

COMMON CLINICAL CONDITIONS AND MINOR AILMENTS

irritation sneezes
headaches rashes
twinge itches sting
ough aches pains
spots twinge
irritation cramps
itches sneezes

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1 ABOUT THIS PACKAGE

This pack looks at common clinical conditions and minor ailments which frequently present in the community pharmacy.

The minor ailments considered in this pack cover a wider range than those which can be treated within these services, but the aim is to encompass the majority of clinical conditions which may present to the community pharmacist, pharmacy technicians and other support staff.

How this package can assist your CPD

At the beginning of each module, the objectives describe what you should be able to do when you complete that particular module. This is designed to help you monitor how you are progressing through the pack.

For each condition there will be:

- a brief overview
- consideration of danger symptoms, including points at which to refer patients
- conditions to consider when carrying out a differential diagnosis
- over-the-counter (OTC) treatment options, with information about evidence base where it is available
- practical tips, which often encompass non-drug treatment and measures to take to avoid recurrence of the ailment.

Special considerations are described for many of the ailments, where extra care and advice is required from the pharmacist.

Referral

Referral is clarified as either routine or urgent.

Urgent referral is normally within six hours of contact and this may require the patient to use the out of hours GP service. The time scale is only a guide and your own professional judgement on the severity of the symptoms and the general health of the patient will be useful to guide them.

Routine referral is used for any condition or symptom that does not require an emergency appointment or response, which often means that the patient can wait to visit their own GP.

For further information on the direct referral to out of hours services please refer to: www.communitypharmacy.scot.nhs.uk/documents/unscheduled_care/Guide_to_Direct_Referral_V7.pdf



GP comment

A comment from a general practitioner (GP) is also included for many of the conditions. Communication with our GP colleagues is vital in relation to the community pharmacy contract and established protocols should always be in place.



When you see this icon in the text, you are being asked to complete an activity. By undertaking these activities, you will find that the practical tips and learning points from them will prove extremely valuable in your day to day work as they allow you the opportunity to put your learning into practice. You will find suggested responses to most of the activities, unless you are being asked to reflect on your own practice, or to seek out further information on a particular aspect.



When you see this box in the text, an exemplar case study is presented to you to read and reflect on. These case studies describe real life scenarios that have been presented to community pharmacists and how the pharmacist responded. Each case study helps to reinforce specific learning points from the text, and gives you an opportunity to reflect on how you would act in a similar situation.



When you see this icon in the text, this indicates opportunities for developing your role as a pharmacist independent prescriber.

Appendices

Appendices are included at the back of the package, and provide you with further information as follows:

Appendix 1 – Sources of information used, and useful for further study

Appendix 2 – Abbreviations used

Appendix 3 – A summary of childhood infections

How to work through the distance learning pack

Each module takes approximately 1 hour to complete (around 8 hours in total) and is designed to allow you to study the content in 'bite-sized' chunks, so you can plan specific times of study, as well as make use of any spare time which arises. This will also allow you opportunities to put your learning into practice as you work through the course.

Since each module covers a discreet topic, you can complete the modules in any order you wish. We would suggest that you work through **all the activities and case studies** since they will provide you with practical knowledge and skills, as well as relevant points or issues to reflect on during your daily practice.

Multiple choice questionnaire/assessment

On completion of the pack, the multiple choice questionnaire (MCQ) should then be attempted and completed via your Portal account at www.portal.scot.nhs.uk

Keeping up to date

The information is accurate at time of publication but you may wish to keep up to date by checking appropriate resources, many of which are listed in Appendix 1 on p186. You may also wish to obtain the additional references or look up websites listed in small coloured print from time to time throughout the pack for further study, e.g. CKS Topic Reviews (PRODIGY Guidance).

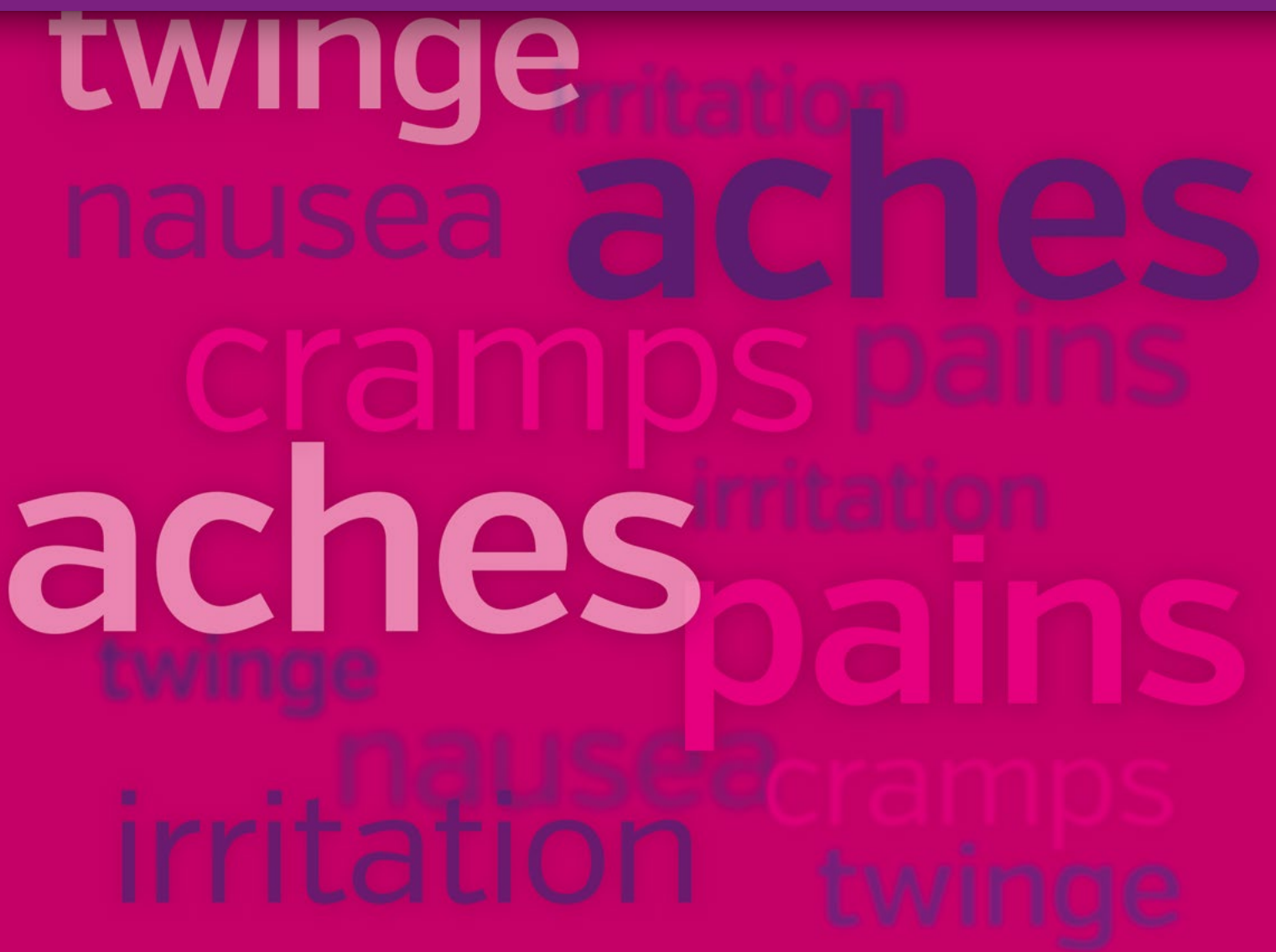
Pharmacists and pharmacy technicians in Scotland will also be able to keep up to date through websites such as www.show.scot.nhs.uk, www.communitypharmacy.scot.nhs.uk or www.nes.scot.nhs.uk

GASTRO-INTESTINAL SYSTEM 2

OBJECTIVES

After completing this section you should be able to:
Recognise, manage and advise on the symptoms of

- DYSPEPSIA
- GASTRO-OESOPHAGEAL REFLUX DISEASE (GORD)
- COLIC
- CONSTIPATION
- IRRITABLE BOWEL SYNDROME
- DIARRHOEA
- HAEMORRHOIDS



2 GASTRO-INTESTINAL SYSTEM

2.1 DYSPEPSIA

Dyspepsia is a term used to describe a collection of symptoms including upper abdominal discomfort and pain, heartburn, acid reflux (with or without bloating), nausea and vomiting related to eating. It may be caused by non-ulcer dyspepsia (diagnosis made by endoscopy), GORD, peptic ulcer disease (gastric or duodenal) or a hiatus hernia.



DANGER SYMPTOMS

ALARM symptoms are defined as:

- gastro-intestinal bleeding (may present as 'coffee grounds' in vomit or malaena)
- dysphagia (difficulty swallowing)
- progressive unintentional weight loss
- persistent vomiting
- also iron deficiency anaemia; an epigastric mass; swallowing difficulties, anaemia or suspicious barium meal, all of which may be identified by a GP examination

Symptom severity is a poor indicator of an underlying disease. In the presence of such symptoms investigations would be performed to exclude oesophageal and gastric carcinoma. Anyone describing the danger symptoms listed should make an urgent appointment with their GP.

Differential diagnoses

Cardiac pain is frequently mistaken for dyspeptic pain and is often difficult to distinguish – pain travelling down the arm which is not relieved by antacids is one possible distinguishing symptom and consider accompanying symptoms such as pale/cold/clammy/breathing difficulties. Identify other medicines that are being taken to rule out an adverse effect, eg NSAIDs, iron, bisphosphonates or corticosteroids. Irritable bowel syndrome may also present with similar symptoms, especially accompanied by bloating, although there would usually also be abnormal bowel habits reported. Motility disorders may also be a possibility, which would require referral to the GP. Biliary colic may also present as epigastric pain precipitated by eating.

Treatment options

Simple antacids

There is limited evidence on the efficacy of antacids in the management of dyspepsia; however, symptomatic relief is often reported with the use of an antacid or alginate. They are best given when symptoms occur or are expected, ie after meals and at bedtime. They also remain in the stomach for longer at these times, and therefore have longer to act. Antacids should preferably not be taken at the same time as other drugs as they may impair absorption.

Combination antacid products, containing both magnesium and aluminium salts are less likely to cause gastro-intestinal upset. Magnesium salts alone may cause diarrhoea while aluminium salts alone may cause constipation.

Alginates [See p15]

H₂ antagonists, such as ranitidine, suppress acid secretion as a result of histamine H₂ receptor blockade.

The maximum single dose for OTC use is 75mg and is not licensed for OTC sale to children aged under 16 years or to patients who are pregnant or breastfeeding.

Proton pump inhibitors [See p15]

PRACTICAL TIPS

If overweight, weight loss will help reduce symptoms. Smoking cessation is also sensible advice to offer which may reduce symptoms. Avoid trigger foods, e.g. chocolate, alcohol, caffeine, rich, spicy or fatty foods.

PHARMACOLOGICAL AID TO WEIGHT LOSS.

Alli® (orlistat) is now available OTC. It reduces dietary fat absorption and can be sold to overweight adults over 18 years of age with a BMI > 28 Kg/m².

Overall weight loss of 5-10% of initial weight is aimed for and achieved by restricting dietary fat and reducing calorie intake along with increasing physical activity. Following a low fat diet whilst taking orlistat will reduce the incidence of side effects, such as flatulence, oily stools (with or without spotting), sudden bowel movements and steatorrhoea.

Royal Pharmaceutical Society (RPS) practice guidance on the supply of orlistat is available at <http://www.rpharms.com/support-pdfs/rps-practice-guidance-otc-orlistat.pdf>

Refs: SIGN [2003]
Dyspepsia Report no.68.
Scottish Intercollegiate
Guideline Network.

See figure 1 from
SIGN 68 guidelines.
[Dyspepsia an evidence-
based approach to
investigation and
management]

GP COMMENT

If there is any doubt about whether it is cardiac pain, refer urgently, emergency 999 if required. The principal distinguishing feature is periodicity, ie relating to eating, exercise etc. Patients reporting first episode of dyspepsia at the age of 40 or over should be referred because of the possibility of gastric cancer.



2 GASTRO-INTESTINAL SYSTEM

2.1 DYSPEPSIA/GORD TREATMENT ALGORITHM



2.1 DYSPEPSIA ACTIVITY

Select some of the more popular antacids from your pharmacy and note the ingredients. Consider which you would recommend if asked for advice.



See p36 for suggested responses.

2 GASTRO-INTESTINAL SYSTEM

2.2 GASTRO-OESOPHAGEAL REFLUX DISEASE (GORD)

An unpleasant burning feeling, felt behind the breastbone (heartburn) often accompanied by a sour or bitter taste in the throat, caused by reflux of gastroduodenal contents into the oesophagus. If heartburn is experienced regularly, investigation by endoscopy may reveal oesophagitis (inflammation of the inner lining of the oesophagus).

This may lead to complications such as oesophageal stricture or Barrett's oesophagus where the normal cube-shaped cells that line the gullet become replaced by elongated cells as a result of damage from the stomach acid. Long-standing and untreated Barrett's oesophagus may lead to ulcer and a higher tendency to undergo malignant change. The majority of sufferers have endoscopy-negative reflux disease, where reflux is the predominant symptom but a normal endoscope result is seen. Various trigger factors may contribute:

- foods: fatty foods, citrus fruits, onions, coffee
- drugs which relax the lower oesophageal sphincter, e.g. calcium channel blockers, theophylline and nitrates
- smoking
- alcohol
- obesity
- genetic factors



DANGER SYMPTOMS

Anyone presenting with dysphagia, unexplained weight loss or any other ALARM symptoms [see p10] should be routinely referred to their GP as these may suggest oesophageal or gastric carcinoma. However, some symptoms will need urgent referral e.g. dysphagia with a complete inability to swallow.

Differential diagnoses

Cardiac pain is often difficult to distinguish from dyspeptic pain. Cardiac pain will not be relieved by antacid, is brought on by exercise and relieved by rest and glyceryl trinitrate (GTN). It can travel down either arm but this is not a very useful distinguishing feature and again may have accompanying features e.g. pale/cold/clammy.

Treatment options

Proton pump inhibitors (PPIs) such as *omeprazole*, *pantoprazole* and *esomeprazole*. PPIs inhibit gastric acid secretion by blocking the hydrogen-potassium adenosine triphosphatase enzyme system (the proton pump) of the gastric parietal cell. Evidence refers to effectiveness at healing ulcers rather than for relieving symptoms of GORD. It shows that proton pump inhibitors are more effective at healing than H₂ antagonists or antacids. NICE (2014) states that they can be used 'on-demand' to relieve symptoms as they occur. They are well-tolerated drugs with side effects reported as diarrhoea, headaches and dizziness. Omeprazole 10mg tablets may be sold for short-term relief of reflux-like symptoms in adults aged over 18 years for a maximum of four weeks. Esomeprazole is licensed for adults aged 18 years and over for a maximum treatment period of 14 days.

H₂ receptor antagonists improve symptoms of GORD more than antacids or alginates [See p11]. *Alginates* form a 'raft' on the stomach contents and therefore provide symptomatic relief in reflux and protect the oesophageal mucosa, e.g. *Gaviscon*[®] liquid.

Antacids may provide symptomatic relief in GORD [See p11].

PRACTICAL TIPS

It is not known whether losing weight, stopping smoking, reducing the intake of alcohol, caffeine or fatty foods will help reduce symptoms of GORD. However this is sensible, healthy lifestyle advice and will not cause harm. Eating smaller meals may help. A small study looked at raising the head of the bed in GORD and found small improvements in self-reported symptoms. One possible cause of reflux disease is transient relaxation of the lower oesophageal sphincter; lying flat may therefore increase reflux episodes because gravity does not then prevent acid regurgitation.

Ref: NICE CG184
Dyspepsia and GORD.
Sept 2014

2 GASTRO-INTESTINAL SYSTEM

SPECIAL CONSIDERATIONS:

Gastro-oesophageal reflux in children

Children may present with symptoms such as recurrent vomiting, difficulty feeding, failure to thrive, abdominal pain and irritability. Symptoms are due to the passive transfer of gastric contents into the oesophagus due to transient or chronic relaxation of the lower oesophageal sphincter. Infants often present with frequent vomiting at less than 6 weeks old. Spontaneous resolution often occurs at 12-18 months. Regular treatment will be warranted if the regurgitation is frequent. Half of babies under the age of 3 months bring up their food at least once a day. Referral will be required if any feeding difficulties or failure to thrive are suspected.

Thickened feeds reduce the severity and frequency of regurgitation in most cases, e.g. *Instant Carobel*[®] powder, which is carob seed flour. These should be used on the advice of the health visitor or GP. Sodium alginate may also be used to reduce the frequency of regurgitation, e.g. *Gaviscon Infant*[®] sachets. Care must be taken with the high sodium content and they are not recommended in pre-term infants.

GP COMMENT

It is important to ask patients if they have a referral for endoscopy before they purchase PPIs as they should not be taken two weeks before since they may mask pathology.

Ref: BMJ Clinical Evidence. GORD in children, May 2006



2.3 COLIC

Colic usually starts when a baby is a few weeks old and stops at four or five months of age. No one knows what causes it, although theories include lactose sensitivity, wind or painful bowel cramps or the baby detecting the worry or anxiousness of the parents. Colic is excessive crying in an otherwise healthy baby and is defined as being present when babies cry for at least three hours a day, for three days a week, for at least three weeks.

Signs that a baby might have colic are:

- the baby will often start crying suddenly; the cry is high-pitched and nothing the parent does seems to help
- the crying begins at the same time each day, often in the afternoon or evening
- the baby might draw their legs up when they cry, and their tummy might look swollen
- the baby might clench their hands
- the baby's face flushes
- the crying can last for minutes or hours
- the crying often calms down when the baby is exhausted or when they have passed wind or a stool

DANGER SYMPTOMS

1. Failure to thrive. Although this is hard to assess as a pharmacist, signs to look for would be the general appearance of the baby, their alertness and responsiveness. A floppy baby with reduced alertness/responsiveness would require meningeal symptoms to be ruled out. If there are concerns, refer for a routine appointment to the GP or health visitor.
2. Post-natal depression – colic is often associated with anxiety of the parents.



2 GASTRO-INTESTINAL SYSTEM

PRACTICAL TIPS

Advice to offer the parent includes:

- Hold the baby in an upright position, to help any wind to pass.
- Try a dummy (not recommended by some health professionals).
- If breastfeeding, allow baby to finish one breast before offering the second.
- If breastfeeding, avoid products in the diet that may upset the baby, such as caffeine, alcohol, spicy foods, chocolate or dairy products.
- If bottle-feeding, ensure that the hole in the teat is the correct size, e.g. if it is too large, the baby may feed too quickly and gulp in a lot of air.
- Take a break. Let friends or family help look after the baby. The attitude of the parents is important and if they can relax and be less anxious this may help the baby.
- Baby massage may help, using oils that are safe for the baby.
- Avoiding over stimulation, by not jiggling, lifting and patting a baby less than three-months-old too much may help with symptoms.

Evidence has shown that carrying a baby around for long periods of time will not necessarily help the baby cry less. Other treatment options that have been investigated with little evidence are car rides, cranial osteopathy and low lactose milk.

Treatment options

Anti-foaming agents, e.g. simethicone, contained in *Dentinox*[®] and *Infacol*[®].

There is little evidence to show that these drops help in colic. It is not systemically absorbed and therefore is safe from birth and may be an option to offer to a parent who is keen to give a treatment.

Gripe water, containing sodium bicarbonate and herbal aromatic oils may also be tried, but once again, evidence for its effectiveness is lacking.

Whey hydrolysate formula milk has been shown to ease symptoms, but must only be given on the recommendation of a healthcare professional. Examples include *Nutramigen*[®], *Pepdite*[®] and *Pepti-junior*[®]. If breastfeeding, the mother should be strongly encouraged to continue.

2.3 COLIC ACTIVITY

List some symptoms of post-natal depression.



See p36 for suggested responses.

2 GASTRO-INTESTINAL SYSTEM

2.4 CONSTIPATION

Described as reduced frequency of defecation compared to what is normal for that person, often accompanied by straining and the passage of small, hard stools. Abdominal discomfort, cramps or a feeling of incomplete emptying may be reported. Its prevalence increases with age and it is more common in women than in men. It can be a particular problem during pregnancy, with prevalence reported as high as 38%.

Severe constipation may present with symptoms of overflow diarrhoea and faecal incontinence due to impacted faeces. Contributing factors are poor fibre intake, poor fluid intake and sedentary lifestyle. There are many frequently used drugs that can cause constipation.



DANGER SYMPTOMS

Routine referral should be advised for adults with new or worsening constipation without adequate explanation, blood in the stools, weight loss, nausea and vomiting. This is to rule out colorectal cancer. Any reports of rectal bleeding with change in bowel habit should be questioned further and referral to the GP is usually warranted, unless haemorrhoids are suspected. Symptoms that suggest faecal impaction should also be referred to the GP, as manual evacuation may be required.

Differential diagnoses

Intestinal obstruction, such as faecal impaction, requires referral. Colicky pain will often accompany the symptoms of constipation and spurious diarrhoea may be experienced.

Treatment options

The BNF recommends that laxatives should generally be avoided except where straining will exacerbate a condition (such as angina) or increase the risk of rectal bleeding as in haemorrhoids. Lifestyle measures such as increasing fibre and fluid in the diet and increasing exercise levels are the first option that should be encouraged.

Drug treatment may be appropriate if these have not helped, or if there is drug-induced constipation which cannot be resolved by reviewing the causative drug. If laxatives are needed regularly, due to drug-induced constipation, it may be appropriate to ensure that the patient knows they should obtain regular laxatives from their GP*. One management issue to be aware of, is how to avoid laxative dependence which is associated with the overuse of stimulant laxatives in, e.g. patients with anorexia [see overleaf].

* This is not an eligible condition for prescribing under MAS in Scotland.

Bulk-forming laxatives, e.g. *ispaghula* and *sterculia*, act by retaining water in the gut and increasing faecal mass, therefore, stimulating peristalsis. The bulk-forming laxatives have a delayed onset and therefore are not suitable for acute, occasional relief. They must be taken with adequate fluids to avoid intestinal obstruction. Side effects may be bloating, distension and flatulence; although these effects should settle with regular use.

Osmotic laxatives, e.g. *lactulose*, act by increasing the absorption of water into the large bowel. They can take up to 48 hours to be effective.

Stimulant laxatives, e.g. *senna* and *bisacodyl*, act by stimulating colonic nerves to increase intestinal motility. They take effect within 8 to 12 hours, so the dose is usually taken at night. Frequent use can lead to fluid and electrolyte imbalance.

Stool softeners, e.g. *docusate sodium*, act by reducing surface tension and increasing penetration of intestinal fluids into the faeces. Docusate sodium is also a stimulant laxative.

Glycerol suppositories have a dual action; they are stool softeners and stimulants and are useful for rapid relief (usually within 30 minutes). *Liquid paraffin* is classed as a stool softener but is not now recommended due to anal seepage, small risk of lipoid pneumonia [rare] and malabsorption of fat-soluble vitamins.

SPECIAL CONSIDERATIONS:

Constipation in children

Many children suffer from constipation at some time in their lives and it will generally resolve without treatment. It is most common in boys and between the ages of two and four years (often when potty training). Symptoms of tummy ache, pain when attempting to pass stools or getting upset or anxious about going to the toilet may all be reported by the child. Advice to keep the bowels healthy such as eating foods high in fibre, drinking adequate fluids and remaining physically active will all be important. Encourage the drinking of juices such as prune, pear or apple juice, which naturally contain sorbitol and act as a stool softener.

Referral to a GP will be required if the child is feeling weak, dizzy, has marked anal pain on defecation or if there is blood in the stools. If the constipation becomes regular, referral for regular prescribed treatment may be appropriate.

2 GASTRO-INTESTINAL SYSTEM

A 'toilet phobia' needs to be avoided, where the child fears the pain of straining and holds onto stools, causing constipation. In these circumstances, there is limited evidence to support the use of a stool softener, along with lifestyle advice.

There is no evidence to show that a stimulant laxative will work in this situation and, therefore, should be avoided. If needed in the short term to provide relief until dietary measures are effective, oral laxatives such as osmotic or bulk-forming laxatives may be used in children.

Treating constipation in pregnancy and breastfeeding

Bulk-forming and osmotic laxatives are the safest options as they are not absorbed. A stimulant laxative may be used for short periods, but it is not advisable in the third trimester as it may induce uterine contractions. Senna enters the breast milk, so may cause colic and diarrhoea in the infant.

