children:

≥2 years	As for adults
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or

**Betamethasone Soluble Tablets†,
500 micrograms**

Send: 100 tablets

Label: 1 tablet dissolved in 10 ml water
as a mouthwash four times daily

NB: Advise patient to spit out mouthwash after rinsing.

†Betamethasone soluble tablets are not licensed for oral ulceration (see Section 1.1.5).

For children:

<12 years	Not appropriate for use because of risk of swallowing
≥12 years	As for adults

or

**Hydrocortisone Oromucosal Tablets,
2.5 mg**

Send: 20 tablets

Label: 1 tablet dissolved next to lesion
four times daily

For children:

<12 years	Prescribe only on medical advice
≥12 years	As for adults

For more information on the clinical management of mucosal ulceration and inflammation, refer to the SDCEP guidance *Management of Acute Dental Problems*,⁴ which is available to download at www.sdcep.org.uk. A web app of the guidance is also available at <http://madp.sdcep.org.uk/>.

10 Dry Mouth

The subjective feeling of a dry mouth (xerostomia) can arise as a result of loss of the mucous layer without clinical evidence of dryness. There is usually little relief with artificial saliva preparations or mucosal gel preparations in these patients. Dry mouth can also be caused by drugs that have antimuscarinic effects (tricyclic antidepressants, antipsychotics), diuretic drugs, irradiation of the head and neck region or by damage or disease of the salivary glands (e.g. Sjögren's syndrome). In these cases, artificial saliva preparations can provide useful relief.

10.1 Local Measures

Simple local measures (see below) might provide symptomatic relief in patients with subjective dryness but good saliva volume. However, in these patients artificial saliva preparations or mucosal gel preparations usually provide little relief and therefore the use of artificial saliva preparations is discouraged.

Local Measures – to be used in the first instance

- Advise the patient to take frequent sips of cool drinks, suck pieces of ice or sugar-free fruit pastilles, or use sugar-free chewing gum to provide symptomatic relief.

10.2 Artificial Saliva Preparations

Patients with dry mouth induced by drug treatment, head and neck radiotherapy or a disease of the salivary glands may obtain symptomatic relief from the use of artificial salivas or other proprietary saliva-promoting medication. However, the effects tend to be of short duration. Where there is a considerable reduction in saliva production the use of lubricant gel preparations, applied to the oral mucosa, can give more-prolonged relief. Local measures such as those described in Section 10.1 can also be helpful. Topical fluoride should also be prescribed for these patients (see Section 10.3) and dietary advice provided.

Note that some proprietary artificial saliva or mucosal gel preparations may only be prescribed for patients with dry mouth that is associated with head and neck radiotherapy or autoimmune xerostomias such as sicca (primary Sjögren's) syndrome. Also, saliva stimulating tablets may only be prescribed for patients with salivary gland impairment and patent (open) salivary ducts.

The following treatments are not listed in order of preference. The choice of the clinical practitioner is not limited in order that patient preferences can be taken into consideration when prescribing. Note that saliva-stimulating tablets and artificial saliva pastilles contain citric and/or malic acid and therefore a high frequency of use might lead to dental erosion.

The artificial saliva preparations denoted • lack a generic alternative and should therefore be prescribed by brand name.

Refer to Appendix 1 of the BNF and BNFC for further details of drug interactions.

10 Dry Mouth

An appropriate regimen is a choice of:

Artificial Saliva Gel

Send: 50 g

Label: Apply to oral mucosa as required

NB: Avoid use with toothpastes containing detergents (including foaming agents).

For children:

Not relevant for children in dental setting

or

Artificial Saliva Oral Spray*

Send: 100 ml

Label: Spray as required

*Sugar-free preparation available

For children:

Not relevant for children in dental setting

or

Artificial Saliva Pastilles*

Send: 50 pastilles

Label: 1 pastille sucked as required

*Sugar-free preparation is available

For children:

Not relevant for children in dental setting

or

AS Saliva Orthana® Oral Spray*

Send: 50 ml

Label: Sprayed three times onto oral mucosa as required

*This preparation includes limited fluoride supplementation

For children:

Not relevant for children in dental setting

or

10 Dry Mouth

• BioXtra® Gel

Send: 40 ml

Label: Apply to oral mucosa as required

N.B. May only be prescribed for dry mouth associated with radiotherapy or sicca syndrome

For children:

Not relevant for children in dental setting

or

• Glandosane® Aerosol Spray

Send: 50 ml

Label: Spray onto oral and pharyngeal mucosa as required

NB: May only be prescribed for dry mouth associated with radiotherapy or sicca syndrome
Glandosane Aerosol Spray® has a pH of 5.75 and may be inappropriate for dentulous patients.