Laxative dependence

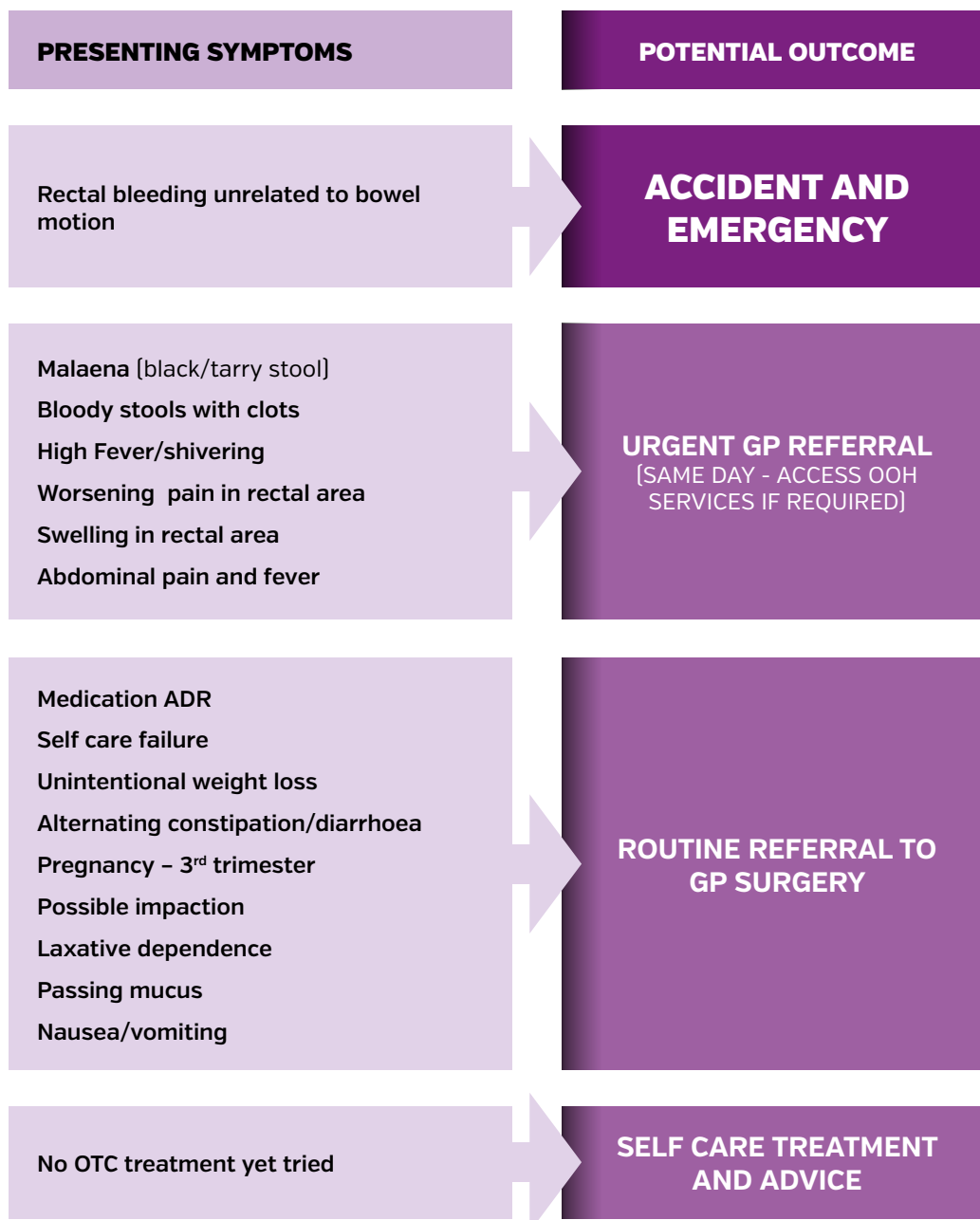
Prolonged laxative use leads to the degeneration of the myenteric plexus of the colon. Increasing doses of laxatives have to be ingested to obtain a response. Some people take laxatives in the false belief that they need to empty their bowels daily. Dieters are also known to abuse laxatives to aid weight loss. Hypokalaemia is a risk as is malabsorption due to the effects of the laxatives on the small intestine. The aim of management is to advise on the dangers of continuous use of laxatives and to refer the patient to the GP. They will then aim to replace stimulant laxatives with bulk laxatives. This may take many months and not all patients respond.

GP COMMENT

Routine referral of adults suffering from new or worsening constipation without adequate explanation, regardless of age, is a reasonable referral criterion.



2.4 CONSTIPATION TREATMENT ALGORITHM




2 GASTRO-INTESTINAL SYSTEM

2.4 CONSTIPATION ACTIVITY

PRACTICAL TIPS

- Drink eight glasses or mugs of fluid a day (about two litres). Avoid too many drinks containing caffeine as this can worsen constipation.
- Eat food rich in fibre, e.g. fruit, vegetables, wholegrain cereals. Powdered bran is an easy way of introducing extra fibre into the diet as it is tasteless; although some people may not like the texture.
- Take regular exercise, e.g. walking, gardening and swimming, as a lack of activity can cause constipation.



Make a list of drugs which would alert you to the possibility of drug-induced constipation.

See p37 for suggested responses.

2.5 DIARRHOEA

Diarrhoea is the frequent passing of watery stools. Symptoms may include cramps and abdominal pain, along with vomiting and headache. *Campylobacter*, *Escherichia coli*, *Salmonella*, *Shigella* and *Cryptosporidium* bacteria, viruses and protozoa are all attributed to cause diarrhoea in developed countries. Infected diarrhoea is unlikely to cause death but may give rise to complications such as severe dehydration and renal problems, particularly in the very young and very old.

DANGER SYMPTOMS

Watch out for symptoms of moderate to severe dehydration, which would warrant urgent referral:

- drowsiness or confusion
- passing little urine
- dry mouth and tongue
- sunken eyes
- weakness
- cool hands or feet
- sunken fontanelle in babies/young infants

Diarrhoea of longer than three days duration in older children and adults should be referred for a routine appointment, the timescale is shorter for elderly patients or young children.



Differential diagnoses

Some gastro-intestinal disorders give rise to diarrhoea, e.g. inflammatory bowel conditions, irritable bowel syndrome. Small amounts of spurious diarrhoea may be reported for patients with constipation and impacted faeces.

Diarrhoea is a common side effect of many prescribed drugs and this should be ruled out or the need for ongoing treatment reviewed.

Treatment options

Oral rehydration therapy (ORT). These are used for the prevention of dehydration in the very young and the frail elderly and are suitable for treating mild dehydration. Proprietary preparations should be used, e.g. *Dioralyte*® which is available in different flavours. The sachets are made up to 200ml with boiled and cooled water and should be taken after each loose stool, in addition to other fluids throughout the day. Any unused portion can be kept in the fridge for 24 hours. The WHO formula contains too much sodium for the needs of people in the UK who do not tend to lose as much. If diabetic, careful, regular monitoring of blood glucose will be necessary when taking ORT (and, indeed, during an episode of diarrhoea). A rice-based formula of ORT is also available over the counter, *Dioralyte Relief*®, but there is little evidence to show that it is more effective than glucose-based ORT.

2 GASTRO-INTESTINAL SYSTEM

Anti-motility drugs, e.g. *loperamide* help to reduce the duration of diarrhoea and improve symptoms. Loperamide helps to reduce stool frequency and increase stool consistency. It is not recommended for children under the age of 12 years. Two capsules should be taken after each loose stool, up to a maximum of eight capsules in one day. It should only be used where symptom control is necessary and should not be used routinely for diarrhoea.

Kaolin and morphine preparations are not recommended for diarrhoea symptoms because of lack of clinical efficacy.

PRACTICAL TIPS

Most bouts of diarrhoea settle within a few days.

- Drink plenty of normal drinks if possible. The aim is to prevent dehydration.
- Eat as normally as possible. Ideally include fruit juices and soups, which will provide sugar and salt, and also foods that are high in carbohydrate, such as bread, pasta, potatoes, or rice. There is little evidence to support the need to avoid solid food for 24 hours.
- Always wash your hands after going to the toilet (or changing nappies). Regular cleaning of the toilet, including the flush handle and toilet seat is advisable.
- Specialist advice is required for those whose job involves handling food.
- Adults whose symptoms do not resolve after three days of persistent diarrhoea should be referred to a doctor for a routine appointment. Symptoms which may require earlier referral include:
 - persistent vomiting
 - blood in vomit or diarrhoea
 - drowsiness or confusion
 - concern about dehydration.

GP COMMENT

Anti-motility drugs should not be used if there is any blood in diarrhoea or in patients who are particularly unwell – these patients should be referred to the GP.



SPECIAL CONSIDERATIONS:**Diarrhoea in children**

There is a danger that young children may become dehydrated if they are experiencing diarrhoea, especially if accompanied by vomiting. Plenty of clear fluids should be taken with ORT recommended if necessary to avoid dehydration. Careful monitoring of the child for any signs of dehydration (see p25) will be important. The child should be taken to the doctor if there are concerns about duration and severity of the diarrhoea or if vomiting has lasted more than one day in addition to the diarrhoeal symptoms. Otherwise, diarrhoea lasting more than 24 hours in babies under one year or 48 hours in children under three years should be referred.

If the child is hungry, then simple, plain food can be offered. Breast-fed and bottle-fed babies should continue to feed normally and the feed should not be diluted.

Diarrhoea is often viral with *Rotavirus* a common cause. Children should be reminded of the importance of washing hands after going to the toilet, after playing in the garden, after touching animals and before eating to avoid transmission of the virus via infected stools.

Traveller's diarrhoea

People may seek advice in advance, about treatment of diarrhoea whilst on holiday.* Useful information may be offered and medication for relief of possible symptoms may be sold. Traveller's diarrhoea varies according to location and season of travel but has a greater incidence in those travelling to developing countries. High-risk areas include Africa, most of Asia and South America. Low risk areas include Northern Europe and North America.

Travellers should avoid taking ice or unwashed salad or fruit in areas where drinking water is unsafe.

Oral rehydration treatment is recommended and loperamide may help symptoms. Bismuth subsalicylate can improve symptoms, but is not as effective as loperamide and is associated with side effects such as blackened tongue and stools. It is only available as a liquid preparation and may prove too bulky for travellers.

Persistent or bloody diarrhoea on return from travel should be referred for investigation and it is useful to ask travellers what part of the world they were travelling in.

* In Scotland, this is not appropriate for supply under MAS.

2 GASTRO-INTESTINAL SYSTEM

2.5 DIARRHOEA TREATMENT ALGORITHM



2.5 DIARRHOEA ACTIVITY

Medicine sick day rules

If a person is experiencing vomiting and diarrhoea whilst taking certain medicines, they should be advised to stop the medication and re-start once well (after 24 to 48 hours of eating and drinking normally) to avoid aggravating dehydration which may lead to potential kidney damage. Medicines include: ACE inhibitors, angiotensin II receptor blockers, non-steroidal anti-inflammatory drugs, diuretics and metformin.

Ref DTB - Sick day rules in kidney disease, 2015; 53:37

What are the signs of dehydration in children?



2 GASTRO-INTESTINAL SYSTEM

2.6 IRRITABLE BOWEL SYNDROME

Irritable bowel syndrome (IBS) is a chronic non-inflammatory bowel condition in which there is recurrent abdominal pain associated with a change in bowel habit. It may appear as alternating constipation and diarrhoea, abdominal discomfort, passage of mucus, bloating and constipation or faecal urgency and diarrhoea.

It is not fully known what causes IBS but possible theories include abnormal gastro-intestinal (GI) motility and abnormal CNS modulation of the GI tract. It is more prevalent in women and first cases are often reported from the age of 30 to 50 years. Stress or diet can trigger attacks.



DANGER SYMPTOMS

Rectal bleeding associated with a change in bowel habit should be referred to own GP. This will allow investigation to exclude GI carcinoma and inflammatory bowel diseases that are associated with a change in bowel habit. If the rectal bleeding is severe or associated with any systemic symptoms then urgent referral is needed. Rectal bleeding from haemorrhoids need not be referred.

Differential diagnoses

Other conditions which may present with similar symptoms are diverticulitis, anxiety, premenstrual syndrome and endometriosis. If there are large amounts of diarrhoea passed, there may be an infective or inflammatory cause. If the person has not had IBS officially diagnosed by the GP, they should be referred for a routine appointment.

Treatment Options

Reassurance and diagnosis often is the only treatment required for IBS sufferers. However, the nature of the condition is that it may 'flare up' now and again and sufferers may seek treatment. The treatment should be based on the presenting symptoms.

Bulk-forming laxatives are used when constipation is the dominant symptom.

Anti-diarrhoeal drugs, e.g. *loperamide* are used where diarrhoea is the predominant symptom.

Anti-spasmodic agents, e.g. *mebeverine*, *alverine citrate* are used for abdominal pain. The smooth muscle relaxant properties of the antimuscarinics may be useful; however, *hyoscine butylbromide* is poorly absorbed which may limit its effectiveness. *Peppermint oil* is believed to have direct relaxant properties of intestinal smooth muscle. It is not recommended in children.

PRACTICAL TIPS

Exercise has been shown to improve the management of the condition and should be encouraged.

If constipation is a problem, gradually increasing the dietary fibre will help, but there is evidence that increasing fibre may make other symptoms of IBS worse. Individual sufferers need to judge for themselves whether an increase in dietary fibre helps their condition or not. It is important to maintain adequate fluid intake (two litres, which is approximately eight glasses daily).

A food and lifestyle diary may be a good way of identifying trigger factors, particularly food or emotional stress factors. Strict exclusion diets should only be undertaken with the supervision of a dietician but there has been support for withholding a suspect food from the diet. It can be difficult to prove or disprove an association with the suspect food.

Some trigger foods are:

- spicy foods
- citrus fruits
- beans, lentils
- milk
- chocolate and other sugary foods
- fatty and fried foods
- cheese
- alcohol
- red meat
- green vegetables
- onions and leeks
- coffee
- refined carbohydrates
- wheat

There is some evidence that a low fat diet may ease symptoms, as will reduction of caffeine, alcohol and smoking, all of which is sensible, healthy lifestyle advice.

There are conflicting reports on the efficacy of probiotics, such as yoghurts, drinks or capsules containing live microbial food supplements, e.g. *Lactobacillus* and *Bifidobacterium* species in the treatment of IBS. More studies are needed to assess their benefits in specific conditions. They do appear to be well tolerated by patients, apart from those who are severely immunocompromised or debilitated.

GP COMMENT

Stress is often the major trigger for IBS symptoms.

Ref: Probiotics for gastro-intestinal disorders. DTB 2004; 42; No 11: 85-88.



2 GASTRO-INTESTINAL SYSTEM

2.7 HAEMORRHOIDS (PILES)

Internal haemorrhoids arise in the upper anal canal and lower rectum from the internal venous haemorrhoidal plexus. It becomes a disease state when they enlarge. They may involve the skin lined lower anal canal and the external haemorrhoidal venous plexus to become visible externally.

Bleeding is a common but rarely severe symptom of haemorrhoids and usually appears as bright red blood, often on the stool but not mixed with it. It is often evident on the toilet tissue and the toilet bowl. Haemorrhoids are associated with pain and discomfort, mucous discharge which can irritate the perineum and partial incontinence.

Internal and external haemorrhoids can occur at the same time. Skin tags may result from repeated episodes of dilatation and thrombosis of external haemorrhoids causing enlargement of the overlying skin. They are common and should not be confused with external haemorrhoids, as they do not contain dilated blood vessels. They may trap moisture and cause peri-anal irritation as well as interfering with anal hygiene.

Nearly half the population will suffer from one haemorrhoidal episode at some time in their life. It is a chronic condition and most sufferers have more than one episode. Pregnancy, diarrhoea, constipation, prolonged straining and hereditary factors are all associated with the development of haemorrhoids.

DANGER SYMPTOMS

Excessive bleeding which the patient is worried about, especially if accompanied by a change in bowel habit and/or loss of weight, should be referred for a routine appointment. Timescales are arbitrary, but useful guidelines for pharmacists would be to refer patients aged 40 years and over with rectal bleeding which persists for longer than three weeks with accompanying change in bowel habit. For patients aged 60 years and over, refer if symptoms present alone or together and have persisted for longer than three weeks.

Blood that is mixed in with the stools, rather than on the surface of the stool, may be a sign of colon cancer and requires referral.

Haemorrhoids in children are rare, but may occur in infants with portal hypertension.

PRACTICAL TIPS

Avoid straining due to constipation by ensuring that the diet contains lots of fibre-rich foods and plenty of fluid.

Keep the anal area clean and free of irritant faecal matter, e.g. by using moist toilet wipes.

Warm baths are soothing for the peri-anal area.

Cold compresses may help to shrink the haemorrhoid.



Differential diagnoses

As well as other causes of rectal bleeding, rule out other causes of pruritus ani, which may be caused by local dermatitis or irritation or by threadworm. Bleeding from haemorrhoids usually appears only as spots or streaks on the toilet paper.

Treatment options

Treatment depends on the classification of haemorrhoid and severity of the symptoms. Many topical preparations are available with a variety of ingredients:

Bland, soothing agents: allantoin, zinc oxide, balsam of peru. These products have emollient and protective properties and help to prevent local irritation to the peri-anal skin due to the presence of faecal matter and mucus.

Local anaesthetics: lidocaine, benzocaine. Alleviate pain, burning and itching but may cause sensitisation of the peri-anal skin, therefore limit use to between three and four days.

Topical corticosteroids: hydrocortisone. Reduces inflammation and therefore pain. Limited to seven days' use only.

Astringent agents: witch hazel, bismuth subgallate. The theory is that there will be precipitation of proteins when these preparations are applied to mucous membranes or skin which is broken or damaged. It is thought that a protective layer is formed so helping to relieve irritation and inflammation.

Other ingredients such as shark liver oil [said to promote healing and tissue repair], counter irritants such as menthol and antiseptics may also be contained in preparations, with limited evidence to support their use.

Bulk-forming laxatives may be a useful management option to reduce the need for straining on defecation. They take around two to three days to work and must be accompanied by plenty of fluid; about eight glasses of caffeine free liquid per day.

SPECIAL CONSIDERATIONS:**Pregnancy**

Pregnant women are much more likely to suffer from piles than non-pregnant women of the same age. This is due to a combination of factors, including the increased pressure on the haemorrhoidal vessels due to the gravid uterus and the increased incidence of constipation in pregnancy. Symptoms usually resolve after delivery. Treatment is the same for other patient groups, but if the symptoms are severe and painful, referral is warranted.

2 GASTRO-INTESTINAL SYSTEM

2.7 HAEMORRHOIDS (PILES) ACTIVITIES



Other causes of rectal bleeding need to be ruled out. What conditions might give rise to rectal bleeding?



Study the range of topical preparations that you have available to recommend and their ingredients. What first and second line recommendations will you make to customers looking for a soothing preparation?

You may wish to refer to local formularies too.

CASE STUDIES

Case Study 1

Miss Scott, a regular customer in her late twenties, asks for something to treat diarrhoea and bloating. She has had the problem 'on and off' for three weeks and has recently changed jobs.

On questioning, she is taking an oral contraceptive pill and no other prescribed medicines, has not tried anything OTC and does not smoke. She does not feel it is related to a food episode as her boyfriend has eaten exactly the same and experienced no ill effects. There is no blood present, but she does sometimes experience constipation and passing of mucus. Her new job has disrupted her normal eating patterns as she is on the move a lot more and doesn't eat as regularly or as healthily as usual.

It is likely that this is a case of irritable bowel syndrome, because of the age, presence of constipation and bloating, and stress of job change and lifestyle as a possible precipitating factor. Routine referral to the GP would be necessary for a confirmatory diagnosis. Once this has happened, loperamide may be given for diarrhoea as the predominant complaint and advice could be given on stress relief techniques, e.g relaxation or yoga. Drinking plenty of fluids and getting into healthier eating habits will also be useful. You could recommend experimenting with increasing the fibre in her diet to see if that helps.



Case Study 2

A female customer asks for advice – she has just had her first baby who is now two weeks old. She states that she is suffering from 'piles'. On questioning, she is experiencing intense pain on defecation and there is a spotting of bright red blood on the toilet paper. She was in labour for over 24 hours and had to have stitches, which have now healed well. She did have some trouble with haemorrhoids during the pregnancy but they did not cause as much discomfort as this. You confirm that it is likely that the prolonged labour has precipitated this episode of haemorrhoids. You advise a high fibre diet and plenty of fluid, especially as she is breastfeeding, to avoid constipation and therefore straining when visiting the toilet. *Anusol HC*[®] is given.* You advise that the preparation should not be used for longer than seven days. If the symptoms persist for longer than three weeks or the pain becomes more severe, then referral to the GP for a routine appointment will be necessary.



* In Scotland, you can supply this product to eligible patients within the Minor Ailments Service [MAS].

2 GASTRO-INTESTINAL SYSTEM

SUGGESTED RESPONSES TO GASTRO-INTESTINAL ACTIVITIES



Select some of the more popular antacids from your pharmacy and note the ingredients. Consider which you would recommend if asked for advice.

There is a wide range available; factors to consider will include combination of ingredients to avoid side effects of diarrhoea or constipation, patient acceptability of taste and texture of the product, the need for it to be portable (e.g. a bulky glass bottle of liquid will not be the ideal treatment to carry in a handbag). Some local formularies may advise one particular antacid as first line.



List some symptoms of postnatal depression.

Postnatal depression presents with similar symptoms to general depression but with some variation:

- low mood and loss of enjoyment
- anxiety
- disturbed sleep and eating patterns
- poor concentration
- low self-esteem
- low energy levels
- loss of libido



List some drugs which commonly cause diarrhoea.

The following is not an exhaustive list:

- iron preparations
- antibiotics
- magnesium salts
- NSAIDs
- diuretics, e.g. furosemide

What are the signs of dehydration in children?

- being very thirsty
- being restless or irritable
- passing less urine than normal – dry nappies in babies
- sudden weight loss
- eyes looking sunken
- a baby's soft spot on the head (fontanelle) being sunken




Make a list of drugs which would alert you to the possibility of drug-induced constipation.

Compare your list to this list of drugs which commonly cause constipation:

- aluminium antacids
- antidepressants (phenelzine, amitriptyline)
- antiepileptics (carbamazepine)
- antihistamines (brompheniramine)
- antipsychotics (clozapine, quetiapine)
- antispasmodics (dicycloverine, hyoscine)
- calcium supplements
- diuretics (furosemide, indapamide)
- iron supplements
- opioids (codeine, buprenorphine, morphine)
- verapamil





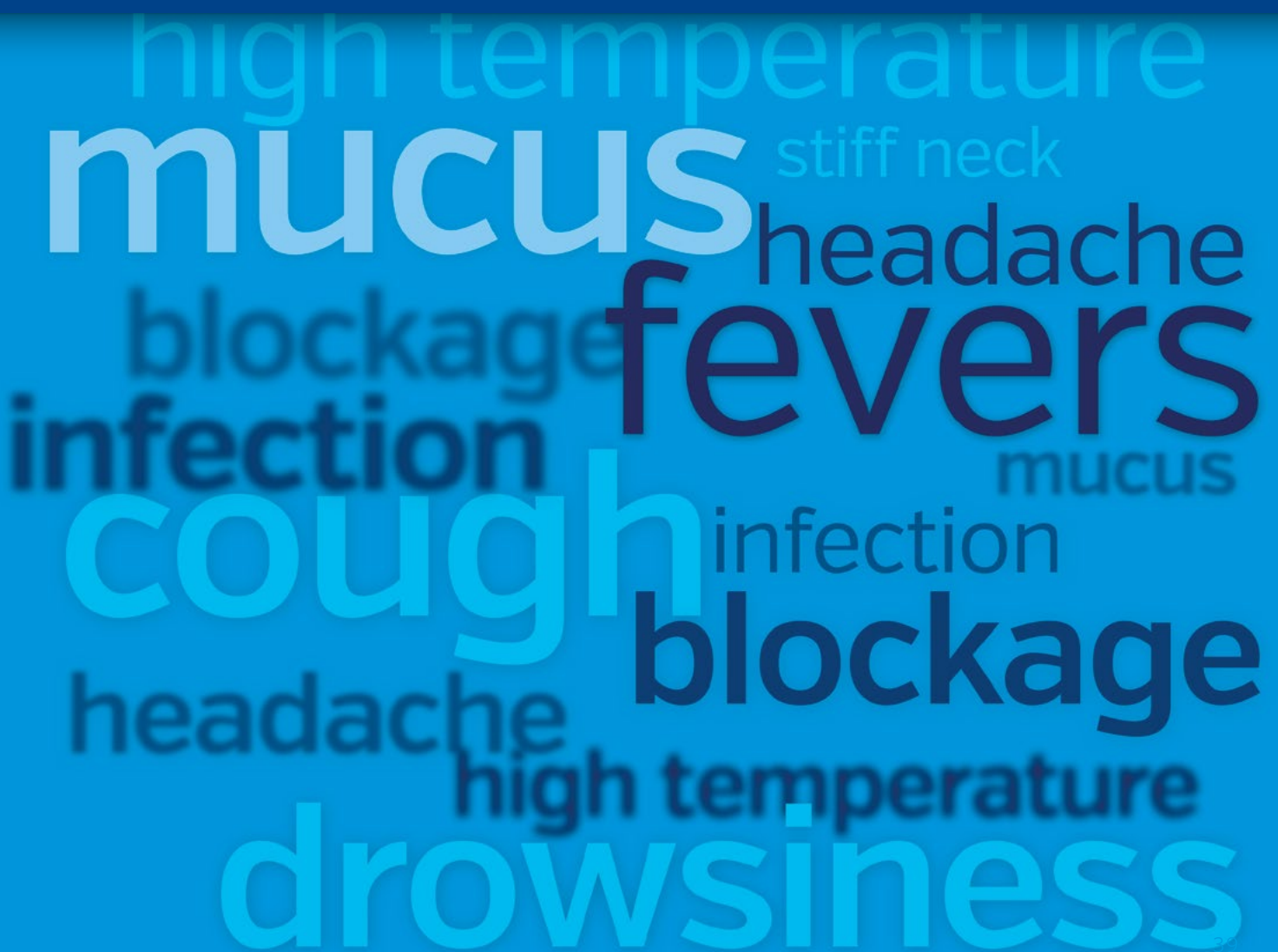
**Other causes of rectal bleeding need to be ruled out.
What conditions might give rise to rectal bleeding?**

- Colorectal malignancy. There are guidelines available for when to refer depending on age of patient. Refer those aged 40 years or over if there is rectal bleeding and change in bowel habit persisting longer than six weeks. In patients aged 60 years and over, either symptom presenting for longer than six weeks requires referral.
- Inflammatory bowel disease.
- Diverticular disease.
- Ulcer. Refer if any suspected internal bleeding - the blood would be darker in appearance and would appear to be mixed in with the stool.
- Anal fissure. Rectal bleeding also occurs with anal fissure but there would be acute localised pain whilst the motion is passed. Bright red blood would be visible, external to the stool.

RESPIRATORY SYSTEM **3****OBJECTIVES**

After completing this section you should be able to:
Recognise, manage and advise on the symptoms of

- COUGH
- COLD
- HAYFEVER



3 RESPIRATORY SYSTEM

3.1 COUGH

Cough is a reflex action of the body, described as a forced expulsive manoeuvre, usually against a closed glottis and which is associated with a characteristic sound. Cough may be classified as

- **productive: phlegm is produced and the cough reflex expels the phlegm**
- **dry: no phlegm production**

Cough is most commonly associated with upper respiratory tract infections and is usually mild and self-limiting. Acute cough usually resolves in around two weeks. Acute bronchitis, which is a transient inflammation of the trachea and major bronchi, will give rise to a persistent cough. Acute bronchitis may sometimes progress to chronic bronchitis or pneumonia.



DANGER SYMPTOMS

- Very high temperature or shortness of breath accompanied by a cough should be urgently referred to rule out more serious infection, such as pneumonia. Pneumonia is more common in patients aged over 65 or under two years and in heavy smokers or drinkers.
- Chest pain other than solely with coughing.
- Haemoptysis (coughing up blood) could indicate an infection such as tuberculosis, a malignancy or even a cardiovascular cause such as pulmonary oedema. Other symptoms are likely to be present but urgent referral is advisable.
- Any cough that persists for longer than 21 days should be referred for a routine GP appointment.

Differential diagnoses

In asthmatics, cough may be a sign of poorly controlled asthma therefore it is important to gain a good impression of the patient's understanding of their condition. They may have a self-management plan which deals with management of symptoms during respiratory tract infections and this should be discussed with the patient.

A persistent night-time cough in children requires a routine referral to investigate the possibility of asthma.

Postnasal drip may lead to a cough. Excess mucus runs down the back of the throat, causing a sore throat and cough which is worse at night. It can be associated with sinusitis, where the mucus is thicker and more purulent, or with hayfever/allergic rhinitis, where the discharge is often watery. In young children, postnasal drip may be associated with a foreign body in the nose and this possibility should be excluded.

PRACTICAL TIPS

Smoking cessation will help reduce cough symptoms and complications of upper respiratory tract infections or exacerbations of COPD.

Ensuring adequate fluid may help, as may simple home remedies, such as honey and lemon.

Some medicines may cause cough, most commonly ACE inhibitors. This is a class effect and if the cough is troublesome alternative treatment will need to be prescribed, e.g. an angiotensin-II receptor antagonist. The cough caused by ACE inhibitors may take a few months to settle down.

GORD can sometimes be a cause of a troublesome cough. If other treatment options have failed and the cough is chronic (longer than eight weeks duration), exploration of this possible diagnosis is useful.

Treatment Options

Demulcents, expectorants, cough suppressants, and antihistamines are all available either alone or in compound OTC preparations for cough. There is little pharmacological evidence for or against the use of OTC remedies in acute cough. Many preparations contain illogical combinations and produce a spectrum of adverse effects. Some patients do, however, report benefit from these preparations.

Demulcents such as *Simple Linctus* contain soothing ingredients such as syrup or glycerol. They may help to suppress the voluntary cough mechanism, reducing the frequency of cough. Soothing home remedy drinks such as honey and lemon may have similar effects. Paediatric simple linctus is also available.

Expectorants such as *ipecacuanha*, *ammonium chloride* and *squill* in theory produce expulsion of bronchial secretions, although, there is no evidence that they can specifically facilitate expectoration. The BNF notes that they are more likely to have a placebo effect and in general are inexpensive, so may be useful to offer to some patients who feel the need to take something.

3 RESPIRATORY SYSTEM

Anti-tussives containing *codeine* or opioid derivatives are not recommended in children and should be avoided altogether in children under the age of six years due to the risk of respiratory side effects. They are also not recommended for adolescents aged between 12 and 18 years who have problems breathing or for breastfeeding mothers. They are also not ideal for adults because of the high incidence of side effects, such as constipation and dependence. *Pholcodine* has fewer side effects than codeine. *Dextromethorphan* (a non-sedating opiate) and *menthol* have both been shown to suppress the cough reflex without the adverse effects of the opiates codeine and pholcodine. Cough suppressants are not advisable if clearance of phlegm and mucus is required.

Sedative antihistamines such as *diphenhydramine* suppress the cough and cause drowsiness (which may reflect their main mode of action). They may be useful in nocturnal cough.



CAUTION

Cough and cold medicines in children

Over-the-counter cough and cold medicines containing *anti-tussives* [*dextromethorphan* and *pholcodine*], expectorants [*guaiphenesin* and *ipecacuanha*], nasal decongestants [e.g. *pseudoephedrine* and *phenylephrine*] and antihistamines [e.g. *Diphenhydramine*] are no longer be available for children under six. There is no evidence that they work and they can cause side effects, such as allergic reactions, effects on sleep or hallucinations. For six to 12 year olds these medicines continue to be available but will only be sold in pharmacies, with clearer advice available from the pharmacist and contained on the packaging. The risk of side effects is reduced in older children because they weigh more, get fewer colds and can say if the medicine is doing any good. Further research is required on the effectiveness of these medicines in children aged over six years.

Children should not be given more than one cough or cold preparation at the same time to avoid overdose, as different brands may contain the same active ingredient.

Detailed information on this advice is available from the MHRA website www.mhra.gov.uk

SPECIAL CONSIDERATIONS:**Croup in children**

Croup in children is caused typically by the parainfluenza virus. It often starts with a cold and develops into a characteristic barking cough, which can be alarming to those witnessing it. Croup causes the trachea to become inflamed and swollen, with thick mucus also produced. This combination makes breathing difficult and painful. Inhaling is often more difficult than exhaling, and there may be a rasping sound when the child breathes in. This is known as 'inspiratory stridor', and may occur when the child is coughing or crying. Symptoms often worsen at night and are usually most severe during the first three days. A mild cough may last for a further week. No medical treatment is usually required for croup as it is viral in origin. Antipyretic treatment may be required if fever is present. Cough preparations, particularly those which cause drowsiness, should not be used in a child with croup.

Young children may find croup distressing and it is important to reassure the parents and try to calm the child. Sitting the child upright will help them to breathe more easily. Adequate fluid intake is important and sitting the child upright or carrying around in cool air will help to comfort and reassure them.

In severe cases, the child may have difficulty breathing, which can be seen as the ribcage being pulled upwards and inwards (described as intercostal or subcostal recession). The rate of breathing may be fast (tachypnoea) and the child may appear agitated and pale. This requires urgent referral.

GP COMMENT

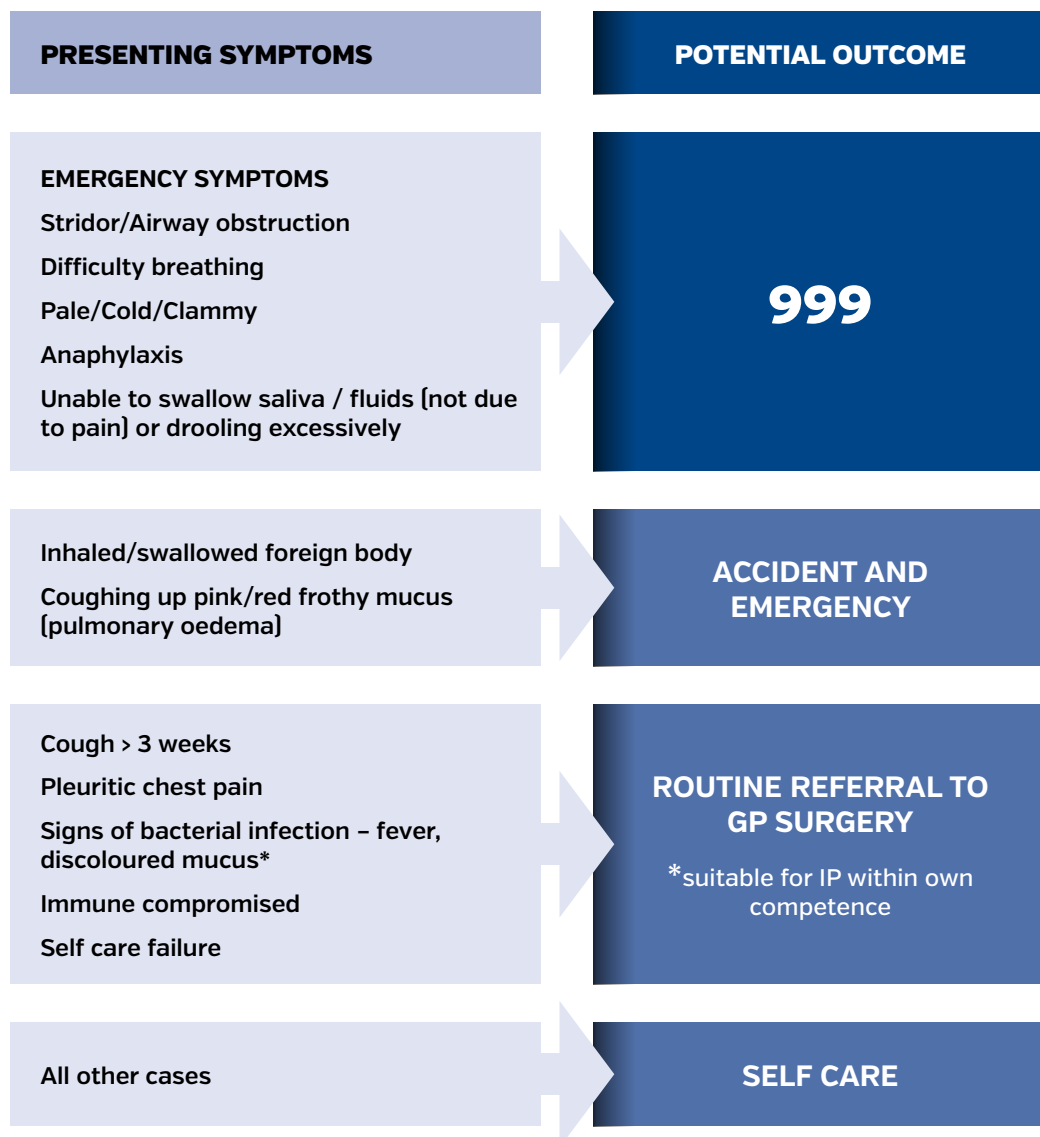
Children with stridor (an abnormal, high-pitched, musical breathing sound caused by a blockage in the throat or larynx) should be urgently referred to be assessed by a GP.

*Ref: BTS
Recommendations
for the management
of cough in adults.
Thorax 2006; 61
[Suppl 1]*



3 RESPIRATORY SYSTEM

3.1 COUGH TREATMENT ALGORITHM



3.1 COUGH ACTIVITY

What cough preparations contain dextromethorphan and/or menthol?



3 RESPIRATORY SYSTEM

3.2 COLD

The common cold is an acute, mild, self-limiting catarrhal syndrome. The most frequent symptoms are nasal discharge, nasal obstruction, sore or 'scratchy' throat, headache, and cough. Hoarseness, loss of taste and smell, mild burning of the eyes, and a feeling of pressure in the ears or sinuses due to obstruction and/or mucosal swelling may also occur. Infants may be more irritable and experience difficulty feeding.

Rhinoviruses (40% of colds) and coronaviruses (10% of colds) are the most common causes. Other common viral pathogens include myxovirus, paramyxovirus (parainfluenza, respiratory syncytial virus) and adenovirus. The viruses are transmitted via airborne droplets or by direct contact with infectious secretions. Young children are the main reservoir for infection and can expect to suffer about twelve colds a year whereas adults suffer an average of two to four colds annually. Peak incidence in the UK is between December and January when people are more likely to be gathered together indoors. Symptoms typically resolve in seven to ten days but can last for up to three weeks.



DANGER SYMPTOMS

Children under two years of age have an increased risk of contracting pneumonia and the vast majority of these cases will be viral. A child who appears more unwell than would be expected for a cold, e.g with fever, tachypnoea, nasal flaring, intercostal or subcostal recession, shortness of breath, anxiety or cyanosis should be urgently referred.

Differential diagnoses

Allergic rhinitis is usually accompanied by a watery rhinorrhoea and sore, streaming eyes. Non-allergic rhinitis would present with chronic nasal discharge, again of watery consistency. Influenza is characterised by systemic symptoms, including an increased temperature, fevers, severe aches and headaches. In infants, check for symptoms of meningitis and refer urgently or call 999 if in any doubt.

Treatment options

There are no drugs which are proven to treat the common cold; symptomatic relief only can be offered.

Paracetamol is the first-line choice; its anti-pyretic and analgesic properties will help to relieve symptoms. Care must be taken to avoid duplication of doses of paracetamol as it is contained in many OTC compound preparations. Reinforce the maximum dose of paracetamol which may be taken in 24 hours when supplying paracetamol to patients.

Ibuprofen and aspirin may be recommended as alternatives. Aspirin should not be used in children under the age of 16 years due to Reye's syndrome. It is associated with a higher incidence of side effects than ibuprofen [See p59 for more details].

Saline nose drops (0.9%) administered immediately before feeding in infants may ease nasal stuffiness, but there is little evidence to support its effectiveness.

Steam inhalation is commonly used for symptomatic relief. Although there is no clear evidence of benefit, neither is there a worsening of clinical symptoms.

Vitamin C in large daily doses [more than 1g daily] may provide a modest benefit in terms of reducing the duration of cold symptoms. However, long-term supplementation does not appear to prevent colds.

Topical nasal decongestants, e.g. *ephedrine, oxymetazoline, xylometazoline*, have an immediate beneficial effect on reducing nasal stuffiness. Prolonged regular use may cause rebound congestion (rhinitis medicamentosa), resulting in continued inappropriate use.

Oral decongestants, e.g. *pseudoephedrine, phenylpropanolamine*, are not as immediately effective as topical preparations but do not cause rebound congestion. They exert their effect by vasoconstriction of the mucosal blood vessels which reduces oedema of the nasal mucosa. There is little evidence to support the use of decongestants in the common cold and they are classified in the BNF as less suitable for prescribing. Decongestants should not be given to children under six years and treatment for children aged six to 12 years should be restricted to five days or less. A Cochrane review concluded that a single dose is moderately effective for the short-term relief of nasal congestion in adults with the common cold and used regularly over three to five days will provide benefit for some individuals. There was no difference evident in efficacy between topical and oral decongestants on the limited data available.

3 RESPIRATORY SYSTEM

Adverse effects of systemic decongestants result from unwanted sympathomimetic effects. They should be used with caution in people with diabetes, hypertension, hyperthyroidism, raised intraocular pressure, prostatic hypertrophy, hepatic or renal impairment, or ischaemic heart disease. They are contra-indicated in people taking monoamine oxidase inhibitors due to the possibility of hypertensive crisis.

Echinacea: recent randomised controlled trials have shown no benefit in either adults or children. Its increased use in recent years has highlighted concerns regarding possible adverse effects, such as hepatotoxicity.

Zinc lozenges: there is no strong evidence of efficacy although interest has grown in zinc as a treatment for the common cold and many claims for its effectiveness have been made. There are doubts about the bioavailability of different formulations, and most formulations produce adverse effects (nausea, taste disturbances, and irritation of the oral mucosa).

PRACTICAL TIPS

Reassurance that the cold is a self-limiting infection will often help.

Patients can feel really quite miserable for at least a week, GP referral would not be required without alarm symptoms.

Adequate fluid intake is important.

Smokers are more likely to have a more troublesome and prolonged illness. This may be a good time to advise them on the benefits of smoking cessation!

Promote uptake of flu vaccine as part of national campaign.

*Refs: CKS [2007]
Common Cold
[PRODIGY Guidance].
Clinical Knowledge
Summaries Service.
<http://cks.nice.org.uk/>*

*Taverner D, Latte J.
Nasal decongestants
for the common cold.
Cochrane Database of
Systematic Reviews
2007, Issue 1*

*MeReC: The
management of
common infections in
primary care Volume
17 Number 3 December
2006*

3.2 COLD ACTIVITIES

Thinking about symptoms associated with the common cold, who would you consider referring to the GP?



What are the symptoms of meningitis in infants and children?



3 RESPIRATORY SYSTEM

3.3 HAYFEVER (SEASONAL ALLERGIC RHINITIS)

Symptoms will typically consist of seasonal sneezing, nasal itching, nasal blockage, and watery nasal discharge. Eye symptoms (red, itchy, watery eyes) are common (see *allergic conjunctivitis*). Other symptoms may include cough, wheeze, and shortness of breath. Systemic symptoms include tiredness, fever, a pressure sensation in the head, and itchiness.

An IgE mediated type 1 hypersensitivity reaction to tree pollen (springtime), grass or weed pollen (summertime) or fungal spores (late summer and autumn) causes the hypersensitivity reaction. Triggers may also be pollutants such as tobacco smoke and car emissions. Allergic rhinitis is associated with asthma and eczema.

Differential diagnoses

Persistent (perennial) allergic rhinitis, where symptoms occur all year round, is mainly due to house dust mite or domestic pets. Management is the same but some OTC products may only be licensed for seasonal allergic rhinitis.

Other forms of rhinitis include occupational (due to airborne substances in the workplace), non-allergic (a response to environmental factors), hormonal (associated with pregnancy, puberty, oral contraceptives and conjugated oestrogens) and infectious (purulent discharge).

Treatment options

Oral antihistamines. Oral antihistamines improve general symptoms of hayfever particularly rhinorrhoea and sneezing. People needing to concentrate, for example when driving or sitting exams, should avoid sedating oral antihistamines, e.g. *chlorphenamine* or *promethazine*. Non-sedating antihistamines, e.g. *loratadine*, *cetirizine* and *acrivastine*, are more appropriate choices in these instances. All antihistamines appear to be equally effective.

Intranasal corticosteroids. Where rhinitis is the main symptom, intranasal corticosteroids should be the first-line choice as they are more effective than oral antihistamines in reducing total nasal symptoms particularly nasal congestion and sneezing and can also improve eye symptoms. They have a relatively slow onset of action (12 hours) with maximum efficacy achieved after a few days. Treatment should begin two to three weeks before the hayfever season commences and continue throughout the season. Side effects are mild and few, mainly localised and include dryness and irritation of nose and throat. *Beclometasone*, *budesonide*, *fluticasone* and *triamcinolone* can all be sold to adults over the age of 18 years, for a maximum period of use of three months.

Sodium cromoglicate is a mast cell stabiliser available as eye drops and nasal spray. The eye drops are effective for ocular symptoms but the intranasal formulation is probably not as effective as antihistamines or corticosteroids. It is often a first choice in children.

PRACTICAL TIPS

Allergen avoidance is advised but is not always practical or effective at reducing symptoms. Pollen counts are issued during the summer months and may help to determine when outdoor activities should be avoided or windows should be kept shut, or when to take an oral antihistamine if only taking when required.

Oral decongestants, such as pseudoephedrine, in combination with an oral antihistamine, have been shown to be effective at treating nasal congestion symptoms of hayfever. Common side effects of the combination are headache and insomnia. The Medicines and Healthcare products Regulatory Agency (MHRA) announced in August 2007 that pseudoephedrine and ephedrine contained in nasal decongestants in cold and flu remedies were to be subject to tighter controls. There has been an increasing concern about the potential for pseudoephedrine and ephedrine to be extracted from OTC medicines and used in the illegal manufacture of methylamphetamine (crystal meth). Pack sizes of OTC oral decongestants are restricted to 720mg (the equivalent of 12 tablets or capsule of 60mg or 24 tablets or capsules of 30mg) of pseudoephedrine or ephedrine. There is also a limit of one pack per customer and it is recommended that the sale should be carried out by a pharmacist.

Homeopathic treatment: some trials have found homeopathic treatment to be better than placebo but further trials are needed.

SPECIAL CONSIDERATIONS:**Pregnancy**

Pregnancy often exacerbates rhinitis but care is needed in selection of drugs to relieve symptoms. Allergen avoidance should be the first step if that is possible. If symptoms become unbearable, topical treatments, e.g. nasal sprays or eye drops are the safest to use, as systemic absorption is minimal.

Sports people

Stimulants, such as ephedrine, are not permitted for use by athletes. It is important to check any drugs used in sport, particularly in competition. The Global Drug Reference Online (Global DRO) provides athletes and support personnel with information about the prohibited status of specific medications based on the current World Anti-Doping Agency (WADA) Prohibited List.

www.globaldro.com/Home

3 RESPIRATORY SYSTEM

3.3 HAYFEVER ACTIVITIES



What are the side effects of the oral antihistamines?

A large, empty white rectangular box with a dark blue border, intended for students to write their answers to the question above.

Go to the UK anti-doping website and look at the prohibited list to see examples of prohibited substances in sport.
Web address is www.ukad.org.uk

A large, empty white rectangular box with a dark blue border, intended for students to write their answers to the question above.

CASE STUDIES

Case Study 3

Mrs Jackson has asthma and has suffered a troublesome cough for the last few nights. She attends your pharmacy regularly. She is compliant with her corticosteroid inhaler and on a previous visit you ascertained that her inhaler technique was good. On questioning, she has other symptoms of a cold; runny nose, sneezing and a high temperature. Her asthma symptoms are no worse, there is no wheezing during the day, and you decide that the cough is as a result of post nasal drip caused by the cold. You supply a simple demulcent and reassure her that the cough should subside as the cold symptoms disappear, but to seek advice from the practice nurse (who deals with the asthma clinic) or GP if they do not. Step up therapy may be required according to her asthma management plan.



Case Study 4

An 18-year-old student, who is the daughter of one of your regular customers, visits your pharmacy.

It is early May and she is currently sitting exams but is finding that her nose is streaming and she also has itchy eyes. She has never experienced such symptoms before but feels that it is affecting her ability to study and concentrate, especially as the symptoms have lingered for a couple of weeks now. She is not taking any other medication and has only tried an *Otrivine*[®] nasal spray that was in the medicines cupboard at home, which gave a little relief. It seems like this is another case of hayfever, especially as there have been a number of people presenting with symptoms such as these when they have never experienced hayfever before. You offer various options, including loratadine tablets or a beclometasone nasal spray and sodium cromoglicate eyedrops. She is not keen to take tablets in case they cause drowsiness, even though you assure her they should not – she opts for the nasal spray only. You supply this and explain it will take a few days to feel the benefits of the nasal spray, which she is happy with, as long as it works eventually!



3 RESPIRATORY SYSTEM

SUGGESTED RESPONSES TO RESPIRATORY ACTIVITIES

What cough preparations contain dextromethorphan and/or menthol?

OTC anti-tussive preparations containing dextromethorphan or menthol (from BTS cough guidelines)

Note that many of these preparations are blacklisted and therefore cannot be supplied on prescription (or issued under MAS in Scotland). However, it may be useful to know which products you would select to recommend to customers who wish to purchase products OTC for a cough, especially as there is such a wide range available. Many pharmacists have a favourite one or two – effectively their own personal formulary.

This exercise helps you to identify these for yourself. Consider factors such as availability, taste and cost.

- Benylin Chesty Coughs Original (diphenhydramine, menthol)
- Benylin Mucous Cough Night (diphenhydramine, levomenthol, guaifenesin)
- Benylin Dry Cough (dextromethorphan, diphenhydramine, menthol)
- Benylin Mucous Coughs (guaifenesin, menthol)
- Benylin Non-drowsy for Dry Coughs (dextromethorphan)
- Covonia Bronchial Balsam (dextromethorphan, menthol)
- Covonia Chesty Cough Mentholated Mixture (liquorice, menthol, squill)
- Covonia Night Time Formula (dextromethorphan, diphenhydramine)
- Multi-action Actifed Dry Coughs (dextromethorphan, pseudoephedrine, triprolidine)
- Night Nurse (dextromethorphan, paracetamol, promethazine)
- Nirolex for Dry Coughs with Decongestant (dextromethorphan, pseudoephedrine)
- Vicks Medinite (dextromethorphan, doxylamine, ephedrine, paracetamol)
- Vicks Vaporsyrup for Tickly Coughs (menthol)
- Vicks Vaporsyrup Dry Cough (dextromethorphan)

Thinking about symptoms associated with the common cold, who would you consider referring to the GP?



- Infants less than three months old are susceptible to secondary bacterial infection. Would also refer if having difficulty feeding.
- Any infant or elderly person who appears significantly more unwell than would be expected for a common cold or influenza – may suspect pneumonia. [See listed danger symptoms.] Would also ask questions to rule out meningitis and septicaemia.
- Children who may have a foreign body in their nose – purulent discharge, usually from only one side of the nose and without other cold symptoms.

What are the symptoms of meningitis in infants and children?

[requires immediate hospital admission]*



Babies and children under two years old may present with symptoms such as:

- excessive sleepiness or irritability
- vomiting or feeding poorly
- crying a lot (moaning or high-pitched crying)
- high temperature, but look pale or blotchy
- cold extremities
- bulging soft spot (fontanelle) on their head*
- being stiff, jerky, or have seizures (fits)*
- purpuric rash (one which does not blanch white on pressure)*

In adults and older children, symptoms are:

- high temperature
- headache
- stiff neck
- nausea
- vomiting
- trouble looking at bright lights
- confusion/delirious
- sleepiness
- seizures (fits)*
- rash which does not blanch under pressure*

Further information can be found at www.meningitis.org

3 RESPIRATORY SYSTEM



What are the side effects of the oral antihistamines?