For children:

Not relevant for children in dental setting

or

Saliva-stimulating Tablets*

Send: 100 tablets

Label: 1 tablet sucked as required

NB: May only be prescribed for dry mouth associated with impaired salivary gland function and patent salivary ducts.
*Sugar-free preparation is available.

For children:

Not relevant for children in dental setting

or

• Saliveze® Oral Spray

Send: 50 ml

Label: 1 spray onto oral mucosa as required

NB: May only be prescribed for dry mouth associated with radiotherapy or sicca syndrome

For children:

Not relevant for children in dental setting

10 Dry Mouth

10.3 Topical Fluoride

Patients who have a true saliva deficit, such as those undergoing head and neck radiotherapy, are at high risk from dental caries and opportunistic infections. These patients should use topical fluoride preparations regularly (e.g. fluoride mouthwash, high-fluoride toothpaste) in addition to a saliva substitute or saliva-promoting medication.

An appropriate regimen is a choice of:

Sodium Fluoride Toothpaste, 0.619% (2800 ppm)

Send: 75 ml

Label: Brush teeth for 1 minute after meals using 1 cm, before spitting out, twice daily

For children:

<10 years	Not indicated for use because of risk of swallowing and possible poisoning
≥10 years	As for adults

NB: Advise patient to avoid rinsing mouth, drinking or eating for 30 minutes after use, and advise patient that this 2800 ppm sodium fluoride toothpaste is a medicine and is only to be used by the person for whom it is prescribed.

or

Sodium Fluoride Toothpaste, 1.1% (5000 ppm)

Send: 51 g

Label: Brush teeth for 3 minutes after meals using 2 cm, before spitting out, three times daily

For children:

< 16 years	Not indicated for use because of risk of swallowing and possible poisoning
≥ 16 years	As for adults

NB: Advise patient to avoid rinsing mouth, drinking or eating for 30 minutes after use, and advise patient that this 5000 ppm sodium fluoride toothpaste is a medicine and is only to be used by the person for whom it is prescribed.

or

Sodium Fluoride Mouthwash, 0.05%

Send: 250 ml

Label: Rinse mouth once daily with 10 ml for 1 minute and spit out (preferably at a different time from brushing)

For children:

<6 years	Not indicated for use because of risk of swallowing and possible poisoning
≥6 years	As for adults

NB: Advise patient to avoid rinsing mouth, drinking or eating for 15 minutes after use.

11 Dental Caries

Fluoride confers significant resistance to dental caries, with the topical action of fluoride on enamel and plaque considered more important in this effect than the systemic action. Additional fluoride treatment may be prescribed for patients who are at increased risk of dental caries or are medically compromised. The decision to prescribe additional fluoride treatment must take into account several factors, including whether the patient lives in an area where water is fluoridated, whether fluoride varnish has been applied and whether the patient already uses a fluoride mouthwash. Further advice is provided in the *SDCEP Prevention and Management of Dental Caries in Children*¹⁹ guidance.