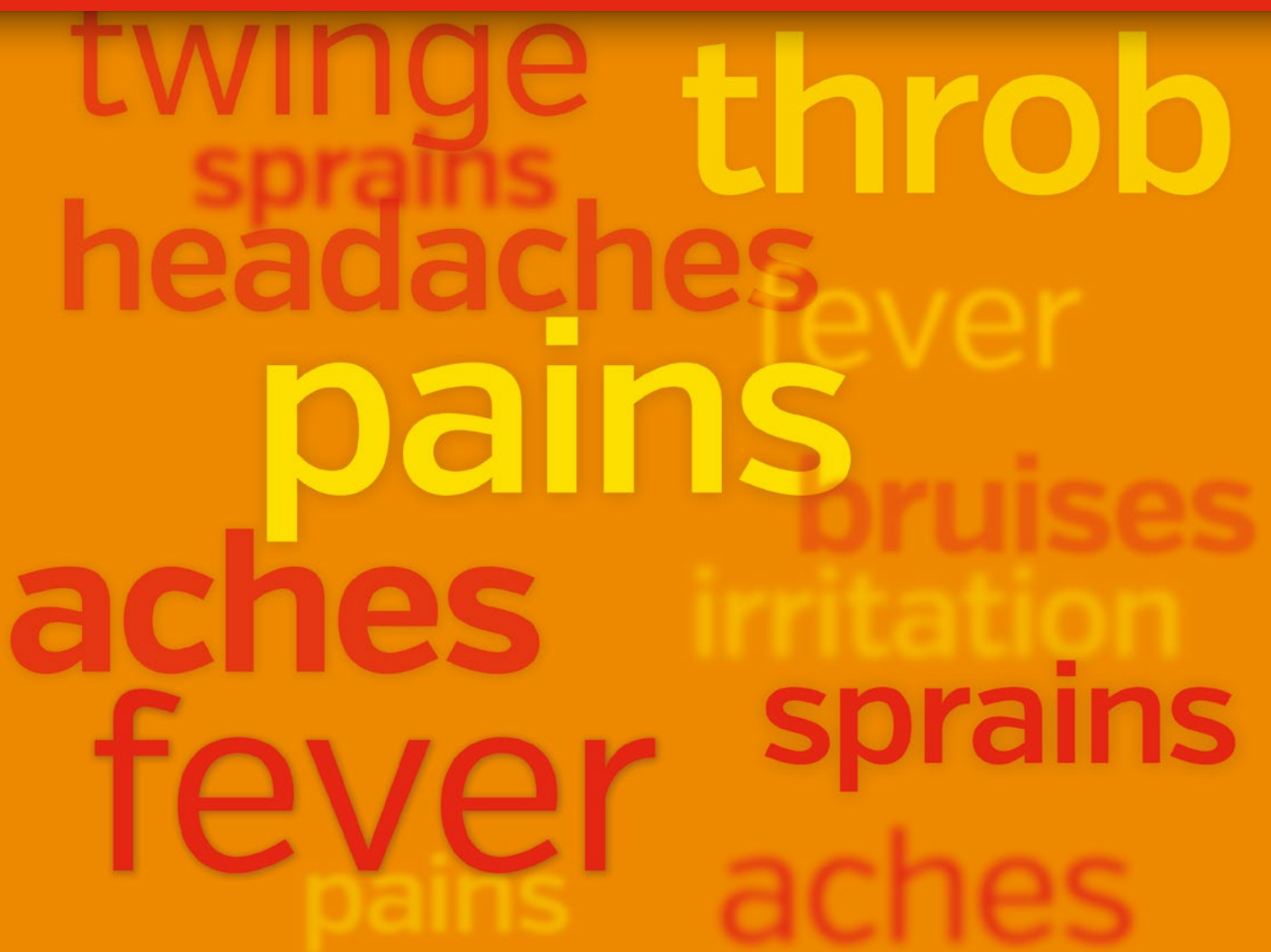
Ref: BNF 53 September 2007.

Drowsiness is a significant side-effect with most of the older antihistamines although paradoxical stimulation may occur rarely, especially with high doses or in children and the elderly. Drowsiness may diminish after a few days of treatment and is considerably less of a problem with the newer antihistamines. Side-effects that are more common with the older antihistamines include headache, psychomotor impairment, and antimuscarinic effects such as urinary retention, dry mouth, blurred vision, and gastro-intestinal disturbances.

CENTRAL NERVOUS SYSTEM 4**OBJECTIVES**

After completing this section you should be able to:
Recognise, manage and advise on the symptoms of

- PAIN RELIEF
- TEETHING
- MUSCULOSKELETAL PAIN: STRAINS AND SPRAINS, BACK PAIN
- HEADACHE, MIGRAINE
- SLEEP PROBLEMS
- TRAVEL SICKNESS



4 CENTRAL NERVOUS SYSTEM

4.1 PAIN RELIEF

Pain alerts us to injury or disease. The severity of pain perceived in response to any given stimulus is modulated by previous experience, cultural determinants, one's own assessment of the meaning of the pain and the feeling of control which the subject has over the pain. It can vary from person to person and the severity is difficult for other people to gauge.

Pain can be caused by a variety of conditions and examples of these commonly seen in the pharmacy are headache, toothache, musculoskeletal pain and period pain. It may be described as acute or chronic. Acute pain is often transient and with treatment directed at the cause and/or short-term pain relief, the pain will disappear. In chronic pain, it is often intractable and will need regular analgesia to control it.*



DANGER SYMPTOMS

Referral for further investigation is indicated for:

- patients who appear to be abusing analgesics (routine appointment)
- young children who do not appear to have responded to doses of analgesics (maximum for their age group) previously given
- patients suffering pain more severe than that experienced previously or which is increasing in severity over several days with no apparent reason

Differential diagnoses

Dental pain of inflammatory origin, e.g. dental abscess, requires referral to dental service to treat the infection. Analgesics can only provide temporary pain relief until the causative factors have been treated.

Treatment options

The three main OTC analgesic options are *paracetamol*, *ibuprofen* and *aspirin*. Outcomes used in randomised clinical trials to assess analgesic effect include pain intensity, pain relief scores and patients' assessment of the quality of pain relief. All three analgesic compounds are effective, irrespective of the outcome measured, in many pain models. Few of the studies have compared the three compounds directly and the data suggest no marked differences in efficacy. Paracetamol is ineffective against inflammation but all three are equally effective antipyretics.

**Treatment of chronic pain is outwith the scope of the Minor Ailment Service (MAS) in Scotland.*

POSSIBLE ROLE FOR INDEPENDENT PRESCRIBER

Prescribing higher strength analgesia e.g. recently discharged patients [surgery/A&E] with insufficient supplies. Co-codamol 30/500, Diclofenac 50 etc

**Restrictions on the use of paracetamol, aspirin and ibuprofen**

Extreme care must be taken to ensure that intentional or unintentional overdoses do not take place. Due to the risk of overdose associated with paracetamol and aspirin, pack sizes are restricted for OTC purchase. Patients should be reminded that many OTC preparations contain paracetamol, e.g. cold and flu preparations, and that the maximum daily dose must be adhered to. Paracetamol overdose leads to nausea, vomiting and eventually hepatic failure, which is often not apparent for four to six days.

Paracetamol dose instructions for children are based on narrow age bands to ensure more accurate dosing at home (as it is not practical for parents or carers to calculate a dose based on mg/kg bodyweight). Pharmacists should advise accordingly and point out the dosing recommendations to parents.

The association of aspirin with Reye's syndrome (a potentially fatal neurological condition in children) has led to restriction in the use of aspirin, to adults and children aged 16 years and over.

Both aspirin and ibuprofen should be avoided during pregnancy, particularly during the third trimester because of possible bleeding with aspirin and prolongation of pregnancy with both drugs. Paracetamol is safe for use in pregnancy and breastfeeding.

Paracetamol is the only option for patients with a history of hypersensitivity to aspirin or NSAIDs or active peptic ulceration. Haemophiliacs should not be given aspirin. Patients receiving oral anticoagulants, methotrexate or thiazides are also best treated with paracetamol if an analgesic is required, to avoid dosage adjustments. Aspirin has marked anti-platelet activity, which persists for several days. While ibuprofen exerts some anti-platelet effect, it only lasts for a few hours.

NSAIDs may provoke renal failure, especially in patients with renal, cardiac or hepatic impairment or in conjunction with diuretics or ACE inhibitors. Paracetamol is the analgesia of choice in these cases.

4 CENTRAL NERVOUS SYSTEM

Aspirin may precipitate attacks in as many as one in 20 patients with asthma and there is some degree of cross-reactivity with ibuprofen but with lower incidence. Neither drug should be used in patients with asthma if previous use has caused problems. They should be used with extreme caution in people not previously exposed to aspirin or ibuprofen.

In overdose, ibuprofen is safer than aspirin. Both are associated with adverse gastro-intestinal (GI) effects but ibuprofen has a lower incidence. GI effects are minimised by taking the drugs after food. Paracetamol is less irritant to the stomach and so is often preferred, particularly in the elderly.

Codeine and dihydrocodeine are available OTC in combination with other analgesics. Combination analgesics are not routinely recommended as they remove the flexibility of titrating the dose of each drug individually. They may be a useful option for pain relief if a patient is likely to become confused with two separate analgesics and one agent alone does not provide relief. The low dose of opioid (8mg codeine) that is contained in the majority of OTC compound preparations is not enough to provide significant pain relief. The therapeutic analgesic dose of codeine is 30mg. At sub-therapeutic doses it will cause opioid side effects, in particular, constipation, especially in the elderly. Higher doses of opioid analgesics are associated with a risk of dependence and misuse, either intentional or unintentional.

Caffeine is a weak stimulant which, when included in analgesic preparations, is claimed to enhance the analgesic effect. Side effects include nausea, headache and insomnia. There is also the risk of a habit-forming effect.

PRACTICAL TIPS

There are various non-pharmacological measures that can be used to aid pain relief, depending on the cause:

- heat, e.g. hot water bottle or a bath for muscular aches or period pain
- cold compresses for headaches or sprains
- massage to help relieve headaches or muscular pains
- exercise for period pain or osteoarthritis

4.2 TEETHING IN CHILDREN

First teeth normally start to break through the gum at around six to nine months old. Usually the bottom front teeth erupt first, followed by the top front teeth (central incisors) and then the top and bottom incisors on either side (lateral incisors). Most children will have around eight teeth by their first birthday.

Teething can start as early as three months and continue to three years old. Symptoms may be discomfort and pain, disturbed sleep, swollen gums, hot cheeks, excessive salivation, nappy rash and increased tendency to chew objects.

Treatment options

Analgesia with paracetamol will be first-line treatment (babies over three months old). *Ibuprofen* is an alternative for babies over six months old.

Teething gels are available which contain local anaesthetics (*lignocaine* based preparations, e.g. *Calgel*[®]). The CSM has recommended that topical pain relief products containing salicylate salts should be contraindicated in children and young people under the age of 16 years. This is due to a theoretical risk of Reye's syndrome with salicylate containing oral gel products and is a precautionary measure. Examples of products affected are *Bonjela*[®] and *Bonjela Cool Mint*[®]. Other *Bonjela* branded products are available which do not contain choline salicylate.

Parents should be advised to wash their hands thoroughly before applying topical agents directly to the mucous membrane. Some of the relief may be due to the pressure of application.

The active ingredient in *Ashton and Parsons Infant Powders*[®] is *matricaria* tincture (4 mg), a carminative related to chamomile. The main indication is to soothe the child during teething. Chamomile and related ingredients are not reported to have any pain relieving qualities.

Homeopathic remedies may be tried although there is no clinical evidence to support their use. *Teetha*[®] Teething Granules contain *chamomilla* at 6c potency, and advise that one sachet should be poured into the infant's mouth every two hours, up to a maximum of six doses in 24 hours.

PRACTICAL TIPS

A chilled teething ring may help to soothe sore gums. It must be taken out of the freezer before becoming solid to avoid bruising the gums. Teething rings should not be tied around a baby's neck. Chewing on hard biscuits, frozen fruit (e.g. melon or banana) or chilled raw carrot can also help but should be given under careful supervision (in case a large piece breaks off in the mouth).

Petroleum jelly applied around the mouth and chin may prevent rashes and soreness from excessive dribbling.

4 CENTRAL NERVOUS SYSTEM

4.3 MUSCULOSKELETAL PAIN – STRAINS, SPRAINS AND BRUISES

Strains and sprains are soft tissue injuries of ligaments and muscles. Ankle sprains are the most common form of soft tissue injury in primary care. Muscle strains or ‘pulls’ are most commonly caused by participating in sports which involve sprinting or jumping. Injury can be due to over-stretching the muscle or causing the muscle to contract too strongly.

Pain, swelling and muscle tension can make assessment of these injuries difficult. After a mild strain or sprain, normal activities can usually be resumed within one to two weeks.

Bruises appear where capillaries have broken or burst as a result of banging or hitting skin leaking blood under the skin. The bruises appear initially as purple-red blotches fading through green and yellow. There may also be swelling and tenderness.

DANGER SYMPTOMS

Unexplained deformity, limited limb movement, swelling, appreciable weakness not due to pain or fever, chills and malaise accompanying the injury all require immediate referral to an accident and emergency department.

Unusual bruising, e.g. excess bruising for no apparent reason, should be referred to the patient’s own GP to rule out more serious underlying disease such as leukaemia. Bruising may result from side effects of some drugs, e.g. steroids, carbimazole. Excessive bruising should also be referred urgently if the patient is taking anticoagulants as this is likely to be caused by haemorrhage due to incorrect dosing or other possible underlying causes e.g. gastro-intestinal tract pathology.

Differential diagnoses

An inability to bear weight and bone tenderness suggests fracture may have occurred. Other possibilities are tendon rupture, cartilage damage, nerve injury and tendonitis. If the pain is severe, refer for further investigation.

Treatment options

Short-term treatment with RICE (Rest, Ice, Compression and Elevation)

Rest avoids pain by reducing movement.

Ice reduces pain; this can be done by immersing the affected part in ice water for up to 10 minutes, or applying a malleable ice-pack covered with a wet cloth [e.g. bag of frozen peas] for up to 15 minutes. This can be repeated as often as desired for 48 hours allowing the affected part to warm up before repeating, e.g. every two hours while awake.



Compression provides comfort by limiting movement and may restrict the development of swelling. An elasticated bandage can be applied to the affected part for up to 48 hours after injury, taking care not to constrict blood flow. This must be used with caution if peripheral arterial disease is present or suspected [e.g. in an elderly person or patient with diabetes].

Elevation helps to control swelling. The injured part should be raised above the level of the heart, if practical.

Analgesia may be necessary if pain is troublesome. *Paracetamol* is the first choice for mild strains and sprains.

NSAIDs such as *ibuprofen* are associated with more adverse effects but may reduce the time a strain or sprain takes to heal. The oral route should be used as first choice for NSAIDs rather than topical. NSAIDs may not be suitable for patients with co-morbidities such as asthma, hypertension, renal impairment, and heart failure. Paracetamol and ibuprofen may be used together if one analgesic agent alone provides sub-optimal pain relief.

Topical NSAIDs have a slightly better gastro-intestinal side effect profile compared to oral but are no more effective. There may be localised reactions such as skin rashes when topical preparations are used.

Arnica gel is a traditional herbal medicinal product for the symptomatic relief of muscular aches, pains and stiffness, sprains, bruises and swelling after contusions. There is a significant amount of clinical evidence on the mode of action and effectiveness of herbal arnica to support its use. Arnica is also used homeopathically, but there is not the same evidence available to support its use in this form.

Counter irritants such as *methyl salicylate* and *rubefaciants* have no good evidence to support their use. Limited evidence suggests salicylates are better at relieving pain than placebo with few adverse effects.

Homeopathic arnica is often suggested for soft tissue injuries. Published trials are methodologically weak and do not provide strong enough evidence to recommend its use. A paper published in the *Journal of the Royal Society of Medicine* reported the findings of a well conducted randomised controlled trial of 64 people aged between 18 and 70 years undergoing surgery for carpal tunnel syndrome. Patients were randomised to receive either high [30C] or low [6C] potency homeopathic arnica or an indistinguishable placebo. The trial found that arnica was no better than placebo in reducing post-operative pain, bruising, and swelling.

4 CENTRAL NERVOUS SYSTEM

PRACTICAL TIPS

Prevention of injury is important, especially when participating in regular exercise and sport. Recurrent sprains add to the risk of new damage and long-term degeneration of the joint. Warm ups and stretching are felt to be beneficial although there is little good evidence to support this strategy.

Strength and endurance training may be more useful. External ankle supports have been shown to reduce the likelihood of ankle injury.

Early mobilisation of the injured area is important, within the range of discomfort, so improving the range of movement.

SPECIAL CONSIDERATIONS:

Low back pain

Low back pain, defined as pain between the bottom of the ribs at the back and the top of the legs, is a common complaint in primary care. It is usually difficult to detect the precise cause of the pain, but this does not affect management. Simple back pain usually improves within one week and resolves within a month. Regular analgesia is recommended. NSAIDs are all equally effective and are superior to placebo. There is conflicting evidence whether NSAIDs are more effective than paracetamol. Patients with low back pain should be advised to continue with gentle activity, especially walking, with the aim of a return to normal activities as soon as possible. Bed rest is not recommended as it might have small harmful effects on the pain.

If low back pain persists for longer than four to six weeks, patients should be referred for more specialised advice. Many areas operate self-referral physiotherapy services.

GP COMMENT

Pharmacists should be aware of “red flags” in back pain and refer if any are present. These are:

- pain following major trauma such as vehicle accident
- new back pain in patients aged under 20 years or over 50 years
- weight loss
- past history of malignancy
- associated bladder or bowel symptoms
- widespread or progressive motor weakness in the legs or gait disturbance
- fever

Ref: Stevinson, C. Devaraj VS, Fountain-Barber A, Hawkins S, Ernst E. Homeopathic arnica for prevention of pain and bruising: randomized placebo-controlled trial in hand surgery. J r Soc Med 2003; 96:60-65



4.3 MUSCULOSKELETAL PAIN ACTIVITIES

Can you find and note any evidence that looks at effectiveness of topical non-steroidal creams and rubefacient creams to help you consider when you would recommend the use of these preparations?

Look at The Knowledge Network for NHSScotland (www.knowledge.scot.nhs.uk) or Bandolier which is a website about the use of evidence in health, healthcare, and medicine (www.medicine.ox.ac.uk/bandolier)

You could try searching using the key words NSAID, topical, evidence.



4 CENTRAL NERVOUS SYSTEM

4.4 HEADACHE AND MIGRAINE

There are different types of headache, many of which will be self-treated by the patient by simple analgesia.

It is useful to be able to distinguish different types of headache to give the appropriate advice.

Tension headache is the most common type of headache. It is bilateral and described as a dull ache with a pressing or tightening sensation across the forehead.

Migraine is a pulsating and throbbing headache. It may be present with or without aura (visual disturbances, sensory, motor or language alterations). It is typically unilateral, affecting one side of the head, although it can be bilateral. Migraine can be accompanied by any or all of nausea, vomiting, photophobia (sensitivity to light) or phonophobia (sensitivity to sound). Pre-disposing factors include depression, anxiety, head/neck trauma and hormonal changes, such as menstruation or ovulation. Possible trigger factors include:

- bright lights
- foods (e.g. alcohol, cheese, citrus fruits, chocolate, salami)
- extremes of weather (e.g. very hot or cold, strong winds)
- long-distance travel
- loud noise
- missing meals
- strenuous unaccustomed exercise
- altered sleep pattern

In **sinusitis** increased mucus production leads to higher pressure within the sinus and so can cause headache. The pain is usually unilateral behind and around the eye and is typically worse on bending forwards. The affected sinus often feels tender to touch.

Headache is often a symptom of throat or ear problems or viral infections, e.g. influenza.

Medication overuse is a relatively common cause of intractable headache. Common features are that it is usually present on more than 15 days in a month, is present and often at its worst on waking, increases after physical exertion and becomes worse on discontinuing the causative medication. People who suffer from this type of headache often take the analgesic pre-emptively, that is, the medication that is causing the headache is taken in anticipation of the headache occurring. This can be caused by simple analgesia such as paracetamol or co-codamol or by triptans and can occur after a relatively short use of such medication. Anyone suspected of suffering medication overuse headache should be referred to their GP.

DANGER SYMPTOMS

Headaches may rarely be a symptom of more serious underlying disease, e.g. meningitis, cerebral haemorrhage, raised intra-cranial pressure, tumours or temporal arteritis. This is an inflammatory condition affecting the medium-sized blood vessels that supply the head, eyes, and optic nerves which can result in loss of vision.

Urgent referral is required if the headache is:

- of sudden onset
- different or more severe than any previous headache
- associated with recent head trauma, neck stiffness, vomiting, altered level of consciousness, focal neurological symptoms, blackouts
- severe and associated with fever, or rash

Routine referral is required if the headache is:

- suffered by children under 12

Differential diagnoses

75% of migraines have no aura which can make it difficult to distinguish a migraine headache from an episodic tension headache or a medication overuse headache. Most patients with true migraine will probably have seen their GP and may have a treatment plan to follow. Any patients with newly suspected migraine headaches should be referred.



4 CENTRAL NERVOUS SYSTEM

Treatment options

Simple analgesia, ie paracetamol, ibuprofen or aspirin is the first-line treatment, with the triptans reserved for use if the migraine is unresponsive or for previous triptan users. NSAIDs are more effective than paracetamol for tension-type headache.

Codeine should be **avoided** in migraine as it is not proven to help migraine pain. It reduces gastric motility further and has an emetic action which can exacerbate existing problems. Pharmacists have a duty to advise patients of the abuse potential for codeine containing preparations.

There are pack size restrictions for soluble codeine-containing analgesics. Gastric stasis occurs in migraine, which has led to some people recommending soluble analgesics to minimise the time taken for pain relief to be absorbed. Effervescent preparations contain a large amount of sodium, however, and it is important to highlight this to hypertensive patients and those who should restrict their sodium intake, e.g. in heart failure or pregnancy.

Caffeine is included in some OTC analgesic preparations as it is purported to improve the absorption of the analgesic. Caffeine withdrawal can also cause headache.

Feverfew. A Cochrane review has considered the clinical evidence for feverfew and found that there was insufficient evidence to establish clinical effectiveness of feverfew over placebo in the prevention of migraine. The majority of the five trials considered favoured feverfew over placebo but their sample size was too small or the methodological quality was not rigorous enough to reach a conclusion. There were no major side effects associated with feverfew.

Sumatriptan (e.g. *Imigran Recovery*[®] 50mg tablets). OTC sumatriptan is indicated for the acute treatment of migraine attacks with or without aura in adults aged 18 to 65 years. It should only be used where there is a clear diagnosis of migraine.

The triptans are 5-HT₁ [serotonin] agonists. They appear to work by stimulation of 5-HT_{1B} and 5-HT_{1D} receptors. Cranial vasoconstriction and inhibition of trigeminal nerve activity may contribute to their action.

OTC sumatriptan is useful for sufferers who have found analgesics with or without anti-emetics to be ineffective or poorly tolerated. Sumatriptan should be taken as soon as possible after migraine onset; although it is effective if taken at any stage of the headache. If there is no response to the first tablet, a second tablet should not be taken for the same attack. A second dose may be taken after not less than two hours if there is only a partial response or if the migraine recurs. No more than two tablets (total dose 100mg) may be taken within 24 hours or be used to treat the same attack.

PRACTICAL TIPS

Reassurance and stress-relieving techniques are often useful in sufferers of tension headache. Physical exercise can also help to alleviate symptoms, particularly as it is more common in sedentary lifestyles.

Avoidance of trigger factors:

Migraine sufferers may need to rest in a quiet, darkened room.

Sufferers should keep a diary to record events or triggers which would help to identify pre-disposing factors – e.g. specific foods, menstruation, strenuous exercise or stressful situations.

Refs: CKS (2006) Migraine (PRODIGY Guidance). Clinical Knowledge Summaries Service. www.cks.nice.org.uk

Pittler MH, Ernst E. Feverfew for preventing migraine. Cochrane Database of Systematic Reviews 2004, Issue 1

GP COMMENT

Meningitis should always be considered and ruled out when asked for advice on headache. Symptoms to watch out for are detailed under danger symptoms on p67. Refer if there is any doubt.



4 CENTRAL NERVOUS SYSTEM

4.4 HEADACHE AND MIGRAINE ACTIVITY



What are cautions and contraindications for the use of OTC sumatriptan for the treatment of migraine?

4.5 SLEEP PROBLEMS

People may report poor quality sleep, difficulty initiating sleep or maintaining sleep. Shift workers may be looking for a short-term solution to help re-establish a sleep routine. Insomnia is a common condition which is reported by most people at some point in their lives. Prevalence increases with age and the cause is often difficult to determine.

Possible underlying medical problems such as pain, movement disorders (e.g. restless legs) or respiratory conditions (e.g. sleep apnoea) should be investigated and treated. Factors such as daytime napping and stress will increase the likelihood of sleep problems.

DANGER SYMPTOMS

If insomnia affects how alert the person is the next day and so puts them in danger, e.g. from accidents, they should be referred to the GP for a routine appointment.



Differential diagnoses

Insomnia, especially early morning waking, may be one of the presenting symptoms in depression. It may also be a sign of drug misuse, e.g. amphetamines. If these are suspected, referral is advisable for a routine appointment with their GP.

Rebound insomnia may occur during withdrawal from hypnotics or antidepressants. Explanation of this and advice to undertake withdrawal slowly and gradually is useful.

Treatment options

Antihistamines such as *promethazine* (Sominex®) and *diphenhydramine* (Nytol®) are licensed to aid the relief of temporary sleep disturbance. There is little evidence that these are helpful in sleep problems yet they are widely used, particularly in the elderly who are more susceptible to their side effects. Residual drowsiness may occur the next day and tolerance can develop.