An appropriate regimen is a choice of:

Sodium Fluoride Toothpaste, 0.619% (2800 ppm)

Send: 75 ml

Label: Brush teeth for 1 minute after meals using 1 cm, before spitting out, twice daily

For children:

<10 years	Not indicated for use because of risk of swallowing and possible poisoning
≥10 years	As for adults

NB: Advise patient to avoid rinsing mouth, drinking or eating for 30 minutes after use, and advise patient that this 2800 ppm sodium fluoride toothpaste is a medicine and is only to be used by the person for whom it is prescribed.

or

Sodium Fluoride Toothpaste, 1.1% (5000 ppm)

Send: 51 g

Label: Brush teeth for 3 minutes after meals using 2 cm, before spitting out, three times daily

For children:

<16 years	Not indicated for use because of risk of swallowing and possible poisoning
≥16 years	As for adults

NB: Advise patient to avoid rinsing mouth, drinking or eating for 30 minutes after use, and advise patient that this 5000 ppm sodium fluoride toothpaste is a medicine and is only to be used by the person for whom it is prescribed.

or

11 Dental Caries

Sodium Fluoride Mouthwash, 0.05%

Send: 250 ml

Label: Rinse mouth once daily with 10 ml for 1 minute and spit out (preferably at a different time from brushing)

For children:

Sodium Fluoride Mouthwash, 0.05%

<6 years

Not indicated for use because of risk of swallowing and possible poisoning

≥6 years

As for adults

NB: Advise patient to avoid rinsing mouth, drinking or eating for 15 minutes after use.

12 Clinical Governance, CPD and Training

It is a requirement of clinical governance and fundamental good clinical practice that all health professionals work to monitor and constantly strive to improve the quality of care that they and their teams provide to patients.

It is recommended that:

- all general dental practitioners and dental care professionals involved in dealing with medical emergencies undertake appropriate annual training and continuing professional development (CPD); this is a practice inspection requirement and a minimum of 10 hours per CPD cycle is recommended by the General Dental Council (GDC);
- general dental practitioners who prescribe drugs ensure they are up to date with any changes in prescribing recommendations of the *British National Formulary*¹ (BNF) and *BNF for Children*² (BNFC); updates will be posted on the Scottish Dental Clinical Effectiveness Programme (SDCEP; www.sdcep.org.uk) website if required following publication of new editions of the BNF and BNFC, but practitioners should also refer to the BNF and BNFC (www.bnf.org) for details;
- general dental practitioners who prescribe drugs seek to audit their practice regularly, and assess prescribing appropriateness and accuracy; examples of audit topics are provided in Section 12.1;
- general dental practitioners who prescribe drugs carry out significant event analyses (SEAs) as appropriate.

Further information on the training requirements for dealing with medical emergencies can be found in the SDCEP *Practice Support Manual*[®] (www.psm.sdcep.org.uk). Guidance concerning audit and significant event analysis can also be found in the *Practice Support Manual*[®] or is available via NHS Education for Scotland (www.nes.scot.nhs.uk/education-and-training/by-discipline/dentistry/areas-of-education/professional-development/clinical-audit-and-sea.aspx).

12 Clinical Governance, CPD and Training

12.1 Recommendations for Self Audit

The terms of service for dentists in Scotland²⁰ state that GPs should undertake at least 15 hours of clinical audit within each three year period, the most recent of which commenced on 1st August 2013. Drug prescribing is an area where audit can be a particularly useful tool for improving patient care, enabling practitioners to review current prescribing practices, consider alternatives to antibiotic prescribing and to implement changes to meet best practice guidance recommendations, if required.

Topics for audit and review should be chosen carefully to provide information that will improve the quality of drug prescribing within dentistry and ensure patient safety. Examples include:

- the appropriateness of prescribing (i.e. is the prescribed drug appropriate for the condition?);
- the accuracy and completeness of prescriptions (i.e. is the correct dose and frequency included, and are all relevant details included?).

12.2 National Audit

NHS Education for Scotland (NES) will, from time to time, publish pre-approved audit projects, normally in relation to national priorities such as Antibiotic Prescribing, Infection Control and Decontamination, Oral Health Assessment, Patient Experience and other relevant topics. More information is available from the NES Portal (www.portal.scot.nhs.uk).

Appendix 1 Guidance Development

The Scottish Dental Clinical Effectiveness Programme

The Scottish Dental Clinical Effectiveness Programme (SDCEP) is an initiative of the National Dental Advisory Committee (NDAC) in partnership with NHS Education for Scotland (NES).

The NDAC comprises representatives of all branches of the dental profession and acts in an advisory capacity to the Chief Dental Officer. It considers issues that are of national importance in Scottish dentistry and also provides feedback to other bodies within the Scottish Government on related, relevant healthcare matters.