Alternative or complementary medicines such as valerian, skullcap, passionflower, chamomile and melatonin have all been promoted for improving sleep, but their efficacy has not been established. There is some evidence that valerian may have a small benefit in the treatment of insomnia, but hepatotoxicity has been reported. Kava kava is claimed to have sedative properties, but because of its associated hepatotoxicity, all products have been removed from the market. There is no published evidence that passionflower, chamomile or skullcap are effective for treating insomnia. Melatonin, a hormone synthesized by the pineal gland, is not a licensed treatment in the UK. There is no evidence that it is an effective treatment for insomnia, sleep disorders due to other medical conditions or for jet lag.

Ref: www.medicines.ox.ac.uk/bandolier

4 CENTRAL NERVOUS SYSTEM

PRACTICAL TIPS

Maintaining a regular bedtime routine, known as 'good sleep hygiene' is extremely important. The bedroom should be comfortable and elements which stimulate activity, such as televisions should be removed.

A hot bath, with the addition of lavender essential oils may be useful as well as a warm milky drink before bedtime. Sufferers should be advised to avoid caffeine in the evening and avoid heavy meals before bedtime. Alcohol should not be used as a sedative as rebound excitation can cause early morning waking and its diuretic effects can also disturb sleep.

Some people may find it useful to keep a sleep diary to determine whether there are certain factors which influence their sleep. Regular exercise, but not just before bedtime, is beneficial. Relaxation techniques can be useful to aid sleep.

GP COMMENT

Advice may be sought on dependence with benzodiazepines or Z drugs [zopiclone, zolpidem]; such patients should be referred to their GP.

Ref: National Prescribing Centre. The good sleep guide. MeReC Briefing, 2001



4.6 TRAVEL SICKNESS

Motion sickness (travel sickness) is common, especially in children. It is caused by repeated movements during travel. This sends conflicting nerve signals to the brain from the eyes and from the balance mechanism in the ear. Symptoms are nausea or vomiting. In addition there may be profuse sweating, excess saliva, headaches or a pale, cold, clammy appearance.

Symptoms can develop on cars, trains, planes, boats, fairground rides, etc. Symptoms typically resolve when the journey is over, but may last a few hours, or even days, after the journey ends.

Treatment options

Hyoscine – available in tablet or patch form. The tablets [*Kwells*[®], *Joy-rides*[®]] are taken 30 minutes before the journey with duration of around six to eight hours. Side effects are minimal and include dry mouth, drowsiness and blurred vision. *Hyoscine* should not be used by anyone suffering from glaucoma or with urinary flow problems, e.g. related to the prostate.

Antihistamines such as *cinnarizine* [*Stugeron*[®]] or *promethazine teoclate* [*Avomine*[®]] causes less drowsiness than *hyoscine*. They should be taken two hours before the journey and are effective for eight hours.

Acupressure, applied to a point on the wrist using a plastic stud in an elasticated wristband, is supposed to prevent travel sickness but there is very little evidence to support its use.

PRACTICAL TIPS

Advise patients to look out of the car or bus window frequently and focus on distant objects, so that the brain is not receiving mixed messages. Make sure that the vehicle is well ventilated and try to sleep. Avoid large meals or alcohol before travelling.

Other options which some people find helpful such as eating crystallised ginger, ginger biscuits, sucking boiled sweets or peppermint based sweets have no clinical evidence.

4 CENTRAL NERVOUS SYSTEM

CASE STUDIES



Case study 5

Mr Mathieson calls in on his way home from work one Friday night with earache. In the past he has had referred pain from a tooth abscess and he was not sure whether he should seek an appointment with his dentist or his GP. There is no visible discharge or redness around the ear or any signs of oral abscess. The pharmacist advises Mr Mathieson to use pain relief over the weekend. If it is a mild ear infection it is likely to be self-limiting and will subside or improve by Monday. If there is no improvement, dental involvement is more likely and referral to the dentist will then be appropriate.



Case study 6

A new mum who has previously visited your pharmacy, brings her baby in for advice. He is seven months old and is fretful and crying frequently. She suspects that he is teething, but wants some reassurance and advice on what to use. He has red, rosy cheeks and is drooling profusely. He looks otherwise healthy and happy, smiling at all in the pharmacy! She also reports that he has a touch of nappy rash as well and she is making sure that she changes his nappy regularly – applying *Sudocrem*[®] at every nappy change. You confirm that teething is a likely cause although the mother should be alert for symptoms such as a high temperature, high-pitched, constant crying or vomiting which could suggest signs of other conditions and require referral – she should not hesitate to contact yourself, the GP or out-of-hours medical services if she is at all concerned about the health of her baby. A suitable treatment would be a simple analgesic such as paracetamol or ibuprofen which gives effective pain relief rather than the transient relief which gels give. You also recommend massaging the gums and allowing the baby to chew on teething rings or carrot sticks. She takes the option of ibuprofen oral suspension, as it offers slightly longer duration of action and may help for the overnight symptoms.

SUGGESTED RESPONSES TO CENTRAL NERVOUS SYSTEM ACTIVITIES

Can you find and note any evidence that looks at effectiveness of topical non-steroidal creams and rubefacient creams to help you consider when you would recommend the use of these preparations?

A meta-analysis of 25 clinical trials of topical NSAIDs concluded that they were effective and safe in treating chronic musculoskeletal conditions for two weeks, but that larger and longer trials were necessary to fully elucidate the place of topical NSAIDs in clinical practice. Analysis of a sub-set of trials within the review showed no difference in efficacy between topical and oral NSAIDs.

A review of rubefacients containing salicylates found nine trials on a total of around 600 patients. It concluded that these products appear to be effective for acute pain, but have moderate to poor efficacy for musculoskeletal and arthritic pain.

In both reviews adverse effects were found to be relatively rare and mild.



4 CENTRAL NERVOUS SYSTEM



What are cautions and contraindications for the use of OTC sumatriptan for the treatment of migraine?

Taken from the RPS Sumatriptan quick reference guide

<http://www.rpharms.com/support-resources-a-z/sumatriptan-quick-reference-guide.asp>

Cautions

Anyone who has three or more of these cardiovascular risk factors is not suitable for OTC sumatriptan:

- men aged over 40 years
- post-menopausal women
- hypercholesterolaemia
- regular smoker (>10 cigarettes daily)
- obesity – body mass index more than 30 kg/m²
- diabetes
- family history of early heart disease – either father or brother had a heart attack or angina before the age of 55 or mother or sister had a heart attack or angina before the age of 65

Contraindications

- sumatriptan must not be used prophylactically
- known hypersensitivity to any component of the product
- known hypersensitivity to sulphonamides
- known hypertension
- previous myocardial infarction
- ischaemic heart disease, e.g. angina
- peripheral vascular disease
- coronary vasospasm/Prinzmetal's angina
- cardiac arrhythmias (including Wolff-Parkinson-White syndrome)
- hepatic or renal impairment
- epilepsy or history of seizures
- atypical migraine (including hemiplegic, basilar or ophthalmoplegic migraine)
- a history of cerebrovascular accident or transient ischaemic attack
- concomitant administration with ergotamine, ergotamine derivatives, other triptans, monoamine oxidase inhibitors

INFECTIONS AND INFESTATIONS 5

OBJECTIVES

After completing this section you should be able to:
Recognise, manage and advise on the symptoms of

- THREADWORM
- HEAD LICE
- SCABIES
- FUNGAL INFECTIONS , E.G. ATHLETES FOOT, NAIL INFECTIONS, RINGWORM, SWEAT RASH
- IMPETIGO
- HERPES - COLD SORES
- CHILDHOOD INFECTIONS

A word cloud on a teal background featuring various medical terms. The most prominent words are 'discomfort', 'ulcers', 'hygiene', 'infection', 'fungi', 'itching', 'scaling', and 'swelling'. Other visible words include 'dry skin', 'ulcers', 'fungi', 'infection', 'itching', 'swelling', 'discomfort', 'scaling', 'fungi', 'infection', 'itching', 'swelling'.

5 INFECTIONS AND INFESTATIONS

5.1 THREADWORM

Threadworm or pinworm (*Enterobius vermicularis*) is a small, white, thread-like worm 2-13 mm long, which lives in the upper part of the colon. Infection is limited to humans; threadworms are not transferable to or from animals. It most commonly affects children, due to their poor attention to personal hygiene, but can affect whole families. High rates of infection can occur in residential homes.

The female lays large numbers of eggs with irritant mucus at night, which causes intense itching and promotes scratching by the host. The eggs are laid outside the anus, or, in girls, around the vagina and urethra. Re-infection occurs when eggs are ingested from contaminated hands and exposed to the action of digestive juices in the upper intestinal tract. Adult threadworms live for up to six weeks.

Confirmatory diagnosis is usually by sighting of the worms. This can be either around the perianal area, most easily seen at night or, more rarely, on the faeces.



DANGER SYMPTOMS

Secondary bacterial infection may occur as a result of perianal scratching. If there is a persistent or heavy infestation, appetite loss, weight loss, insomnia, irritability and enuresis may occur.



Differential diagnoses

In adults perianal itching may be due to haemorrhoids, eczema or irritants such as deodorants.

Other parasitic worm infection, although rare in the UK, are also possible, e.g. roundworm. If this is suspected, referral for a routine appointment would be required.

Treatment options

Hygiene measures alone may be considered when drug treatment is not wanted or is not recommended (e.g. during pregnancy). If the measures described under "Practical Tips" on p79 are followed for six weeks, all the worms in the intestine will have died and hopefully no new eggs will have been swallowed to replace them.

Where *anthelmintics* are used, all members of the household should be treated simultaneously.

Mebendazole (*Ovex*[®]) is the treatment of choice in adults and children older than two years. It is usually given as a single oral dose, but often needs to be repeated after two to three weeks if re-infection occurs. Mebendazole acts by inhibiting the uptake of glucose by the worms, causing immobilisation and death. Transient abdominal pain or diarrhoea can occasionally occur, especially in people with heavy infestations.

PRACTICAL TIPS

- wear close fitting pyjama bottoms or pants at night to avoid shedding eggs
- bathe or shower first thing in the morning, paying particular attention to the anal area
- emphasise good hygiene, particularly washing hands after going to the toilet and before preparing or eating food
- cut fingernails short
- launder bedding and towels daily if possible as eggs can remain viable for up to two weeks (avoid shaking linen as this spreads the eggs)
- damp dust surfaces and vacuum daily

5 INFECTIONS AND INFESTATIONS

5.2 HEAD LICE

The head louse (*Pediculus capitis*) is grey/brown in colour and about 1-3 mm long. Head lice feed by sucking blood from the scalp of their host. The female louse lays her eggs (smaller than a pinhead) on the hair shaft near the scalp surface. The egg's shell is firmly attached to the hair and is not washed off by regular shampooing. The eggs hatch in about seven days, and the shells are left empty (nits). The young lice (nymphs) take up to twelve days to become adults.

Eggs attached to hairs, whether hatched (nits) or unhatched, are not proof of active infection, because eggs may retain a viable appearance for weeks after death.

A conclusive diagnosis can only be made by finding live lice. Infestation is more likely in school children, with risks increased in children with more siblings, longer hair and of lower socio-economic group. Lice are transmitted through close head to head contact therefore family and friends should be advised to check for signs of infestation. Although itch is a common presenting symptom, it can take up to three months for the itch to develop and the infestation will be asymptomatic until then, only being detected by examination of the hair and scalp.

Differential diagnoses

Seborrhoeic scales, hair casts, and hair spray (which can all be brushed off) may be confused with nits (which stick to the hair and cannot be removed by ordinary brushing).

Treatment options

There should be two applications of insecticide seven days apart to ensure treatment of louse nymphs emerging from eggs not killed by the first treatment. Each should be left on the hair for 12 hours before being rinsed off. The hair should be examined after 14 days to determine cure.

Treatment failure can occur when only one application is used or if insufficient product is applied. An average head of hair needs 50ml to be applied. Treatment failure is commonly mistaken by patients as treatment resistance.

Observation of lice samples stuck onto plain white paper with sticky tape will provide useful information. Lice of all ages will be seen after insecticide treatment if resistance is a problem. Re-infestation is possible if all contacts have not been traced or have not carried out eradication treatment. In cases of re-infestation there will not be lice of all ages present. If treatment failure is suspected, a different insecticide should be used, at least three weeks after the last application of insecticide. This mosaic strategy is now preferred to the policy of rotating insecticides on a district-wide level.

Alcoholic lotions are preferred, but aqueous liquid formulations can be used where asthma, eczema or broken skin are present. The lotion should be allowed to dry naturally and patients should be warned not to use a hair dryer because the lotions are flammable. Avoid swimming directly before and during use of the lotions as the chlorine inactivates the insecticides.

Most studies examining the effectiveness of head lice treatments are of poor quality; however *malathion* [e.g. *Derbac-M*[®]] lotion may increase lice eradication compared with *permethrin* [e.g. *Lyclear*[®]]. Resistance to the OTC insecticides is well documented.

Wet combing, also known as “bug busting”, has not been found to be as effective as malathion. However, in one trial where there was a high incidence of insecticide resistance, wet combing was more effective than malathion or permethrin. Lice move rapidly away from any disturbance in dry hair, whereas wet hair, especially with the addition of conditioner, renders them motionless. Wet combing with a plastic detection comb plus conditioner should be performed every four days over at least a two-week period until no lice are seen on three consecutive sessions. It is time-consuming but a useful option for infestations in those who are pregnant or breastfeeding or for children under the age of two.

Hedrin[®] [4% *dimeticone*] lotion acts by a physical process to cover the lice and disrupt their ability to manage water balance. It must be left on for eight hours and treatment is repeated after seven days. In one trial, Hedrin was compared with phenothrin 0.5% liquid. There was no statistically significant difference between the treatments with a positive outcome in 70% of Hedrin users and 75% of phenothrin users. Irritant reactions occurred significantly less with Hedrin [2%] than with phenothrin [9%]. It has not been compared with malathion.

Head lice repellents are available OTC but their place in therapy is unclear, since they are not intended for routine prophylactic use and do not treat existing infestation.

There is no evidence to support the use of herbal and essential oils, e.g. tea tree oil or electric combs. The comb passes an electric current through anything caught in its teeth which kills lice but not eggs. The teeth tend to clog up and debris must be removed before reactivating the current.

5 INFECTIONS AND INFESTATIONS

PRACTICAL TIPS

Regular detection combing is the best way to control head lice infestation, so that treatment can be initiated as soon as infestation is detected.

Long hair should be worn tied up and fringes tucked away when there is an outbreak at a school or nursery.

Bedding and clothes do not need specific laundering since lice cannot live for very long away from the heat and blood of the head.

GP COMMENT

Most cases of head lice will present and be treated appropriately at the pharmacy and problems with treatment failure are often due to either incorrect application of treatment or re-infestation, for which pharmacy advice is wholly appropriate.

Refs: Roberts RJ, Casey D, Morgan DA, et al. Comparison of wet combing with malathion for treatment of head lice in the UK: a pragmatic randomised controlled trial. Lancet 2000;356:540-544

Hill N, Moor G, Cameron MM, et al. Single blind, randomised, comparative study of the Bug Buster kit and over the counter pediculicide treatments against head lice in the United Kingdom. BMJ 2005;331:384-387.



5.2 HEAD LICE ACTIVITY

What advice would you give to patients on how to detect head lice?



5 INFECTIONS AND INFESTATIONS

5.3 SCABIES

Scabies is a skin infection caused by the mite *Sarcoptes scabiei*. It is extremely itchy, especially at night, and is accompanied by a rash. This often appears as small red papules between fingers and toes, on the wrists and ankles, around the nipples and around the buttocks and genitals. Secondary lesions can occur due to excoriation.

Burrows may be seen as fine, silvery lines, about 2-15 mm in length, with the mite at the closed end, sometimes seen as a dark point. In children and the elderly, the burrows may also be present on the face, neck and scalp. The rash is caused by the female mite burrowing into the skin and laying eggs. The saliva and faeces of the mite is an irritant causing an immune response. Development from egg to adult takes 10-15 days and the mite dies after 4-6 weeks. The average sufferer is infested with 10-15 adult female mites at any one time. Other family members are likely to suffer from similar symptoms as it is easily transmitted by close physical contact and this often helps to confirm diagnosis.



DANGER SYMPTOMS

Refer children under two years of age for treatment under medical supervision.

Differential diagnoses

Eczema, contact dermatitis or insect bites are all possible conditions that may have a similar appearance.

Treatment options

Scabies will remain indefinitely unless treated. All members of the household and any close physical contacts, including sexual contacts should be treated simultaneously, even if they are asymptomatic, as symptoms do not appear until two weeks after infestation. Applications should **not** take place after a hot bath as this increases the likelihood of systemic absorption.

Permethrin 5% w/w cream [Lyclear®] is generally the first line option.

Malathion 0.5% aqueous liquid [Derbac-M®] is recommended as first-line for pregnant or breastfeeding women because it is poorly absorbed and eliminated rapidly. It should be removed from the nipple before feeds and re-applied afterwards.

For both products, apply over the whole body (including scalp, neck, face and ears) and wash off after 8 to 12 hours. If hands are washed within eight hours of application, the product should be re-applied. The application should be repeated after seven days.

PRACTICAL TIPS

Clothes, towels and bed linen should be washed at a temperature of at least 50°C to kill all mites and prevent re-infestation.

Crotamiton cream or liquid (*Eurax*®) may help soothe and relieve skin irritation, but has poor efficacy when compared to permethrin for the treatment of scabies.

A sedative antihistamine for night time use to relieve the itching may be helpful, especially if the skin is becoming excoriated and there is increased risk of secondary bacterial infection. Itching often persists for up to three weeks after treatment.

SPECIAL CONSIDERATIONS:**Immunocompromised patients**

Immunocompromised patients are particularly susceptible to Norwegian (crusted) scabies. This is a rare form of scabies, characterised by crusted lesions and scaly plaques located mainly on the hands, feet, scalp, and other pressure-bearing areas with hyperkeratosis possibly occurring. There may be hundreds to thousands of female mites present in an affected patient, making it more resistant to standard treatment and more easily transmitted. It is a well documented problem in institutions such as care homes.

GP COMMENT

There is often a widespread truncal erythematous rash which is very itchy, due to allergic reaction to mites. It can take two to three weeks to clear as mites remain embedded in skin after treatment. It is important to note that this does not indicate treatment failure.

Attack rate within family is 30-40% [this means that where there is a primary source of infestation amongst a household, between 30-40% of the family members are also likely to become infected] but not everyone develops as florid symptoms. It is therefore less useful as a diagnostic aid, but indicates necessity to treat the whole household.



5 INFECTIONS AND INFESTATIONS

5.3 SCABIES ACTIVITIES



Have a look at the picture references found on www.dermis.net



What factors may contribute to treatment failure in scabies?

5.4a HERPES SIMPLEX

Herpes simplex type 1 is associated with cold sores; type 2 is associated with genital herpes. Following a primary infection, probably in childhood, the virus remains in a latent state in the sensory nerve ganglia and can be re-activated by a number of possible trigger factors. These include sunlight, stress, colds and menstruation. Cold sores (herpes labialis) usually occur on the face, particularly around the mouth and nose and tend to re-occur in the same place.

The early (prodromal) signs are tingling, itchy or numb feelings followed by the development of a group of small red fluid-filled vesicles, which may coalesce, burst and crust over. Cold sores can be painful and itchy as well as cosmetically distressing. Recovery usually takes 10-14 days.

DANGER SYMPTOMS

Weeping pustules could indicate a secondary bacterial infection and may require antibiotic treatment.

Refer immunocompromised patients for a routine appointment.



Differential diagnoses

Lesions inside the mouth may be confused with aphthous ulcers. Patients should be referred for definite diagnosis and consideration of systemic antiviral treatment. The appearance of axial cheilitis is very similar to the lesions of herpes simplex: prodromal signs are generally felt with cold sores and axial cheilitis is more common in the very young and the elderly.

Treatment options

Although cold sores are self-limiting, many sufferers seek treatment due to discomfort and the physical appearance. Topical antiviral agents, such as *aciclovir* (Zovirax®) and *penciclovir* (Fenistil®), can speed up the healing process if started as soon as the prodromal phase begins. Aciclovir should be applied five times daily for five days. Penciclovir should be applied at two hourly intervals, up to eight times daily, for four days. Mild drying or flaking of the skin may be experienced. Trials have shown that both topical aciclovir and penciclovir reduced healing time compared to placebo and topical penciclovir reduced the duration of pain and symptoms compared with placebo.

Topical anaesthetics or oral analgesics may be useful for relief of painful lesions.

5 INFECTIONS AND INFESTATIONS

PRACTICAL TIPS

Simple protective agents such as lip balm can help to limit drying and cracking of lips, which can add to the pain of the lesions.

Cold sores are highly infectious and care should be taken not to spread the infection. Wash hands after touching the lesion or applying cream and avoid touching the eyes. Do not share face cloths and towels. Avoid oral sex to prevent the possibility of genital herpes.

Application of sunscreen to the lips or sensitive areas is sensible for prevention if exposure to the sun is likely, e.g. on holiday or skiing.

GP COMMENT

Impetigo is the most common secondary infection and the pharmacist should be alerted to this possibility – identifiable by spreading golden crusting or spreading erythema [See p101].

Oral anti-viral treatments are indicated in exceptional circumstances only, where recurrence is frequent and severe.



5.4b SHINGLES

Shingles (also known as herpes zoster) is caused by infection of a nerve and the surrounding skin by the varicella zoster (chickenpox) virus. Following an episode of chickenpox, usually in childhood, the varicella zoster virus remains dormant in the nerves until it is reactivated in later life.

Precise triggers for reactivation of the virus are not known; however, it is more common in the elderly and those who are immunosuppressed due to disease, drug treatment or stress. The painful, blistering rash usually affects one specific area of the body and does not cross the midline.

Some patients experience prodromal symptoms for 48-72 hours or more before the rash develops. These symptoms may include headache, flu-like symptoms, localised throbbing pain or tenderness and paraesthesia ('pins and needles') around the affected nerve. The rash appears as red spots which quickly turn into blisters containing the virus. New blisters may continue to develop for up to a week after the rash first appears. The blisters then burst and crust over, usually within five-seven days of onset. Patients may experience general debility and exhaustion and pain is often severe. The pain may settle quickly as the rash disappears, but some patients develop post-herpetic neuralgia (PHN) that can last for months afterwards.

DANGER SYMPTOMS

Refer patients who are immunocompromised for an urgent appointment as there is a greater risk of severe complications.

If the area affected involves or is approaching the eye, patients should also be urgently referred.



Differential diagnosis

Depending on the area affected prodromal pain can be confused with other painful conditions such as myocardial infarction, cholecystitis or renal colic. The distinction will be clear when the rash develops. Herpes simplex may present in a single cluster of vesicles whereas there are usually multiple clusters along the dermatome (the area served by a single spinal nerve) in herpes zoster. Depending on the severity and the area affected, impetigo may look similar but would not be associated with the severe pain characteristic of shingles. Secondary bacterial infection should be considered.

Treatment options

Treatment within 72 hours of onset with one of the oral antiviral agents, such as aciclovir, valaciclovir or famciclovir, reduces the severity and duration of acute pain as well as the incidence of PHN. Benefits may still be obtained from treatment started up to one week after the rash appears, particularly if the patient is at greater risk of severe shingles or complications. Clinical features suggesting a high risk include older age, immunosuppression, continued vesicle formation or severe pain. If the eye is involved, prompt treatment and urgent referral to an ophthalmologist are usually recommended. Treatment may not be required for patients who are otherwise well under the age of 50 with mild truncal symptoms. Immunocompetent children are not routinely given treatment.

Aciclovir 800mg five times a day for 7-10 days is usually the first line treatment; although a seven-day course of valaciclovir 1g three times a day or famciclovir 250mg three times a day is also effective. These antiviral agents are all POMs; however, should a PGD be introduced in the future, these antiviral agents could be supplied to eligible patients in Scotland, by a pharmacist. In severe cases the addition of oral prednisolone may be helpful to reduce the severity and duration of acute symptoms, but this has no effect on the incidence of PHN.

OTC analgesics such as paracetamol and ibuprofen may provide adequate pain relief and should be recommended to patients experiencing pain providing there are no contraindications. Patients with more severe pain may benefit from additional treatment. Tricyclic antidepressants, such as low-dose amitriptyline, can effectively treat acute pain and may reduce the incidence or severity of PHN. Anticonvulsants, such as gabapentin (900mg increasing to a maximum of 3600mg/day in divided doses) and pregabalin (150mg increasing to a maximum of 600mg daily in divided doses), are licensed for the treatment of PHN. Anticonvulsant medicines require titration to an effective, tolerated dose.



PRACTICAL TIPS

- The affected area should be kept clean and dry
- Cloths and towels should be changed regularly and should not be shared
- Where possible the rash should be kept covered to minimise the risk of spreading the virus
- Loose-fitting clothes help to minimise the pressure on the affected area
- Calamine lotion may help to soothe unbroken itching skin
- Cold, wet compresses applied to weeping blisters may help to reduce inflammation and prevent infection. These should be applied for up to 20 minutes at a time until the blisters stop oozing.

Although shingles cannot be spread from one person to another, contact with weeping blisters can cause chickenpox in those who have never had it. Unless the affected area can be completely covered, a patient with shingles should remain away from school or work until the blisters have completely crusted over. Particular care should be taken to avoid others who are pregnant or immunosuppressed.

5.5 FUNGAL SKIN INFECTIONS

Fungal infections may be superficial, causing changes to hair, skin or nails, or may have a systemic impact with the potential for serious effects.