SDCEP was established in 2004 under the direction of the NDAC to give a structured approach to providing clinical guidance for the dental profession. Since then, SDCEP has become established within the Dental Directorate of NES and provides an important link between best practice guidance and dental education and training. The programme's primary aim is to develop guidance that supports dental teams to provide quality patient care. SDCEP brings together the best available information that is relevant to priority areas in dentistry, and presents guidance on best practice in a form that can be interpreted easily and implemented. The guidance recommendations may be based on a variety of sources of information, including research evidence, guidelines, legislation, policies and expert opinion as appropriate to the subject. SDCEP guidance takes a variety of forms to suit the diverse topics being addressed.

Recognising that publication of guidance alone is likely to have a limited influence on practice, SDCEP also contributes to the research and development of interventions to enhance the translation of guidance recommendations into practice through its participation in the TRIaDS (Translation Research in a Dental Setting) collaboration (www.triads.org.uk).

SDCEP is funded by NHS Education for Scotland and has made important contributions to the implementation of the Scottish Government's Dental Action Plan, which aims to both modernise dental services and improve oral health in Scotland.

The Programme Development Team

The Programme Development Team operates within NHS Education for Scotland and is responsible for the methodology of guidance development. Working with members of the Guidance Development Group, the team facilitates all aspects of guidance development by providing project management and administrative support, searching and appraising information and evidence, conducting research, liaising with external organisations, editing the guidance, and managing the publication and dissemination of guidance materials. For up-to-date information on the SDCEP Programme Development Team, refer to the SDCEP website (www.sdcep.org.uk).

Appendix 1 Guidance Development

The Guidance Development Group

A Guidance Development Group, comprising individuals from a range of branches of the dental profession that have a role in dental drug prescribing, was convened to develop and write this guidance.

David Wray (Chair)	Dean and Professor of Oral Medicine, Dubai College of Dental Medicine
Alex Crighton	Consultant in Oral Medicine, Glasgow Dental Hospital and School; member of the Scottish Antimicrobial Prescribing Group
Colin Fergusson	Community Pharmacist, Glasgow
Sarah Manton	Consultant in Restorative and Special Care Dentistry and Honorary Senior Lecturer, Dundee Dental Hospital and School
Tracy McFee	Speciality Dentist and Honorary Clinical Teacher, Dundee Dental Hospital and School
Stuart McLaren	General Dental Practitioner, Rutherglen; Emergency Physician, Victoria Infirmary, Glasgow
Liz Payne	Administrator, Scottish Dental Clinical Effectiveness Programme
Colin Ritchie	Core Trainee 2, University Hospital Crosshouse, Kilmarnock
Samantha Rutherford	Research and Development Manager, Scottish Dental Clinical Effectiveness Programme
Petrina Sweeney	Senior Lecturer/Honorary Consultant in Special Care Dentistry, University of Glasgow Dental School
Robin Thompson	General Dental Practitioner, Linlithgow

Appendix 1 Guidance Development

Guidance Development Methodology

SDCEP endeavours to use a methodology for guidance development that mirrors that used to develop high-quality guidelines. It aims to be transparent, systematic and to adhere as far as possible to international standards set out by the Appraisal of Guidelines Research and Evaluation (AGREE) Collaboration (www.agreecollaboration.org/).

For the majority of SDCEP guidance publications, the guidance recommendations are informed by a thorough literature search and quality appraisal of the available evidence. However, for this guidance on drug prescribing, the *British National Formulary*¹ and *BNF for Children*² were used as the main sources of information. These publications aim to provide prescribers, pharmacists and other healthcare professionals with sound up-to-date information about the use of medicines. Information about drugs included in these publications is drawn from the manufacturers' product literature, medical and pharmaceutical literature, regulatory authorities and professional bodies. Advice is constructed from the clinical literature and reflects, as far as possible, an evaluation of the evidence from diverse sources. The Guidance Development Group identified information from the BNF and BNFC, and consulted with experts and experienced practitioners to develop guidance of specific relevance to primary care dental practice. For those drugs where a range in the dose or frequency of administration is provided by the BNF, a dose and frequency of administration that is most relevant to primary care dental practice is recommended based on the opinion of experienced practitioners.