Human fungal infections are caused by two groups of organisms; dermatophytes and yeasts. The dermatophytes include *Trichophyton*, *Microsporum* and *Epidermophyton*. The yeast most commonly encountered is *Candida albicans*, while pityriasis (tinea) versicolor is caused by a yeast-like organism that is considered to be a normal skin commensal.

Factors which increase the likelihood of transmission of fungal skin infections are skin moisture, sweating, friction and maceration, e.g. in hot, humid climates, contact sports and skin occlusion by, among other things, footwear, clothing, dressings or casts.

Each common presentation of fungal skin infection is considered separately; although similar agents are used in their management.

Note: Vaginal thrush is considered under Obstetrics Gynaecology and Urinary Tract Infection chapter, section 6.2.

Oral thrush and axial cheilitis are considered in the Ear, Eyes and Oral Health chapter, sections 7.6 and 7.7.

5.5a ATHLETE'S FOOT

Tinea pedis (athlete's foot) is the most common dermatophyte infection. It begins with scaling and itching on one foot only, usually between the fourth and fifth toe, and the skin can become macerated and soggy. It may spread across the other toes, but rarely affects the space between the big and second toe. The soles of the feet may become dry and scaly (hyperkeratosis).

It is common in adults but rare in children, where rashes on the feet may be associated with candida, bacterial infection or poor hygiene. Athlete's foot is thought to be commonly acquired from contact with fungal spores that have become scattered on floor surfaces in communal places such as public swimming pools and changing rooms.

DANGER SYMPTOMS

Secondary bacterial infection, such as cellulitis, especially if cracked skin acts as a portal of entry.



Differential diagnoses

Candidal infection, bacterial infection, eczema, psoriasis.

Treatment options

To prevent relapse, local antifungal treatment should be continued for one week after the disappearance of all signs of infection. Creams are probably the best preparations to use in damp areas such as between the toes. Ointment should be reserved for where there is dry skin.

Imidazoles [clotrimazole (Canesten®)], ketoconazole (Daktarin Gold®), miconazole (Daktarin Aktiv®) or terbinafine (Lamisil®) are suitable first-line treatments. A review of randomised clinical trials showed that terbinafine produces a more rapid response than the imidazole group, which is useful when compliance with treatment may be a problem. Evidence suggests that the imidazoles are all equally effective. Topical treatment with clotrimazole and miconazole is considered to be safe for use in pregnancy and breastfeeding.

There is evidence that the topical *undecenoates* (Monphytol® and Mycota®) are an effective alternative treatment.

Antifungal dusting powders are of little therapeutic value in the treatment of fungal skin infections and may cause skin irritation; however they may have some role in preventing re-infection. They may be used in shoes to control fungal spores.

5 INFECTIONS AND INFESTATIONS

Potassium permanganate solution (0.01% solution) can be used as an antiseptic and antifungal foot soak but has cosmetic limitations as it can stain the skin and nails. The solution can irritate the skin if used repeatedly and should not be used for dry skin conditions.

PRACTICAL TIPS

Good foot hygiene such as washing daily and drying thoroughly, particularly between the toes, will help. Wearing open, non-occlusive shoes, alternating shoes every two to three days and changing socks every day will help to prevent recurrence of athlete's foot.

Use protective footwear such as flip-flops or plastic shoes in communal changing areas or shower rooms.

Avoid scratching affected skin as this may spread infection to other sites.

Special considerations: Diabetes

Hyperglycaemia (high blood sugar) predisposes diabetic patients to fungal infections of the skin, nails, and female genital tract and to urinary tract infection.

Patients with well-controlled diabetes may have less of a risk.

Immunosuppressed patients also have a higher susceptibility to infection.

GP COMMENT

Referral for a routine appointment is required for oral antifungal agents when there is severe or extensive athlete's foot, e.g. moccasin-type which is caused by *Trichophyton rubrum* and leads to dry, scaling skin on the sole of the foot. The scale is very fine, and silvery, and the skin underneath is usually pink and tender. The hands may also be infected and there may be nail infections. Referral is also warranted when topical therapy has failed.



5.5a ATHLETE'S FOOT ACTIVITY

What advice on foot care would you give to patients with diabetes?



5 INFECTIONS AND INFESTATIONS

5.5b FUNGAL NAIL INFECTIONS

Onychomycosis is a fungal nail infection usually involving dermatophytes, moulds and yeasts. A fungal skin infection is often the precursor, the side of the nail then becomes infected, turning it brown, yellow or white. Debris usually accumulates under the nail (subungual debris). The nail becomes thickened, discoloured and possibly elevated because of subungual hyperkeratosis.

Sometimes the nail becomes brittle and bits may break off. Both toenails and fingernails can be affected but infection of the toenails is more common. Factors predisposing to onychomycosis are increasing age, male gender, nail trauma, diabetes, peripheral vascular disease, poor hygiene and athlete's foot. It is often considered to be a trivial disease but patients may feel self-conscious about the appearance of their nails and there may be pain and discomfort.

Distal or lateral subungual onychomycosis [DLSO] starts at the hyponychium [just under the nail where the nail joins the nail bed]. As the infection spreads the whole of the nail bed becomes involved and the full thickness of nail plate is affected. There are two other types of fungal nail infection; white superficial onychomycosis, in which the superficial layers of the nail plate are affected and proximal subungual onychomycosis, in which the matrix at the base of the nail is affected.



DANGER SYMPTOMS

Refer patients with immunosuppression, diabetes and peripheral circulatory disorders for a routine appointment with their GP.

Differential diagnoses

- psoriasis (appears as fine pitting on the nail surface, usually present at other skin sites)
- lichen planus (itchy, flat-topped papules most commonly seen on wrists and lower legs)
- contact dermatitis (previous contact with irritants likely)
- nail trauma (nail bed appears normal)
- yellow nail syndrome (commonly associated with lung disorders, all nails are affected).

Treatment options

Fungal nail infections are notoriously difficult to treat. Topical treatment works best when less than 30% of the nail plate is affected and when the infection is a superficial white colour. The liquid/lacquer has to reach the lower levels of the nail plate and this is less likely the thicker the nail.

Amorolfine lacquer is licensed for OTC supply for the treatment of mild (not more than two nails) DLSO in patients aged 18 years or over. The lacquer is applied once a week after filing and cleaning the surface of the infected nail. Regular treatment is important and continuous use will be needed until the infected part of the nail has grown out (six months for fingernails and nine months for toe nails). Nail polish and artificial nails should be avoided while using the treatment. Regular (three monthly) monitoring of the condition is required and referral is necessary if there is no improvement.

PRACTICAL TIPS

Exercise good nail care. Wash and dry feet everyday. Avoid tight fitting, occlusive shoes and rest shoes periodically to limit exposure to infectious fungi. Antifungal powders may be used to keep shoes free from pathogens.

GP COMMENT

Oral antifungals are recommended if there are more than two nails involved, depending on the symptoms, thickness of infection and positive culture. Terbinafine is the most effective oral agent and is usually prescribed for at least three months.

*Ref: Nathan A.
Treatment of fungal
nail infections Pharm J;
276:597-600*



5 INFECTIONS AND INFESTATIONS

5.5c RINGWORM

In body ringworm, tinea corporis, there is usually a circular, red, scaly lesion, often with less scaling and erythema in the centre. The lesions may be itchy and have a clearly defined edge. The infection may be transmitted by direct contact with a human or animal host.

Groin infection (tinea cruris or 'jock itch') is most common in young men. Groin infection appears as scaly, erythematous lesions inside the thighs and in the inguinal folds and is often bilateral. It often co-exists with athlete's foot. It can be acquired from contact with contaminated towels or bed sheets, or by autoinoculation from a reservoir on the hands or feet.



DANGER SYMPTOMS

Candidal superinfection of dermatophyte skin infections can occur, particularly in the groin area. Secondary bacterial infection such as cellulitis can occur, especially if cracked skin acts as a portal of entry.

Differential diagnoses

Candidal infection, bacterial infection, eczema, psoriasis and pityriasis versicolor or pityriasis rosea. Candidal infections of the groin often involve the scrotum; in contrast, dermatophyte groin infections usually do not.

Pityriasis versicolor is caused by the yeast *Malassezia furfur*. It is most common on the trunk of young adults appearing as small areas of hyper- or hypopigmented skin with mild scaling. It often is most noticeable on tanned skin as melanin production is inhibited.

Treatment options

Most local infections can be treated adequately with topical antifungal preparations. *Imidazoles* (clotrimazole, econazole, miconazole) or terbinafine are suitable first-line treatments for groin infections and skin ringworm. Topical treatment with clotrimazole and miconazole is considered to be safe for use in pregnancy and breastfeeding.

Compound benzoic acid ointment (Whitfield's ointment) has been used for ringworm infections but it is cosmetically less acceptable than proprietary preparations.



Ringworm

PRACTICAL TIPS

Avoid scratching affected skin as this may spread infection to other sites.

In groin infections, change underwear daily, as fungi may persist in skin debris. Groin infections are often associated with athlete's foot; ensure that this is also treated to reduce the risk of re-infection.

GP COMMENT

Pityriasis (tinea) versicolor may be treated with *ketoconazole* shampoo, but this would be a POM indication and would require to be prescribed by a GP. *Selenium sulphide* shampoo used as a lotion (diluted with water to reduce irritation) is also effective although unlicensed for this indication. It should be left on for at least 30 minutes or overnight, applied two to seven times over two weeks and the course repeated if necessary. Topical imidazole antifungals are an alternative, but large quantities may be required.



5 INFECTIONS AND INFESTATIONS

5.5d SWEAT RASH

Intertrigo (sweat rash) usually occurs in adults, with the infection developing between two opposing skin surfaces, e.g. under the breasts, groin, armpits, and the webs of the hands of people who repeatedly have their hands in water. It is more likely to occur where there are other skin conditions such as psoriasis.

The skin is red, may be macerated from the dampness, and may be accompanied by an odour. Candida infection may give rise to pustules which may easily ulcerate, leaving raw areas. Candidal skin infections appear typically bright red and moist, with scaling borders, and with satellite lesions beyond the outer margins. Treatment with systemic antibiotics increases the risk of candidal skin infections as will skin maceration and obesity.



DANGER SYMPTOMS

Refer patients with diabetes or peripheral circulatory disorders or who are immunocompromised. Symptoms of secondary bacterial infections, which is especially likely if there is cracked skin acting as a portal for entry, should be referred for a routine appointment.

Differential diagnoses

Dermatophyte skin infections, bacterial skin infections, eczema or flexural psoriasis.

Treatment Options

Imidazoles (clotrimazole, econazole, miconazole) are suitable first-line treatments.

PRACTICAL TIPS

Dry the skin thoroughly after washing, particularly in the skin folds. Avoid skin occlusion wherever possible, to aid healing and prevent recurrence. Do not share towels, and wash towels frequently.

5.6 IMPETIGO

Impetigo is a superficial bacterial infection of the skin, generally cause by *Staphylococcus aureus* although *Streptococci* have also been implicated. It is a common infection in infants and young children, often presenting around the nose and mouth. It may occur where there are pre-existing skin conditions, e.g. eczema.

It presents as a characteristic weeping, golden, crusted eruption on an erythematous base. The affected area may extend over 3-5cm. It is classed as bullous, characterised as bullae (blisters), or non-bullous impetigo. Non-bullous impetigo is the most common form. Impetigo is highly contagious and passed by direct contact with the lesion or contaminated towels or clothes.

DANGER SYMPTOMS

More serious bacterial infections may develop such as cellulitis or septicaemia. Scalded skin syndrome is a rare development of eczema infected with *Staphylococcus impetigo*, presenting as an extremely tender red area where the superficial layer of skin peels away as if it is scalded. Urgent referral is required. It is important to note that this is not exclusive to eczema sufferers.



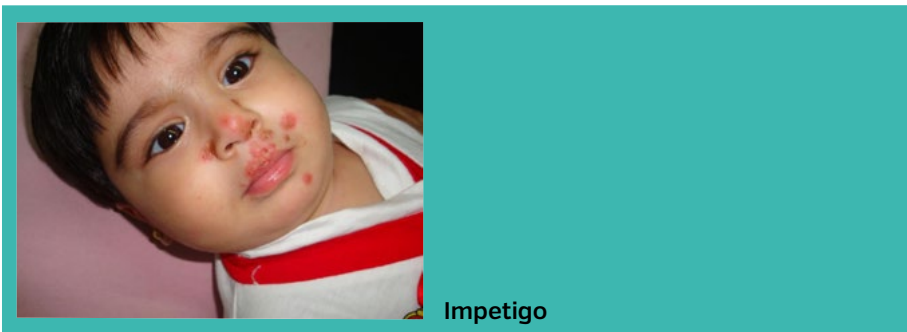
Differential diagnoses

It is commonly confused with cold sores (herpes simplex), which are more common in adults and prodromal symptoms will be experienced with cold sores. Other conditions to rule out are atopic dermatitis and fungal skin infections.

Treatment options

The infection will usually resolve spontaneously within two or three weeks but treatment is appropriate if there is a danger of the infection being transmitted. Crystacide cream® [1% hydrogen peroxide] is the only OTC treatment indicated for topical treatment of primary and secondary superficial skin infections caused by organisms sensitive to hydrogen peroxide. Resistance to antibiotic treatment is a growing concern and this treatment avoids that risk. However, a recent Cochrane review¹ concluded that there was a lack of evidence to support its use. Although impetigo may be self-limiting in 2-3 weeks, hygiene measures alone are not recommended due to the highly contagious nature of the condition².

5 INFECTIONS AND INFESTATIONS



Impetigo

Fusidic acid 2% cream is usually effective in treating impetigo. It should be applied to the infected area three times a day until treatment is resolved. Should a PGD be introduced in the future, an appropriate agent in the context of local formulary guidance could be supplied to eligible patients in Scotland. For more extensive infection, if the infection worsens despite treatment, or if there is no response to fusidic acid within seven days, patients should be referred to the GP for alternative topical or oral treatment. Alternative treatment may also be required first line if there is known local resistance to fusidic acid.

PRACTICAL TIPS

Care with personal hygiene is necessary to avoid transmission:

- Wash hands after contact with the lesion
- Do not share flannels and towels
- Keep fingernails short
- Do not scratch the skin
- Children should not go to nursery or school while being treated for impetigo*

The lesions should be soaked in warm soapy water and washed away prior to application of topical treatment

*Health Protection Scotland recommends that children should be excluded from school or nursery until 48 hours after treatment is started [or until sores are “crusted or healed” when treatment is not given]³.

¹ Sander Koning, Renske van der Sande, Arianne P Verhagen et al. [2012] *Interventions for impetigo*. Cochrane Database of Systematic Reviews 2012, Issue 1. John Wiley & Sons, Ltd.

² CKS. *Impetigo*. NICE 2013.

³ Health Protection Scotland 2011. www.documents.hps.scot.nhs.uk/hai/infection-control/guidelines/infection-prevention-control-childcare-2015-v2.pdf

5.7 OTHER BACTERIAL SKIN INFECTIONS

Boils and carbuncles are infections of hair follicles by *Staphylococcus aureus* resulting in a subcutaneous abscess. A boil is an infection of one hair follicle whereas a carbuncle involves a cluster of adjacent follicles. Common sites are the back of the neck, buttocks, trunk and thigh. Pus is usually discharged from a head or point, but if not, the boil may need lancing. Boils can cause scarring. Magnesium sulphate paste was traditionally used to 'draw' a boil or carbuncle, but antibiotics are now favoured. Refer to the GP for antibiotics/surgical treatment.

Acute paronychia is an infection of the skin and soft tissue of the proximal and lateral nail fold, most commonly caused by *Staphylococcus aureus*. It often originates from a break in the skin or cuticle as a result of minor trauma, e.g. nail biting, finger sucking, aggressive manicuring, a hangnail, or a penetrating trauma. The skin and soft tissue of the proximal and lateral nail fold are red, hot and tender.

Staphylococcal whitlow (felon) is a purulent infection or abscess involving the bulbous distal pulp of the finger. It can either follow trauma or it can be an extension from an acute paronychia. The finger bulb is red, hot, oedematous, and usually extremely tender. The onset of pain is rapid and there is swelling of the entire finger pulp.

In mild paronychia, warm soaks three to four times a day may help if an abscess has not formed. Otherwise, referral for oral antibiotic treatment will be required for both paronychia and whitlow.

5 INFECTIONS AND INFESTATIONS

5.8 CHILDHOOD INFECTIONS

Most childhood infections are viral in origin and are self-limiting. Analgesia and antipyretic treatment may be offered as appropriate. Many viral illnesses produce a rash which often will be red, blotchy and slightly raised, and most obvious on the face and trunk. It may appear a day or two after the fever when the child is improving.

It is important to be able to distinguish a meningococcal rash from rashes caused by other infections as meningitis is potentially life threatening.

See appendix 3 for a description of common childhood illnesses and their signs and symptoms.

You can also go back to p55 to remind yourself of the signs and symptoms of meningitis.

CASE STUDIES

Case study 7

A grandmother brings her 6-year-old grandson to see you, as he is staying with them for the weekend and she thinks he has a cold sore. On further examination you note that there is an inflamed lesion around the nose with a golden crust. The child has not, to the grandmother's knowledge, had cold sores before and he is not on any other medication. She applied a bit of antiseptic cream this morning. You advise the grandmother that you think it is impetigo and that it is a self-limiting condition, but could take two to three weeks to clear up. The OTC treatment option is Crystacide cream, applied two to three times daily for a maximum of three weeks; alternatively treatment is with a topical or an oral antibiotic which is on prescription only and would require referral to the GP. Advice is also given to avoid sharing towels and flannels to avoid contamination to the rest of the household and to make sure that her grandson does not touch the lesion, as this will also cause it to spread. The child should also be kept off school until the lesion has cleared up to avoid infection of classmates.



Case study 8

A mother brings her 15-year-old son in to see you. He plays football regularly and also is in the local athletics club. He has complained of sore, itchy skin between his toes, with the skin under his little toe being particularly cracked, sore and red. In common with his peers, he constantly wears trainers and although he declares that he dries his feet thoroughly after showering, his mother casts doubt on this. On observation of the skin, you confirm that it is athlete's foot. He is not on any other medication and has not used anything to treat the feet so far. You recommend clotrimazole cream 1% w/w* and advise that the cream should be applied twice daily, continuing for at least one week after the infection has cleared up. His mother insists on buying an anti-fungal foot powder which you advise be used on the trainers and socks regularly.



* In Scotland, you can supply this under the Minor Ailments Service (MAS).

5 INFECTIONS AND INFESTATIONS

SUGGESTED RESPONSES TO INFECTION ACTIVITIES



What advice would you give to patients on how to detect head lice?

- Wash the hair in the normal way with ordinary shampoo.
- Rinse out the shampoo and put on lots of ordinary conditioner.
- Comb the hair with a normal comb to get rid of tangles.
- When the hair is untangled switch to a detection comb. This is a special fine-toothed comb that you can buy at pharmacies. [The teeth of normal combs are too far apart.]
- Slot the teeth of the detection comb into the hair at the roots so it is touching the scalp.
- Draw the detection comb through to the tips of the hair.
- Repeat this in all directions until you have combed all the hair.
- Check the comb for lice after each stroke. A magnifying glass may help.
- If you see any lice, clean the comb by wiping it on a tissue or rinse it before the next stroke.
- Comb over a white surface such as white paper. This is so that any head lice that are flicked out by the comb are easy to see.
- After the whole head has been combed, rinse out the conditioner.
- While the hair is still wet, use an ordinary comb to get rid of tangles.
- Repeat the detection combing in the rinsed hair to check for any lice that you might have missed the first time.
- It takes about 15-30 minutes to do detection combing, depending on how thick the hair is.

Ref: PIL on head lice detection. [PRODIGY Guidance]. Clinical Knowledge Summaries.

What factors may contribute to treatment failure in scabies?

Firstly, confirm that the diagnosis is scabies; this may require referral for skin scrapings if there is any doubt. Treatment failure is likely if:

- the itch still persists at least two weeks after treatment was completed (particularly if it persists at the same intensity or is increasing in intensity)
- treatment was uncoordinated or not applied correctly
- new burrows appear at any stage after treatment

If all contacts were treated simultaneously and treatment was applied correctly, give a course of a different acaricide.

If contacts were not treated simultaneously or treatment was incorrectly applied, either re-treat with the same acaricide, or use a different acaricide.

Everyone should ideally be provided with written advice explaining the correct application method.

Ref: CKS [2007] scabies [PRODIGY Guidance]. Clinical Knowledge Summaries.



What advice on foot care would you give to patients with diabetes?

Foot care for patients with diabetes

Research has shown that people with diabetes who take good care of their feet, and protect their feet from injury, are much less likely to develop foot ulcers. Good foot care includes the following:

- Looking carefully at your feet each day, including between the toes. If you cannot do this yourself, you should get someone else to do it for you.
- Looking is particularly important if you have reduced sensation in your feet, as you may not notice anything wrong at first until you look.
- If you see anything new (such as a cut, bruise, blister, redness, or bleeding) and don't know what to do, see your doctor or podiatrist (chiropodist).
- Do not try to deal with corns, calluses, verrucas, or other foot problems by yourself. They should be treated by a health professional such as a podiatrist. In particular, do not use chemicals or special 'acid' plasters to remove corns, etc.
- Use a moisturising oil or cream for dry skin to prevent cracking – but do not apply it between the toes.



5 INFECTIONS AND INFESTATIONS



What advice on foot care would you give to patients with diabetes? (cont)

- Look out for athlete's foot (a common minor skin infection). It causes flaky skin and cracks between the toes which can be sore and can become infected. If you get athlete's foot, it should be treated with an antifungal cream.
- Cut your nails by following the nail curvature rather than 'straight across'. If you cannot see properly do not try to cut your nails as you may cut your skin. Get someone else to do it.
- Wash your feet regularly, and dry carefully, especially between the toes.
- Do not walk barefoot, even at home. You might tread on something and damage the skin.
- Always wear socks with shoes or other footwear, but don't wear socks that are too tight around the ankle which may affect the circulation.
- Shoes, trainers and other footwear should:
 - fit well to take into account any awkward shapes or deformities (such as bunions)
 - have broad fronts with plenty of room for the toes
 - have low heels to avoid pressure on the toes
 - have good laces, buckles or Velcro fastening to prevent movement and rubbing of feet within the shoes.
- When you buy shoes, wear the type of socks that you usually wear. Avoid slip-on shoes, shoes with pointed toes, sandals and flip-flops. Break new shoes in gradually.
- Always feel inside footwear before you put them on (to check for stones, rough edges, etc).
- If your feet are an abnormal shape, or if you have bunions or other foot problems, you may need specially fitted shoes to stop your feet rubbing.
- Tips to avoid foot burns include: check the bath temperature with your hand before stepping in; do not use hot water bottles, electric blankets or foot spas; do not sit too close to fires.

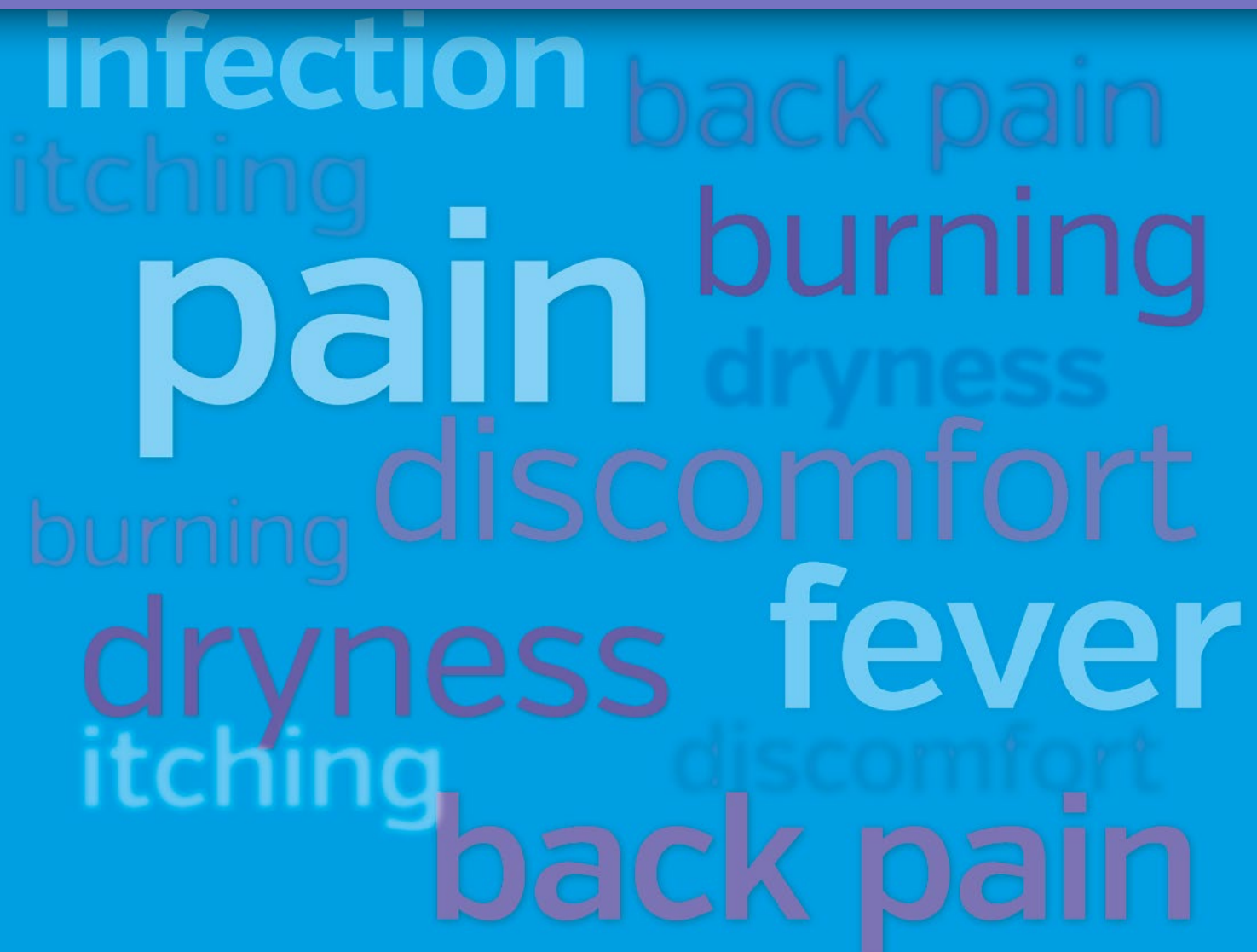
Ref: PIL on diabetes - foot care and foot ulcers [PRODIGY Guidance]. Clinical Knowledge Summaries.

OBSTETRICS, GYNAECOLOGY AND URINARY TRACT INFECTIONS **6**

OBJECTIVES

After completing this section you should be able to:
Recognise, manage and advise on the symptoms of

- LOWER URINARY TRACT INFECTION
- THRUSH
- VAGINAL DRYNESS
- DYSMENORRHOEA



6 OBSTETRICS, GYNAECOLOGY AND URINARY TRACT INFECTIONS

6.1 LOWER URINARY TRACT INFECTION

Infection of the lower urinary tract are common, particularly in women and are usually self-limiting or readily treated with antibiotics. Lower urinary tract infections (UTIs) can involve the bladder (cystitis), urethra (urethritis) or both. Symptoms are similar in each case. Typically a urinary tract infection has acute onset and rapid progression of symptoms which include the following:

- Increased frequency of passing urine, often with urgency
- Burning, stabbing pain in the urethra and perineum
- Burning pain on passing urine
- Traces of blood in the urine
- Cloudy or malodorous urine
- A sensation of incomplete emptying i.e. a feeling of wanting to pass urine again shortly after voiding

In many cases symptoms may be related to sexual intercourse, anxiety states, irritable bladder or chemical sensitivity (e.g. to soaps or spermicides) rather than to a bacterial infection. More generalised symptoms such as nausea, vomiting, fever and low back pain may be more common in bacterial infection.

DANGER SYMPTOMS

Urgent referral to a GP is necessary if there are symptoms of upper UTI with fever, back (flank) pain, vomiting, visible haematuria.

Differential diagnoses

Consider the possibility of pelvic inflammatory disease, acute pyelonephritis (associated with high back pain and may be accompanied by fever, nausea and vomiting) and kidney stones. Other possibilities are bacterial vaginosis, thrush or chlamydia, which are possible if vaginal discharge is present. Symptoms may also be caused by non-bacterial cystitis. Urinary dipsticks can be useful in determining whether symptoms are caused by UTI.



Treatment options

Urinary tract infections (UTIs) are significantly more common in women than in men as the urethra is both closer to the anus and shorter, meaning that it is both easier for faecal bacteria to contaminate the tract and reach the bladder, where multiplication is more likely. Because of this, the presence of urinary symptoms is more likely to indicate a simple, uncomplicated UTI in women and empirical antibiotic treatment is given more readily and for shorter duration. A three-day course of either trimethoprim (200mg twice daily) or nitrofurantoin (50mg four times daily) has been shown to reduce significantly (1-2 days) the time to resolution of symptoms in non-pregnant adult women. Pregnant women should be referred for prompt assessment and treatment to minimise the risk of complications.

In men, there is a higher risk that symptoms may have an underlying cause that requires further investigation. When an underlying cause is excluded a seven-day course of trimethoprim or nitrofurantoin may be appropriate. Nitrofurantoin has an increased risk of toxicity in the elderly and is contraindicated in patients with renal impairment.

It may be possible in Scotland to supply empirical antibiotic therapy for suspected, uncomplicated lower UTI using a PGD for certain patient groups. Any PGD must be considered in the context of the local formulary and antimicrobial stewardship framework.

Urinary alkalinising products, e.g. potassium citrate, sodium citrate and sodium bicarbonate are designed to reduce discomfort during micturition. There is, however, little evidence to support this and mild symptoms are likely to resolve in a few days without any treatment. Care is needed with potassium-containing products in patients with hyperkalaemia, renal or cardiac impairment and in patients taking potassium-sparing diuretics, aldosterone antagonists or ACE inhibitors. Products with a high sodium content are contraindicated for pregnant patients and those with hypertension. Alkalinising agents also markedly reduce the efficacy of nitrofurantoin and should therefore be avoided during treatment.

Pain and raised temperature may be treated with simple analgesics such as paracetamol or ibuprofen unless contraindicated.



6 OBSTETRICS, GYNAECOLOGY AND URINARY TRACT INFECTIONS

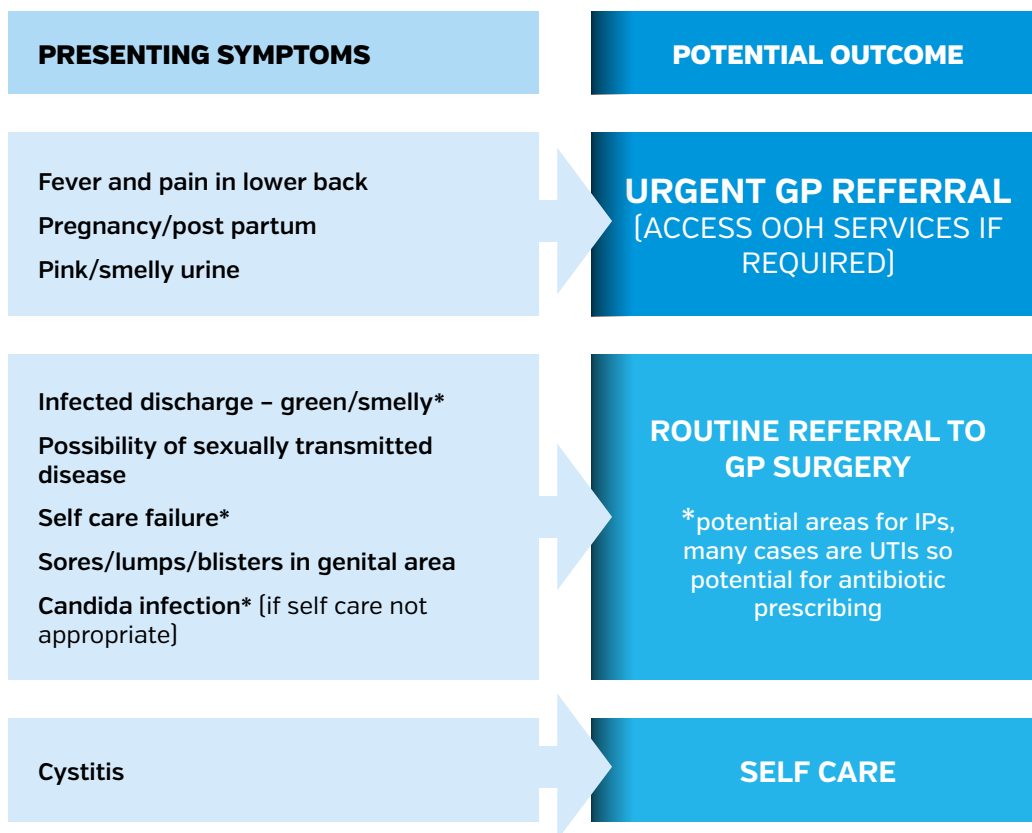
Special considerations: children

Children complaining of symptoms of pain on passing urine with frequency should be referred to the GP as there may be an underlying cause for the UTI which needs investigation.

PRACTICAL TIPS

- Drink normally, trying to avoid irritants such as alcohol and coffee. The advice on 'drinking plenty' is unproven and may provoke painful trips to the toilet.
- Double micturition is advised to remove any residual urine in the bladder. The woman should strain to expel residual urine 10-15 seconds after passing urine
- Wiping from front to back after defecation minimises contamination of the vagina.
- Micturition after intercourse is an important preventative measure.
- Wear cotton underwear and avoid tight, constricting clothes such as jeans or tights.
- A hot water bottle may help to relieve discomfort.
- Cranberry products (juice or capsules) are thought to reduce bacterial infections of the bladder by inhibiting the adherence of E coli to the cells lining the bladder. There is evidence for their use in prevention but not treatment of cystitis.

6.1 LOWER URINARY TRACT INFECTION TREATMENT ALGORITHM



6 OBSTETRICS, GYNAECOLOGY AND URINARY TRACT INFECTIONS

6.1 LOWER URINARY TRACT INFECTION ACTIVITY



Who might benefit from taking cranberry juice regularly?

6.2 VAGINAL THRUSH (VULVOVAGINAL CANDIDIASIS)

Vulvovaginal candidiasis (thrush of the vagina) is caused by abnormal colonisation of the vagina by yeast cells:

- *Candida albicans* accounts for 80-95% of infections, and *C. glabrata* is responsible for a further 5%.
- Other yeast infections are less common, with fewer than 5% of cases being caused by *Candida tropicalis*, *C. parapsilosis*, *C. krusei*, *C. kefyr*, *C. guilliermondii*, or *Saccharomyces cerevisiae*. These infections may be harder to treat and are often resistant to fluconazole.

Symptoms are vulval itching, local erythema, vaginal discharge which is white, curd-like and odourless, dyspareunia (pain on intercourse) and dysuria (pain during urination). Self-diagnosis is made in the majority of cases although only half of these are suspected to be correct. If a woman has not experienced symptoms before, the diagnosis should be confirmed by a GP. Women of childbearing age are more susceptible to infection as the yeast prefers an oestrogen-rich environment. A woman who is either aged over 60yrs, under 16yrs or pregnant should be referred. It is a common infection during pregnancy and more difficult to treat. Broad-spectrum antibiotics are a common precipitating factor.

Differential diagnoses

Symptoms of cystitis and thrush are often confused due to dysuria, but there is usually no discharge with cystitis. It is also difficult to distinguish between the signs of thrush and bacterial vaginosis, which is a more common vulvovaginal infection but usually presents without itch. Other possible infections are trichomoniasis (frothy, grey, malodorous discharge), chlamydia (no itch), gonorrhoea (pain and fever usually present) and genital herpes (pain is a defining symptom). If any of these are suspected, referral to the GP is required.

Treatment options

Topical preparations

The *imidazoles*: *clotrimazole*, *econazole* and *miconazole* are equally effective. The treatment is dose dependent rather than dependent on duration. Intravaginal treatment, via a pessary or intravaginal cream, is more effective than external application of the cream alone, although this will soothe and relieve vulval symptoms. Treat male partners who also present with symptoms with topical imidazoles.

There is no evidence that treatment of asymptomatic partners is required.

6 OBSTETRICS, GYNAECOLOGY AND URINARY TRACT INFECTIONS

PRACTICAL TIPS

Avoid the warm, moist breeding ground for the fungal infection by advising the patient not to wear tight fitting trousers or tights. Loose fitting, cotton underwear allows the skin to breathe more. Ironing or tumble-drying the underwear may also kill any residual fungal spores.

Avoid irritant or perfumed products such as vaginal deodorants or soaps. Spermicides such as nonoxynol-9 may disturb the vaginal flora and precipitate infection.

Oral preparations

Fluconazole (150mg capsule) is an effective oral treatment and has similar efficacy to topical imidazoles. Many patients prefer to take an oral preparation and it is also particularly useful if there is inflammation which makes use of applicators painful.

Oral preparations are contraindicated in pregnancy and breastfeeding.

SPECIAL CONSIDERATIONS:

Patients with diabetes

Patients with diabetes who are poorly controlled are especially prone to candidal infections. It can also be one of the indicators of undiagnosed diabetes. Any patient with recurrent thrush should be referred to the GP.

GP COMMENT

Treatment failure with antifungals occurs in 20% of cases. Recurrent vulvovaginal candidiasis (defined as four or more cases in a year) occurs in up to 50% of women at some point in their lives. The healthcare professional needs to be aware of the impact this can have on an individual as depression and psychosexual problems can occur. Women who have had more than two cases in a six-month period should be referred to the GP.

Pregnant women are more prone to candidal infection although there is no evidence that this causes harm to the baby. OTC preparations are not licensed for use in pregnancy and therefore the patient should be referred to the GP.



6.2 VAGINAL THRUSH ACTIVITY

What advice would you give to a patient requesting information on diet to prevent recurrence of thrush?



6 OBSTETRICS, GYNAECOLOGY AND URINARY TRACT INFECTIONS

6.3 VAGINAL DRYNESS (ATROPHIC VAGINITIS)

Lack of oestrogen can cause a thinning and reduction in elasticity of the vaginal walls and a reduction in the glands which produce lubricating mucus. Many post-menopausal women develop a dry vagina, and other symptoms around the genital area. Vaginal dryness may also be associated with hormonal contraceptive use, cigarette smoking, radiation therapy or chemotherapy.

Atrophic vaginitis is a common (and usually treatable) cause of the following symptoms, although they can also be caused by other medical conditions.

- **Pain during sex**
this may occur because the vagina is smaller, drier, and less likely to become lubricated during sex than before the menopause.
- **Discomfort**
if the vulva or vagina is sore and inflamed there may be persistent discomfort.
- **Itch**
the skin around the vulva is more sensitive and more likely to itch. This can make the sufferer prone to scratch, which then makes the skin more likely to itch. An itch/scratch cycle may develop which can be difficult to break, and can be distressing.
- **Urinary problems**
these may be due to thinning and weakening of the tissues around the neck of the bladder, or around the urethra. A prolapse or weakening of part of the vaginal wall may also cause urinary symptoms. There may be symptoms of frequency, urgency, dysuria, stress or urge incontinence.



DANGER SYMPTOMS

Sjögren's syndrome, an autoimmune disease causes dry mouth and eyes as well as vaginal dryness. Patients with symptoms of dry eyes, dry mouth and atrophic vaginitis should be referred to their GP.

Differential diagnoses

Vaginal infections may be a complicating factor in post-menopausal women and need to be ruled out through appropriate questioning.

Treatment options

The OTC treatment options are lubricating gels or vaginal moisturisers. Other treatments such as hormone replacement therapy (HRT) and oestrogen cream are prescription only.

Replens MD[®] and *Sylk* are non-hormonal vaginal moisturisers. *Replens MD*[®] is a non-hormonal drug-free bioadhesive vaginal moisturiser which has been compared to topical oestrogens over a 12-week period. It is a safe and effective treatment exhibiting statistically significant increases in vaginal moisture, vaginal fluid volume and vaginal elasticity and a return of premenopausal pH state. *Water-based lubricants*, such as *KY jelly*[®], lubricate the vagina for several hours and can be applied to the vaginal opening to prevent pain on intercourse.

PRACTICAL TIPS

Avoid douching as this disrupts the normal chemical balance of the vagina and can lead to dryness and irritation. Similarly, avoid perfumed soaps and bath products that may be irritant.

6 OBSTETRICS, GYNAECOLOGY AND URINARY TRACT INFECTIONS

6.4 DYSMENORRHOEA

Dysmenorrhoea is cyclical, lower abdominal or pelvic pain, which may also radiate to the back and thighs, occurring before or during menstruation, or both.

Primary dysmenorrhoea first appears about 6 - 12 months from the onset of menarche. Symptoms are usually most severe on the day preceding menstruation or in the first 24 - 48 hours of menstrual flow. Accompanying symptoms may be headache, nausea, vomiting, diarrhoea and dizziness.

Secondary dysmenorrhoea implies that there is underlying pelvic pathology causing the pain. It has a later onset than primary dysmenorrhoea, usually affecting women over the age of 30. Pain usually lasts throughout the menstrual cycle and other symptoms may be present, e.g. dyspareunia, intermenstrual bleeding and postcoital bleeding. Causes include endometriosis, endometrial polyps, fibroids, pelvic inflammatory disease and ovarian cysts or tumours.

Differential diagnoses

It is most important to differentiate between primary and secondary dysmenorrhoea as management is different. It can normally be assumed that young girls who have recently started menstruating will be suffering from primary dysmenorrhoea. Careful questioning will identify possible cases of secondary dysmenorrhoea which should be referred to the GP.

Treatment options

NSAIDs are inhibitors of prostaglandin synthesis and are thought to relieve dysmenorrhoea by decreasing uterine prostaglandin levels, resulting in reduced uterine contractility. They may be more effective than *paracetamol*, although some women find that *paracetamol* is adequate for pain relief when mild symptoms are experienced. *Aspirin* is not recommended as it is less effective than the other NSAIDs. *Ibuprofen* would be the drug of choice. Contraindications and cautions with the use of NSAIDs need to be taken into account. *Codeine* can be added where stronger pain relief is required, although the OTC doses are sub-therapeutic and are more likely to cause aggravation due to constipating side effects.

Anticholinergic antispasmodics, such as *hyoscine butylbromide* [Buscopan®] and *alverine citrate* [Spasmonal®], relax the uterine smooth muscle. *Alverine citrate* is licensed for the use in dysmenorrhoea; although, there is a lack of published evidence on its efficacy.

Transcutaneous electrical nerve stimulation (TENS) has been used successfully to manage pain and avoids the use of analgesics if this is desired.

Various *mineral supplements* have been used to relieve symptoms. A Cochrane review looked at use of thiamine, magnesium, pyridoxine, vitamin E and fish oils, with some evidence on their benefit for various symptoms. It may be useful for some women to try these treatments as long as there are no adverse effects or potential interactions with other medication.

PRACTICAL TIPS

The use of topical heat, either by using heat pads, a hot water bottle or a warm bath helps to relieve period pain. One study has shown that heat alone worked as well as simple analgesia and that using the combination of heat and analgesia relieved the pain faster.

Women who smoke or who are overweight are more likely to suffer more severe symptoms, therefore smoking cessation and weight management advice could be offered. Relaxation techniques may also be of some use as stress can be a compounding factor. Excess alcohol consumption has been linked with more severe symptoms so sensible advice on alcohol limits would be useful.

*Ref: Proctor, M.L. and
Murphy, P.A. (2001)
Herbal and dietary
therapies for primary
and secondary
dysmenorrhoea
(Protocol for a
Cochrane Review).
The Cochrane Library.
Issue 2. Chichester, UK:
John Wiley & Sons, Ltd.*

GP COMMENT

The lowest possible dose of NSAIDs should be used to treat symptoms to minimise the risk of adverse effects.



6 OBSTETRICS, GYNAECOLOGY AND URINARY TRACT INFECTIONS

6.4 DYSMENORRHOEA ACTIVITY



What factors should be considered before recommending treatment with NSAIDs?

A large, empty white rectangular box with a blue border, intended for writing an answer to the question above.

CASE STUDIES

Case study 9

A middle-aged lady asks to speak to the pharmacist. She saw an advert for the oral preparation for thrush and wants to know if she can try it. She had a bout of vaginal thrush last month and used Canesten vaginal cream, but didn't feel that it totally cleared the infection. She is overweight and takes bendroflumethazide 2.5mg daily for hypertension. She has had several bouts of thrush in the last year and complains of tiredness, so you decide to refer her to her GP. You suspect that there is the possibility of undiagnosed type 2 diabetes mellitus. Your suspicions are confirmed later in the week when she hands in a prescription for metformin 500mg bd.



Case study 10

One of the sales assistants from the bakery next door pops in with her 12-year-old daughter, Rachel, after receiving a call to collect her from school that morning. She started her periods last year and is suffering from intense abdominal cramps and back pain from the day before her period is due. The pain subsides after the second day of menstruation. She usually takes paracetamol for the pain and her mother wonders if there is anything else which would help as it doesn't always relieve the pain. There are no contraindications for ibuprofen, so you recommend and supply this, confirming that this is a case of primary dysmenorrhoea. You advise Rachel to consult yourself or the GP if the pain does not subside after the first couple of days of her period or if the pain is either different on future occasions or more severe.



6 OBSTETRICS, GYNAECOLOGY AND URINARY TRACT INFECTIONS

SUGGESTED RESPONSES TO OBSTETRICS, GYNAECOLOGY AND URINARY TRACT INFECTION ACTIVITIES



Who might benefit from taking cranberry juice regularly?

Elderly women, for whom bacteruria is common and young women with symptomatic cystitis may benefit. A Cochrane review of seven randomised controlled trials found evidence from two good quality trials that cranberry products may decrease the number of symptomatic urinary tract infections in women. The drawback was that there were a large number of withdrawals from some of the trials, possibly due to the palatability of cranberry juice. The optimal dose of cranberry extract has not been established. Cranberry juice may interact with warfarin so concurrent use should be avoided.



What advice would you give to a patient requesting information on diet to prevent recurrence of thrush?

Garlic, a low glucose diet and yoghurt containing *Lactobacillus acidophilus* have all been suggested for the prevention of candidal infection. There is no evidence available to support these claims.

PRODIGY guidance states that depletion of Lactobacilli has been implicated in the pathogenesis of vulvovaginal candidiasis. This has led to research into replacement therapy, using live cultures of lactobacilli by either the oral or intravaginal route. However, at present these preparations are not recommended as:

- lactobacillus products available often do not contain the correct hydrogen peroxide producing species usually present in healthy vaginal flora
- there is presently no regulatory authority regarding the contents of these products as none are licensed as medicines
- there is a lack of evidence based on high quality randomised controlled clinical trials regarding the efficacy of these products

Ref: CKS [2007] candida [PRODIGY Guidance]. Clinical Knowledge Summaries www.cks.nice.org.uk

What factors should be considered before recommending treatment with NSAIDs?



Patients with asthma may find their asthma symptoms worsen when taking NSAIDs and if so, should discontinue use. NSAIDs are associated with higher risk of gastro-intestinal problems than other analgesics, therefore should be avoided in high-risk patients, e.g. those aged over 65, with concomitant use of anticoagulants or previous history of GI bleeds. (Although those aged over 65 will not be using NSAIDs for dysmenorrhoea).

NSAIDs are associated with a worsening of hypertension so monitoring of these patients would be required. There are concerns about cardiovascular risk being increased with NSAIDs, however, the doses used for OTC treatment have not been implicated.

Potential drug interactions such as the increased risk of bleeding with SSRIs or venlafaxine are important to bear in mind. The lowest possible dose should be used to treat symptoms to avoid adverse effects.

6 OBSTETRICS, GYNAECOLOGY AND URINARY TRACT INFECTIONS

EYES, EARS AND ORAL HEALTH 7

OBJECTIVES

After completing this section you should be able to:
Recognise, manage and advise on the symptoms of

- CONJUNCTIVITIS
- DRY EYES
- EAR CARE – EAR WAX AND EAR INFECTIONS
- MOUTH ULCERS
- DRY MOUTH
- OROPHARYNGEAL CANDIDIASIS
- AXIAL CHEILITIS

allergic irritation
tender ulcers
blurred vision allergic
blurred vision
ulcers earache
blurred vision
irritation
redness tender

7 EYES, EARS AND ORAL HEALTH

7.1 CONJUNCTIVITIS

Conjunctivitis is inflammation of the conjunctiva, the thin protective membrane which covers the white of the eye and inside surface of the eyelids. It is characterised by irritation, itching, a sensation of grittiness in the eye and watering or discharge.

The cause is most often viral but may also be bacterial or allergic. In bacterial conjunctivitis the most common causative organisms are *Staphylococcus* and *Haemophilus influenzae*. Yellow-white discharge, bilateral infection and absence of itching are suggestive of bacterial conjunctivitis. It is usually self-limiting.

Allergic conjunctivitis is a hypersensitivity reaction occurring in response to an allergen and is usually indicated by bilateral, itching eyes, often with accompanying oedema and clear watery discharge. The patient will often also suffer from allergic rhinitis, eczema or asthma. Seasonal allergic conjunctivitis is mostly caused by pollen whereas perennial allergic conjunctivitis is caused by allergens such as house dust mite.



DANGER SYMPTOMS

Chlamydia presents with a chronic conjunctivitis in newborns, usually within 14 days after birth. Less commonly, gonorrhoea may present as a profuse, purulent conjunctivitis in the newborn within the first seven days of life. Both need to be distinguished from a simple sticky eye and conjunctivitis symptoms in a baby under 28 days old need urgent medical treatment.

Bacterial conjunctivitis in infants, particularly premature infants, can often lead to secondary infections such as otitis media or the more serious meningitis or septicaemia.

Differential diagnoses

Any pain in the eye that is more than just discomfort, marked redness of the eye or impairment of vision requires further investigation to ensure that there is no permanent damage. These symptoms may indicate acute glaucoma (the eye will also feel hard and tender), keratitis (unilateral symptoms with photophobia) or iritis (marked redness between the white of the eye and the coloured part of the eye).

Treatment Options

Infective conjunctivitis:

Chloramphenicol eye drops and eye ointment are available without prescription and have a broad spectrum of activity against Gram-positive and Gram-negative bacteria. Several clinical trials have shown that cure rates of suspected bacterial conjunctivitis are no different whether treated with a topical antibiotic or a placebo. The time taken to cure the infection is improved with the use of topical antibiotics. In culture positive bacterial conjunctivitis there is a benefit in cure rate and duration associated with the use of topical eye drops, but this facility is not commonly available. Only if infections have not responded to first-line treatment would cultures normally be taken.

The drops should be applied every two hours for the first two days and four hourly thereafter, continuing treatment for a minimum of five days even if symptoms improve. The ointment should be applied three or four times daily for five days. The ointment may cause transient blurred vision, which fades quickly. Adverse effects of chloramphenicol include transient localised stinging and burning sensations. The OTC preparations should not be used in pregnancy or breastfeeding or in children under the age of two. These patients will require routine referral to their GP.