Other references used in the production of the current guidance are cited in the reference list.

Prior to the development of the third edition, SDCEP conducted a survey to ascertain dentists' attitudes towards the guidance and to garner feedback on how they felt it could be improved. 295 general dental practitioners responded to the survey and suggestions for improvements were considered during the updating of the guidance.

For the first edition of this guidance, a wide consultation was conducted prior to peer review and publication. This included a wide range of individuals and organisations with particular interests in dental prescribing, representatives of end-users and those involved in the organisation of dental services or dental education in Scotland.

The content and presentation of the second and third editions of the guidance does not vary significantly from that of edition one; therefore, it was concluded that in depth consultation was not required. The updated guidance was reviewed by the Guidance Development Group before peer review by a range of experts comprising general dental practitioners, academic dentists, pharmacists and medical professionals, including paediatricians. Comments received during peer review were considered carefully by the Guidance Development Group and further amendments were made to the guidance before publication.

Further information about the methodology used to develop this guidance is available on our website: www.sdcep.org.uk.

Appendix 1 Guidance Development

Review and Updating

A review of all aspects of the context of this guidance (regulations, legislation, trends in working practices and evidence) will take place three years after publication and, if this has changed significantly, the guidance will be updated accordingly. As with editions one and two, the prescribing guidance in edition three will be reviewed as each new edition of the BNF and BNFC is released, with updates available on the SDCEP website (www.sdcep.org.uk) and, if required, as a hard copy to be stored in the pocket at the rear of this publication. SDCEP will always endeavour to provide guidance updates in as timely a manner as possible. However, be aware that due to the time required to prepare and release updates, the guidance may not always reflect the information available in the latest version of the BNF.

Steering Group

The Steering Group oversees all the activities of the SDCEP and includes representatives of guidance development groups and the dental institutions in Scotland. For up-to-date membership of the Steering Group, refer to the SDCEP website (www.sdcep.org.uk).

Conflict of Interest

All contributors to SDCEP are required to declare their financial, intellectual and other relevant interests. At each group meeting, participants are asked to confirm whether there are any changes to these. Should any potential conflicts of interest arise, these are discussed and actions for their management agreed. Declarations of interest and decisions about potential conflicts of interest are available on request.

Appendix 2 List of Drugs

The following drugs are included in the third edition of *Drug Prescribing For Dentistry*. All drugs in this guidance can be prescribed by dentists within the NHS in Scotland (see *List of Dental Preparations* in BNF 70¹).

Please refer to Appendix 1 of the *British National Formulary* and *BNF for Children* (www.bnf.org) for further details of drug interactions. Report any suspected adverse interactions to the Medicines and Healthcare products Regulatory Agency (see the BNF for details).

Aciclovir Cream	Co-amoxiclav Tablets 250/125 (amoxicillin 250 mg as trihydrate, clavulanic acid 125 mg as potassium salt)
Aciclovir Oral Suspension, 200 mg/5 ml	Diazepam Tablets
Aciclovir Tablets, 200 mg	Diclofenac Sodium Tablets
Aciclovir Tablets, 800 mg	Doxycycline Capsules, 100 mg
Amoxicillin Capsules	Doxycycline Dispersible Tablets
Amoxicillin Oral Suspension	Ephedrine Nasal Drops
Artificial Saliva Gel	Fluconazole Capsules, 50 mg
Artificial Saliva Oral Spray	Fluconazole Oral Suspension, 50 mg/5 ml
Artificial Saliva Pastilles	Glandosane® Aerosol Spray
Aspirin Tablets, Dispersible	Hydrocortisone Oromucosal Tablets
AS Saliva Orthana® Oral Spray	Hydrogen Peroxide Mouthwash 6%
Beclometasone Dipropionate Aerosol Inhalation, 50 micrograms/metered dose as Clenil Modulate®	Ibuprofen Oral Suspension, sugar-free
Benzydamine Mouthwash, 0.15%	Ibuprofen Tablets
Benzydamine Oromucosal Spray, 0.15%	Lansoprazole Capsules
Betamethasone Soluble Tablets, 500 micrograms	Lidocaine 5% Ointment
BioXtra® Gel	Lidocaine Spray 10%
Carbamazepine Tablets	Metronidazole Oral Suspension
Chlorhexidine Mouthwash	Metronidazole Tablets
Clarithromycin Oral Suspension, 125 mg/5 ml	Miconazole Cream
Clarithromycin Oral Suspension 250 mg/5 ml	Miconazole Oromucosal Gel
Clarithromycin Tablets	Miconazole and Hydrocortisone Cream
Clindamycin Capsules	Miconazole and Hydrocortisone Ointment
	Nystatin Oral Suspension

Appendix 2 List of Drugs

Omeprazole Gastro-Resistant Capsules

Paracetamol Oral Suspension

Paracetamol Tablets

Paracetamol Tablets, Soluble

Phenoxymethylpenicillin Oral Solution

Phenoxymethylpenicillin Tablets

Saliva-stimulating Tablets

Saliveze® Oral Spray

Sodium Chloride Mouthwash, Compound

Sodium Fluoride Mouthwash

Sodium Fluoride Toothpaste 0.619%

Sodium Fluoride Toothpaste 1.1%

Sodium Fusidate (fusidic acid) Ointment

Appendix 3 Useful Sources of Information

The *British National Formulary*¹ (BNF) and *BNF for Children*² (BNFC) have been the main information sources used in the development of this guidance. In addition to providing information on drug prescribing and drugs used to manage medical emergencies, the BNF (www.bnf.org) also contains other useful information, including:

- Contact details for medicines information services (also see overleaf) and poisons information services
- Guidance on prescribing
- Information on prescription writing
- Details of controlled drugs and drug dependence
- Advice on adverse reactions, including the oral side-effects of drugs, and how to report new adverse reactions to the Medicines and Healthcare products Regulatory Agency
- Information on:
 - prescribing for children
 - prescribing for patients with liver disease
 - prescribing for patients with renal impairment
 - prescribing for pregnant patients
 - prescribing for breastfeeding patients
 - prescribing for the elderly
- Information on drug interactions (**Appendix 1** of BNF and BNFC)
- A table showing the mean weights of children by age (also see overleaf)

In addition information on prescribing for specific patient groups is included in the relevant chapters, either under the specific drug or in the prescribing notes.

Appendix 3 Useful Sources of Information

Medicines Information Services

Information on any aspect of drug therapy can be obtained from regional and local Medicines Information Services. For example, the Information Services can provide advice on the choice of drugs, interactions, adverse reactions and restrictions on drug prescribing.

Details of the local services provided within Scotland can be obtained from the directory on the UK Medicines Information website (www.ukmi.nhs.uk) or by telephoning one of the following regional numbers.

Aberdeen: 01224 552 316

Dundee: 01382 632 351 or 01382 660 111 Extn. 32351

Edinburgh: 0131 242 2920

Glasgow: 0141 211 4407

Information on drug therapy relating to dental treatment can be obtained by telephoning the North West Medicines Information Centre (www.ukmi.nhs.uk/activities/specialistServices)

Liverpool: 0151 794 8206

Appendix 3 Useful Sources of Information

Prescribing for Children – Mean Weights

The information in the table below has been extracted from BNFC 2015-2016². The table shows the mean values for weight by children's age. These values can be used to calculate doses in the absence of actual measurements. However, note that the child's actual weight might vary considerably from the values in the table and it is important to see the child to ensure that the value chosen is appropriate. In most cases, the child's actual weight should be obtained as soon as possible and the dose re-calculated.

Age	Weight (kg)
6 months	7.6
1 year	9
3 years	14
5 years	18
7 years	23
10 years	32
12 years	39
14 year old boy	49
14 year old girl	50
Adult male	68
Adult female	58

Appendix 4 Drug Interactions

When two or more drugs are given at the same time, they may exert their effects independently or they may interact. With the increase in the number of older patients who have retained some or all of their teeth and who may be on one or more long-term medications, identifying potential drug interactions that may occur between drugs prescribed in dental practice and the patient's current medication is increasingly important.

Drug interactions can involve a variety of mechanisms, including those where the normal concentration of a drug in tissue fluid is either reduced or increased due to the effects of a second drug on its ADME (absorption, distribution, metabolism, excretion) properties or those where the pharmacological effects of the first drug are modified (reduced or enhanced) due to the pharmacological effects of the second drug. See Seymour²¹ and Dawoud et al.²² for more information on the principles of drug interactions in dentistry.

Not all drug interactions have serious consequences. However it is important that dentists are aware of potentially harmful interactions when prescribing.

The most frequent interactions and side effects observed with drugs commonly prescribed in dentistry are:

- interactions of non-steroidal anti-inflammatory drugs (NSAIDs), carbamazepine, azole antifungals and antibiotics with warfarin;
- incidence of myopathy after prescribing azoles and clarithromycin in those taking statins;
- asthma symptoms exacerbated following the use of NSAIDs.

Drug interactions can be minimised by ensuring that the patient's medical history, including information on current medication, is up to date and by using alternative drugs where indicated.

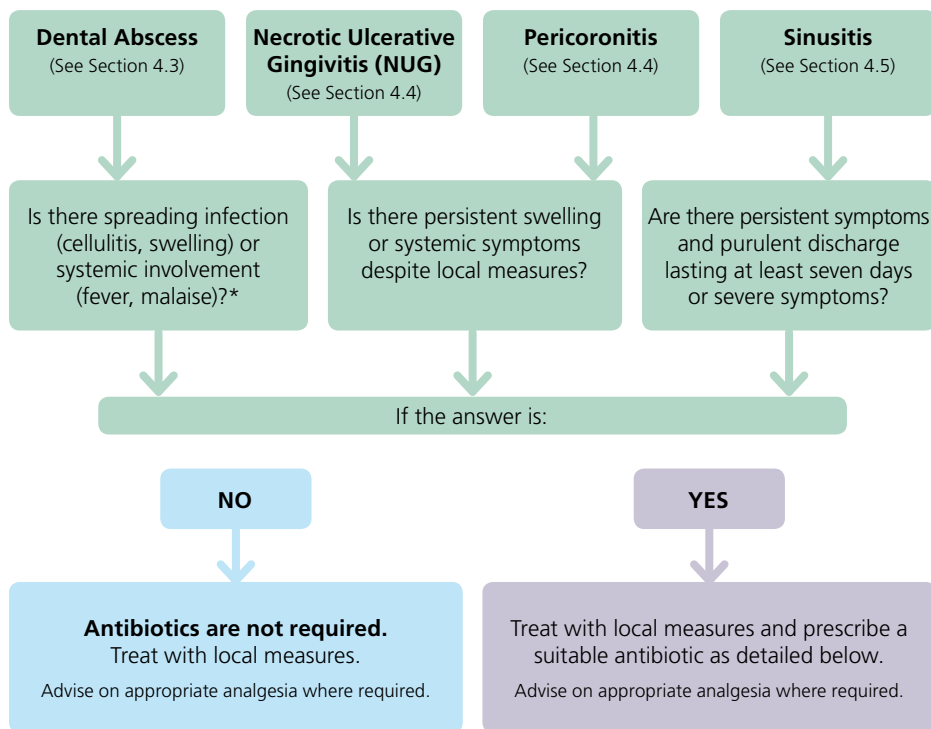
The table overleaf lists the most common potential drug interactions likely to be encountered when prescribing in dental practice. However, always consult Appendix 1 of the BNF¹ or BNFC² (www.bnf.org) for more comprehensive information on drug interactions.

NHS Education for Scotland and the Yellow Card Centre Scotland (Centre for Adverse Reactions to Drugs Scotland) have developed a resource for healthcare professionals, including dentists, about Adverse Drug Reactions (ADRs), their incidence and public health implications. The resource comprises six online modules and includes interactive learning tasks and case studies. The resource can be accessed from www.nes.scot.nhs.uk/education-and-training/by-discipline/pharmacy/about-nes-pharmacy/educational-resources/resources-by-topic/clinical-governance/patient-safety-adverse-drug-reactions.aspx

Appendix 4 Drug Interactions

Dental drug	Common interacting drug(s)	Recommendation
Metronidazole	Alcohol	Advise patients to avoid alcohol
	Warfarin	Do not prescribe metronidazole for patients taking warfarin
Macrolide antibiotics (e.g. clarithromycin)	Calcium channel blockers (e.g. nifedipine), carbamazepine, ciclosporin, domperidone, statins (e.g. simvastatin), theophylline, warfarin	Do not prescribe macrolide antibiotics for patients taking these drugs
Azole antifungals (e.g. fluconazole, miconazole)	Statins, warfarin, theophylline	Do not prescribe azole antifungals for patients taking these drugs
Non-steroidal anti-inflammatories (e.g. ibuprofen, diclofenac)	Antihypertensive drugs esp. beta-blockers (e.g. atenolol), ACE inhibitors (e.g. lisinopril) and diuretics	Avoid prescribing NSAIDs or ensure course is for 5 days or less
	Anticoagulants (e.g. warfarin, dabigatran)	Do not prescribe NSAIDs for patients taking these drugs
	Aspirin	Do not prescribe NSAIDs for patients taking a daily low dose of aspirin
	Lithium	Do not prescribe NSAIDs
	Methotrexate	Avoid prescribing NSAIDs
	Selective serotonin reuptake inhibitors (SSRIs e.g. fluoxetine)	Avoid prescribing NSAIDs
	Systemic corticosteroids	Only prescribe NSAIDs in combination with a proton-pump inhibitor
Aspirin	Alcohol	Advise patients to avoid alcohol for 12 hours after taking aspirin
	Clopidogrel	Avoid prescribing aspirin
	Non-steroidal anti-inflammatories (e.g. ibuprofen, diclofenac)	Do not prescribe aspirin for patients taking these drugs
	Selective serotonin reuptake inhibitors (SSRIs e.g. fluoxetine)	Avoid prescribing aspirin
	Systemic corticosteroids	Only prescribe aspirin in combination with a proton-pump inhibitor
	Warfarin	Do not prescribe aspirin for patients taking warfarin

Appendix 5 Bacterial Infections Management Guide



*** If there is significant trismus, floor of mouth swelling or difficulty breathing, transfer patients to hospital as an emergency.**

Dental abscess

A choice of:
Amoxicillin
Phenoxymethylpenicillin
Metronidazole

NUG/Pericoronitis

A choice of:
Metronidazole
Amoxicillin

Sinusitis

A choice of:
Amoxicillin
Doxycycline

N.B. Review patients with bacterial infections who have been treated with local measures, or who have received a course of antibiotic treatment, within 2 to 7 days

Base infection management on clinical findings. Refer to the specified sections of the guidance for advice on local measures, appropriate analgesia and, where required, recommended antibiotic doses for adults and children. A poster of this guide is available to download from the SDCEP website (www.sdcep.org.uk).

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The SDCEP Dental Prescribing app

The **Dental Prescribing** app brings SDCEP's popular Drug Prescribing For Dentistry guidance to your mobile device. A key feature is the inclusion of direct links to the BNF website for drug interaction information.



Based on the latest version of the **British National Formulary** (BNF) and **BNF for Children** (BNFC), the app includes local measures and drug prescriptions for the management of a range of dental conditions for both adults and children. Information on the management of medical emergencies is also provided, including drug administration.

Further details are available on the SDCEP website: www.sdcep.org.uk

The Scottish Dental Clinical Effectiveness Programme (SDCEP) is an initiative of the National Dental Advisory Committee in partnership with NHS Education for Scotland. The Programme aims to provide user-friendly, evidence-based guidance on topics identified as priorities for oral health care.

SDCEP guidance aims to support improvements in patient care by bringing together, in a structured manner, the best available information that is relevant to the topic, and presenting this information in a form that can be interpreted easily and implemented.

The third edition of *Drug Prescribing For Dentistry* aims to facilitate drug prescribing within primary care dental practice. Advice on dental prescribing from the *British National Formulary* (BNF) and *BNF for Children* is presented in a readily accessible, problem-oriented style.

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