Other OTC preparations are *Brolene*[®] or *Golden eye*[®] brands. These drops contain *propamide isethionate* which has antibacterial, trypanocidal and fungicidal activity and is active against *Staphylococcus aureus*, *Streptococcus pyogenes* and certain other *streptococci* and *clostridia*.

The ointment preparations contain *dibromopropamide isethionate* which has antibacterial and antifungal properties. It is active against pyogenic cocci, *Staphylococcus aureus*, and certain Gram-negative bacteria, including *Escherichia coli*, *Proteus vulgaris* and some strains of *Pseudomonas aeruginosa*. Fungi susceptible to the drug include *Aspergillus niger* and *Candida albicans*. The antibacterial activity of these diamidines is not reduced in the presence of organic matter, such as tissue fluids, pus and serum.

The drops should be applied four times a day although hourly use has been suggested to achieve the required anti-microbial levels in the eye. The ointment is applied once or twice daily and could be used at night, in combination with the drops used during the day.

7 EYES, EARS AND ORAL HEALTH

Allergic conjunctivitis:

Topical antihistamines are rapid acting and highly effective at relieving symptoms. Examples are *Otrivine-antistin*[®] which contains *antazoline* and *xylometazoline*, a vasoconstrictor, to relieve redness in the eyes. It is not advised for prolonged use.

Topical Mast Cell stabilisers, e.g. *sodium cromoglicate* [e.g. *Opticrom*[®]] work by preventing the release of histamine and other inflammatory mediators from the mast cells. There is evidence that they are more effective than placebo. They may take up to 14 days to work and need to be used regularly, up to four times a day for benefit.

SPECIAL CONSIDERATIONS:

Contact lens wearers

Contact lens wearers need to be especially aware of potential bacterial conjunctivitis as it can develop into bacterial keratitis and threaten vision. Infection caused by *Acanthamoeba* although rare should also be considered in contact lens wearers as the protozoa can survive in the space between the cornea and the eye and can cause keratitis. Contact lenses should not be worn where there is sign of infection until it is resolved. Benzalkonium chloride, a preservative in eye drops, can interact with soft contact lenses. They should not be worn during treatment or for 24 hours after treatment has been completed. Thorough cleaning of the lenses is imperative to prevent future infection.

PRACTICAL TIPS

Eye infections are highly contagious. The patient should be advised to wash hands thoroughly after touching the eye and to avoid sharing towels or pillows.

Cold compresses may help soothe the eye in any form of conjunctivitis.

Avoidance of trigger factors in allergic conjunctivitis will help reduce symptoms. Some people find that sunglasses help where pollen is the trigger.

GP COMMENT

Question the patient on history of foreign body presence or eye injury, which would indicate the need for urgent GP referral or to an accident and emergency department.



7.2 DRY EYE

Tears are produced by lacrimal glands, ocular surface epithelium, conjunctival goblet cells and meibomian glands. They are distributed by blinking and drain via the lacrimal ducts. Tear deficiency may be due to a variety of factors. Dry eye syndrome (keratoconjunctivitis sicca) is a tear deficiency which can cause discomfort in the eye. It is aggravated by factors such as dry air, e.g. due to air conditioning, dust, wind and smoke.

Decreased tear production can be caused by some drugs, Sjögren's syndrome, allergy, dehydration or trauma, e.g. surgery, radiation. An abnormal ocular surface and disruption of the trigeminal afferent sensory nerves (e.g. due to herpes zoster ophthalmicus or post-corneal surgery) and decreased lipid production by meibomian glands are other causes of tear deficiency.

Blepharitis is a common condition that causes inflammation of the eyelids and can affect people of all ages. There is a complex relationship between dry eye syndrome and blepharitis; dry eye is associated with, is a complication of, and may be exacerbated by chronic blepharitis. Low levels of tear film phospholipids may result in increased tear film evaporation and dry eyes.

Symptoms of dry eye usually affect both eyes, there may be a feeling of irritation or grittiness in the eye, a transient blurring of vision and excessive tearing (watery eyes). Patients often do not complain of 'dryness' in the eye. Removal of exacerbating factors can help, e.g. adverse reactions of drugs or environmental conditions. Underlying conditions, such as blepharitis, need to be treated.

DANGER SYMPTOMS

Dry eye may lead to complications such as filamentary keratitis (in which fine filaments of epithelium and mucus are attached to the cornea) or epithelial damage which may occasionally lead to corneal ulceration.



Differential diagnoses

Viral or bacterial infection is often described as a grittiness or foreign body sensation in the eye. The conjunctiva will be red and inflamed when infection is present and there is often a discharge which may make the eyelids stick together.

7 EYES, EARS AND ORAL HEALTH

Treatment options

Artificial tear preparations are the first-line choice. *Hypromellose* is the most widely available and best value treatment. There is no evidence to suggest that any of the other artificial tear preparations are better although the carbomer-based preparations may cling to the eye surface more readily, allowing a reduced frequency of application. They should be used as frequently as necessary to relieve the symptoms. Adverse effects include ocular irritation due to the preservatives, especially if used very frequently through the day. Preservative free drops could be considered if this is the case, although these are a more expensive option. Remind the patient to throw away any left over drops after 28 days if they are preserved or immediately after use if using single application packs (*Minims*[®]).

Lubricant eye ointments, such as Simple eye ointment or *Lacri-lube*[®], containing liquid paraffin, white soft paraffin and wool alcohols, provide prolonged lubrication of the eye and may be useful for application at bedtime. They cause transient blurring of vision and so are not as suitable for use during the day. Ointments should not be used during contact lens wear.

Witch hazel is an astringent found in preparations such as *Optrex*[®] and *Eye dew*[®]. It is of doubtful value.

Good eye care is essential at all times to manage blepharitis. Boiled and cooled water should be used to soak cotton wool and gently clean the eyelids for two to three minutes at a time (a few drops of baby shampoo may be added although there is a lack of evidence to guide this recommendation). A cotton bud should be used to gently clean the edge of the lower lid to remove any crusts. Occasionally antibiotic ointments may be required as bacterial debris from the eyelid infiltrates the conjunctiva. Choramphenicol ointment can be used for signs of eye infection in blepharitis sufferers.

7.2 DRY EYE ACTIVITY

What drugs would cause tear deficiency or aggravate dry eye syndrome?



7 EYES, EARS AND ORAL HEALTH

7.3 EAR CARE – EAR WAX AND EAR INFECTIONS

Ear wax is a combination of cerumen (produced in the external auditory canal by the ceruminous glands), sebum, desquamated corneocytes (the dead, flattened cells on the outer layer of the skin), sweat, hair, and foreign matter, e.g. dust that has been retained.

Ear wax is normal and needed to protect the ear canal but presents a problem if it causes deafness, pain or in some circumstances, prevents inspection of the ear by a healthcare professional, therefore requiring removal. A build-up of ear wax can be treated by products designed to soften the ear wax either alone or prior to syringing the ear. Factors such as wearing a hearing aid or using a cotton bud to clean the ear prevent normal extrusion of ear wax and can cause build up. It is more common in older people.

Otitis externa is inflammation of the ear canal due to superficial infection, allergy or irritation. Symptoms are itch, dullness of hearing, discharge and pain. Irritants may be shampoo, soap or water, as may be the case in swimmers, who can be advised to wear tight fitting caps and earplugs. It can be a recurring condition but sufferers should be advised to avoid irritants, keep the ear canal dry and avoid use of cotton buds.

Otitis media (inflammation of the middle ear) is characterised by severe ear pain and may be preceded by upper respiratory tract symptoms. Most cases occur in children aged under 10 years and it is one of the most common complaints in primary care. Symptoms include inexplicable crying, irritability or frequent tugging at the ear. Systemic symptoms such as fever, nausea and vomiting may be present. A perforated eardrum may result in discharge from the ear, but this will usually heal quickly once the infection resolves. 80% of middle ear infections will resolve with no treatment in three days.

DANGER SYMPTOMS

Possible long-term consequences of recurrent acute otitis media include atrophy and scarring of the eardrum; chronic perforation and otorrhoea (discharge from the ear); cholesteatoma (a skin growth behind the middle ear); and chronic or permanent hearing loss. Referral is warranted if symptoms are unresolved after three days or are severe.



Differential diagnoses

Presence of a foreign body in the ear would cause deafness and possibly pain. This is more likely in children and if suspected the child should be referred for examination.

Otitis externa (inflammation of the external ear canal or surface of the ear) or otitis media due to infection are more likely if there is pain present. Simple analgesia will usually be sufficient as this will usually be a self-limiting condition. Only if ear pain is severe or persisting for three or more days should referral be necessary.

Glue ear (otitis media with effusion) is a condition where the middle ear becomes filled with fluid that looks like glue. If this is suspected, e.g. if there is continuing dulled hearing, referral is necessary.

Treatment options

Products to soften the ear wax (cerumenolytics) are the most appropriate first-line choice for impacted ear wax. When urea-hydrogen peroxide (*Otex*[®], *Exterol*[®]) comes into contact with water, hydrogen peroxide is liberated, which has cerumenolytic activity in vitro. Cerumenolytics work by hydrating the desquamated sheets of corneocytes, which are the major constituent of cerumen plugs, and subsequently inducing keratolysis with disintegration of the wax.

There is little evidence to suggest superiority of one product. PRODIGY recommends *warm tap water, sodium chloride 0.9% or sodium bicarbonate ear drops*. They also include *olive oil* and *almond oil* as they are popular choices amongst patients. Organic solvents contained in some proprietary preparations can irritate the ear canal and therefore simple remedies are preferred. The advantage of proprietary preparations is that they contain instructions for use and an appropriate dropper which may be preferred by some patients.

People with nut allergies should not use almond oil. *Sodium bicarbonate ear drops* may cause dryness of the ear canal. The preparation should be applied generously, and then the patient should lie with the affected ear uppermost for five to ten minutes to allow the softening preparation to penetrate.

If deafness or pain persists, referral for irrigation after softening the wax may be necessary. Patients with a previously perforated ear drum should not have their ear irrigated and persistence with ear wax softeners may be more useful.

Simple analgesia is appropriate for ear pain, e.g. paracetamol or ibuprofen.

7 EYES, EARS AND ORAL HEALTH

PRACTICAL TIPS

Cotton buds should not be used to clean the ear of perceived excess ear wax as this results in ear wax being pushed back onto the ear drum and increases the likelihood of it becoming impacted. The ear is a self-cleaning system. Cotton buds may also scratch or irritate the external ear canal leading to inflammation which would aggravate the condition.

If otitis externa is a problem, avoidance of irritants will help, e.g. using ear plugs or cotton wool coated in white soft paraffin in the ear when showering or bathing. Cotton wool should not be left in the ear, as this does not allow discharge or debris to be cleared from the ear.

If a child is experiencing recurrent problems with acute otitis media, awareness of the risk factors may allow avoidance. These include:

- contact with a large number of other children, e.g. at nursery
- use of formula milk rather than breast milk
- use of a dummy
- feeding in a supine position

Refs: CKS [2007] Ear wax [PRODIGY Guidance]. Clinical Knowledge Summaries www.cks.nice.org.uk

The effectiveness of topical preparations for the treatment of earwax: a systematic review. Hand, C. and Harvey, I. Br J Gen Pract. 2004 November 1; 54[508]: 862-867

SIGN 66 [2003] Diagnosis and management of childhood otitis media in primary care.

GP COMMENT

Glue ear [otitis media with effusion] should be considered when a suspected middle ear infection is referred. The main symptoms in middle ear infection are presence of earache, irritability and fever. Glue ear causes chronic hearing loss, often with no other symptoms. There is often a relationship between recurrent ear infection and glue ear.



7.4 MOUTH ULCERS (APHTHOUS ULCERS)

Aphthous ulcers are painful, shallow, rounded and clearly defined lesions. They have a shallow necrotic centre covered with a yellow-greyish pseudomembrane and surrounded by raised margins. There may be one or more present and they will often recur.

They are most commonly seen in young adults. Causes include local trauma (physical or chemical), stress, hormone imbalance and stopping smoking. Some individuals may be prone to oral ulceration and there may be a familial link. A prodromal phase usually occurs 24-48 hours before the ulcer appears with burning or localised pain.

There are three main clinical types: the majority are minor aphthous ulcers which are 5-8 mm in diameter and heal in 10-14 days without scarring. Major aphthous ulcers are larger, have an irregular border, heal slowly over weeks and may lead to scarring. Herpetiform ulcers are rare and are multiple, pinpoint ulcers. They tend to merge to form much larger ulcers lasting 10-14 days.

DANGER SYMPTOMS

An ulcer lasting for more than three weeks needs routine referral to exclude oral cancer.



Differential diagnoses

Several childhood infections may present with spots in the mouth in addition to other symptoms such as increased temperature. If lesions are also seen on hands and feet, then it may be hand, foot and mouth disease. Chickenpox often occurs in the mouth, but spots will also be located over the body, particularly the trunk and face. Koplik's spots are one of the diagnostic features of measles, often seen before any other symptoms are present. They are small, irregular, red spots with a minute bluish white speck in the centre occurring on the buccal mucosa. Koplik's spots are generally asymptomatic. Fever, cough, runny nose and conjunctivitis will also be seen along with the rash in measles.

Oral malignancy is a possibility, particularly where there is a history of heavy smoking or alcohol consumption or where the sufferer is male and aged over 45 years. Ulceration that has persisted for longer than three weeks or that is very red, painful and swollen should be referred.

7 EYES, EARS AND ORAL HEALTH

Some systemic conditions present with aphthous-like ulcers as a symptom. These include vitamin B₁₂, folate, or iron deficiency, coeliac disease, Crohn's disease, ulcerative colitis or other malabsorption syndromes. Zinc deficiency was thought to be responsible for recurrent mouth ulcers, but treatment with zinc sulphate therapy was not clinically effective.

Drug reactions are sometimes the cause of aphthous-like ulcers. NSAIDs, nicorandil, sodium lauryl sulphate (in toothpastes) and oral nicotine replacement therapy have been reported to induce ulceration.

Treatment options

Treatment choice depends on severity of pain with the ulcer, accessibility of ulcer site, number of ulcers and patient preference.

Topical corticosteroids – aid healing and give pain relief. They are best applied as soon as the prodromal sensations are felt. Hydrocortisone muco-adhesive buccal tablets should be sucked and allowed to dissolve slowly in the mouth in contact with the ulcer four times a day.

Local analgesics applied topically have a short duration of action. *Benzydamine* [Diffiam®] mouthwash or spray can help to alleviate the pain and discomfort of mouth ulcers, particularly those which are hard to reach. It may cause stinging at full strength and can be diluted with equal parts of water to reduce this effect. The mouthwash is not suitable for children under 12 years and the spray is not suitable for children aged under six years.

Choline salicylate gel [Bonjela®] may be applied every three hours, with a maximum of six applications daily to avoid salicylate poisoning. It should not be applied to dentures. Only for use in adults and young people over the age of 16 years [see CSM advice on p61, section 4.2]

Antiseptic mouthwashes can help with oral hygiene and treat or prevent secondary bacterial infection which would increase discomfort and delay healing of the mouth ulcers. *Chlorhexidine* can stain the teeth brown, and although this is reversible, it can be minimised by avoiding drinks containing tannin, e.g. tea, red wine, and by regular teeth brushing followed by rinsing the mouth. *Povidone iodine* should not be used for longer than 14 days to avoid significant absorption of iodine.

Mechanical protection. *Alocclair*[®] mouthwash forms a protective mechanical barrier of *polyvinylpyrrolidone* (PVP) over oral lesions therefore offering pain relief.

PRACTICAL TIPS

Avoid precipitating factors, e.g. by use of a softer toothbrush.

Suggest a visit to the dentist if a sharp tooth or filling is causing recurrent problems.

Reducing stress with relaxation techniques may be useful.

If there are obvious food causes, these should be avoided in the diet.

Ref: Scully, C. and Shotts, R. (2000) ABC of oral health: mouth ulcers and other causes of orofacial soreness and pain. British Medical Journal 321(7254), 162-165.

7 EYES, EARS AND ORAL HEALTH

7.4 MOUTH ULCERS ACTIVITIES



Why should choline salicylate gel not be applied to dentures?



Why can children under 16 years not use a salicylate in this form?

7.5 DRY MOUTH (XEROSTOMIA)

Dry mouth may have a number of causes. Sufferers may have difficulty eating or speaking. People who suffer from a dry mouth may develop poor oral hygiene, leading to increased incidence of dental caries, halitosis and oral infections, e.g. candidiasis. It may commonly occur as a side effect of drugs, such as tricyclic antidepressants, antihistamines, antimuscarinics and diuretics.

Doses may be adjusted or therapy reviewed if this side effect is unbearable. Other causes are:

- radiotherapy to the head or neck which can damage the salivary glands
- mouth breathing which can be due to a blocked nose or other causes
- anxiety
- dehydration
- Sjögren's Syndrome, a condition which can affect various parts of the body including the joints, the salivary glands (which can cause a dry mouth), and the tear glands (which can cause dry eyes).

Treatment options

Ideally, the underlying cause should be treated,* however, measures to improve the symptoms are important where removal of the cause is difficult. The practical tips suggested below are probably the most useful.

Artificial saliva. There is limited benefit with the use of artificial saliva. Sugar-free chewing gum gives as much relief in the majority of cases. The mucin-based products [*AS Saliva Orthana*®] are preferred over the carmellose-based products which were reported by patients to be sticky, but still only give 10 to 15 minutes relief. There is only one artificial saliva product currently licensed for any condition giving rise to dry mouth [*Luborant*® which is carmellose based].

PRACTICAL TIPS

Taking frequent sips or sprays of cold water or sucking ice-cubes will help.

Sugar-free chewing gum is often helpful as this stimulates the production of saliva (in patients with salivary function). Boiled sweets may also be helpful but will not be good for dental health.

Eating fresh pineapple chunks or partly frozen melon is often soothing and helpful.

Caffeine and alcohol has a diuretic effect which can be dehydrating, therefore cutting down on tea, coffee, cola and alcoholic drinks may help.

Petroleum jelly or lip salve applied to lips will help prevent drying and cracking.

* This symptom would be unlikely to qualify for treatment under MAS in Scotland.

7 EYES, EARS AND ORAL HEALTH

7.6 OROPHARYNGEAL CANDIDIASIS

Acute pseudomembranous candidiasis (thrush), is classically an acute infection. Symptoms vary, ranging from asymptomatic infection to a sore and painful mouth with a burning tongue and altered taste. White discrete plaques on an erythematous background are usually seen on the buccal mucosa, throat, tongue or gums.

Oral thrush may persist for months in patients receiving inhaled corticosteroids, cytotoxics or broad-spectrum antibacterials. The predisposing cause should be dealt with, e.g. by medication review. Rinsing the mouth with water, regular use of a mouthwash or cleaning teeth immediately after using a corticosteroid inhaler may avoid the problem. Smoking is a risk factor for all candidal infections. Candidiasis is most common in infants, denture wearers and the elderly.



DANGER SYMPTOMS

Oral thrush can be a symptom of serious systemic disease associated with reduced immunity such as leukaemia, other malignancies, and HIV infection.

Differential diagnoses

Candidiasis in babies is sometimes confused with milk curds which would be easily scraped away. Oral thrush plaques would leave a sore, reddened area underneath.

Leukoplakia is a white patch or plaque on the mucosa that cannot be rubbed off. It may be caused by chronic exposure to irritants, particularly tobacco, or by chronic infections, particularly oral candidiasis. It is commonly benign, but may be pre-malignant.

Treatment options

Oral thrush responds well to treatment with *miconazole* 2% oral gel which is available OTC. The gel should be used after food or drink and held in the mouth for as long as possible. Treatment should continue for two days after clearance. Miconazole gel is not licensed for treatment in neonates and babies up to four months old and only with care between four and six months old, due to the potential risk of ingestion and choking due to the viscosity of the gel (referral will be required for POM treatment). If treatment is for a breastfeeding baby over six months old, a small amount of gel should be gently applied to the surfaces of the mouth, avoiding touching the back of the throat with the gel or the finger to eradicate infection.

Miconazole also has some activity against Gram-positive bacteria including *Streptococci* and *Staphylococci*. Interaction between miconazole oral gel and warfarin has been reported, resulting in an increase in INR (International Normalised Ratio). Warfarin users should inform their INR clinic or be referred for alternative treatment.

PRACTICAL TIPS

Advice on denture hygiene may prevent re-infection. Dentures should be removed before treatment with miconazole gel.

Diabetics who are suffering from oral candidiasis may need review of their treatment to achieve tighter blood glucose control.

7 EYES, EARS AND ORAL HEALTH

7.7 AXIAL CHEILITIS (ANGULAR STOMATITIS)

Axial cheilitis, also known as angular stomatitis, is erythema and maceration of the skin adjacent to the angle of the mouth, often occurring bilaterally. It appears as cracked fissures at the corners of the mouth which may crust and bleed and can be painful. It is often seen in the elderly where sagging facial muscles and ill-fitting dentures, which produce a fold in the angle of the mouth, are predisposing factors.

Young children are prone to a less severe form of the infection. Licking the lips to soothe the area can predispose to the infection, often appearing as chapped lips. The most common causes are dry skin, eczema and lip licking. *Candida* infection is often isolated but where there is crusting, secondary infection with *Staphylococcal aureus* must be considered. Less common causes of angular stomatitis include allergy, atopic or seborrhoeic dermatitis, vitamin B deficiency or iron deficiency.

Differential diagnoses

The condition is often mistaken for cold sores, therefore careful questioning on history, previous infection with cold sores, appearance and symptoms is important.

Treatment options

Antifungal cream, such as *clotrimazole 1%* should help. If this does not improve symptoms within one week, refer to the GP as the cause is then more likely to be bacterial.

PRACTICAL TIPS

Advising the patient to avoid licking their lips will help prevent recurrence. Use of a paraffin-based protective lip balm can help to protect the lips. If poorly fitting dentures are a suspected cause, a visit to the dentist should be recommended for re-fitting.

Improved dental hygiene, e.g. using mouthwashes and xylitol-containing gums after meals, has also been suggested to treat and prevent recurrence of axial cheilitis although there is limited evidence to support this.

GP COMMENT

Treatment using hydrocortisone with or without clotrimazole is often most effective, depending on the predisposing factors. This indication, however, would be outside the terms of OTC licenses.



7.8 SORE THROAT

A sore throat is usually a symptom of an acute upper respiratory tract infection. It may occur alone or be accompanied by other symptoms such as sinusitis, cough and headache. Infection may be viral or bacterial and there is no evidence that duration or severity is significantly different in either case. Clinical examination is unlikely to be able to differentiate between bacterial and viral sore throat. Other causes of sore throat may be GORD, physical or chemical irritation.

Sore throats are self-limiting, usually resolving within one week. A Cochrane systematic review found that the absolute benefit of antibiotics for treatment of sore throats was modest. The maximum benefit was seen by day three of treatment, with an average reduction in illness time of one day. The use of antibiotics also increases the risks of adverse effects and has implications for wider bacterial resistance in the community. Many patients find symptomatic relief with analgesics helpful and there are many demulcent and soothing throat preparations available.

DANGER SYMPTOMS

The most useful danger symptom to be aware of is high temperature in the systemically unwell which will be present in glandular fever, epiglottitis or quinsy. If a patient presents with sore throat along with breathing difficulties, urgent referral is necessary as this may be a sign of acute epiglottitis or other serious upper airway disease. Urgent referral is also required if the patient is unable to swallow – careful questioning is required.



Differential diagnoses

Infectious mononucleosis (glandular fever) is a cause of viral sore throat, especially in adolescents or young adults. In up to 80% of cases there may be a sore throat that inhibits swallowing. Other symptoms include loss of appetite, malaise, chills, headache, fever, regional lymphadenopathy (abnormal enlargement of the lymph nodes), swelling around the eyes, nausea and vomiting. Epstein-Barr virus causes the condition, which may result in up to six months of malaise. Referral is necessary for a routine appointment if this is suspected.

A quinsy is a tonsillar abscess, requiring drainage and antibiotic treatment. The patient has a temperature and is unwell, and one tonsil is usually significantly enlarged, and may appear tense. Immediate referral is necessary.

Blood dyscrasias such as neutropenia and agranulocytosis as a result of bone marrow suppression can also present as a sore throat. The BNF carries a warning of this in respect of carbimazole. Urgent referral is necessary.

7 EYES, EARS AND ORAL HEALTH

Treatment options

Oral analgesics, such as paracetamol and NSAIDs are effective at relieving the pain of a sore throat. One preparation is available which contains an NSAID, *flurbiprofen* [Strefen®], for topical use, as a lozenge. A maximum of five lozenges may be used per day for a maximum of three days. SIGN recommends paracetamol as first-line choice and notes that NSAIDs are not routinely recommended.

Local anaesthetics, e.g. *benzocaine* and *lidocaine*, are contained in aerosol sprays or throat lozenges. They should not be used if sensitivity reactions are suspected and should not be used for longer than five days. Side effects include allergic reactions and local irritation.

Local antiseptics, e.g. *benzalkonium chloride* and *hexylresorcinol*, are contained in throat lozenges. The theory is that they will prevent secondary bacterial infection but their value is questionable. Sucking any pastille or lozenge will help to stimulate salivary flow, which in itself will be helpful.

Glycerin, honey and lemon preparations are also available. These are useful *demulcents* which give short-term relief. They may be particularly useful for children, pregnant women and breastfeeding mothers.

There is little evidence to support the use of *gargles*. Gargling with salt water or aspirin is anecdotally reported to relieve pain. One small study found that benzydamine as a gargle for sore throat resulted in significantly greater relief of pain and dysphagia at 24 hours than placebo.

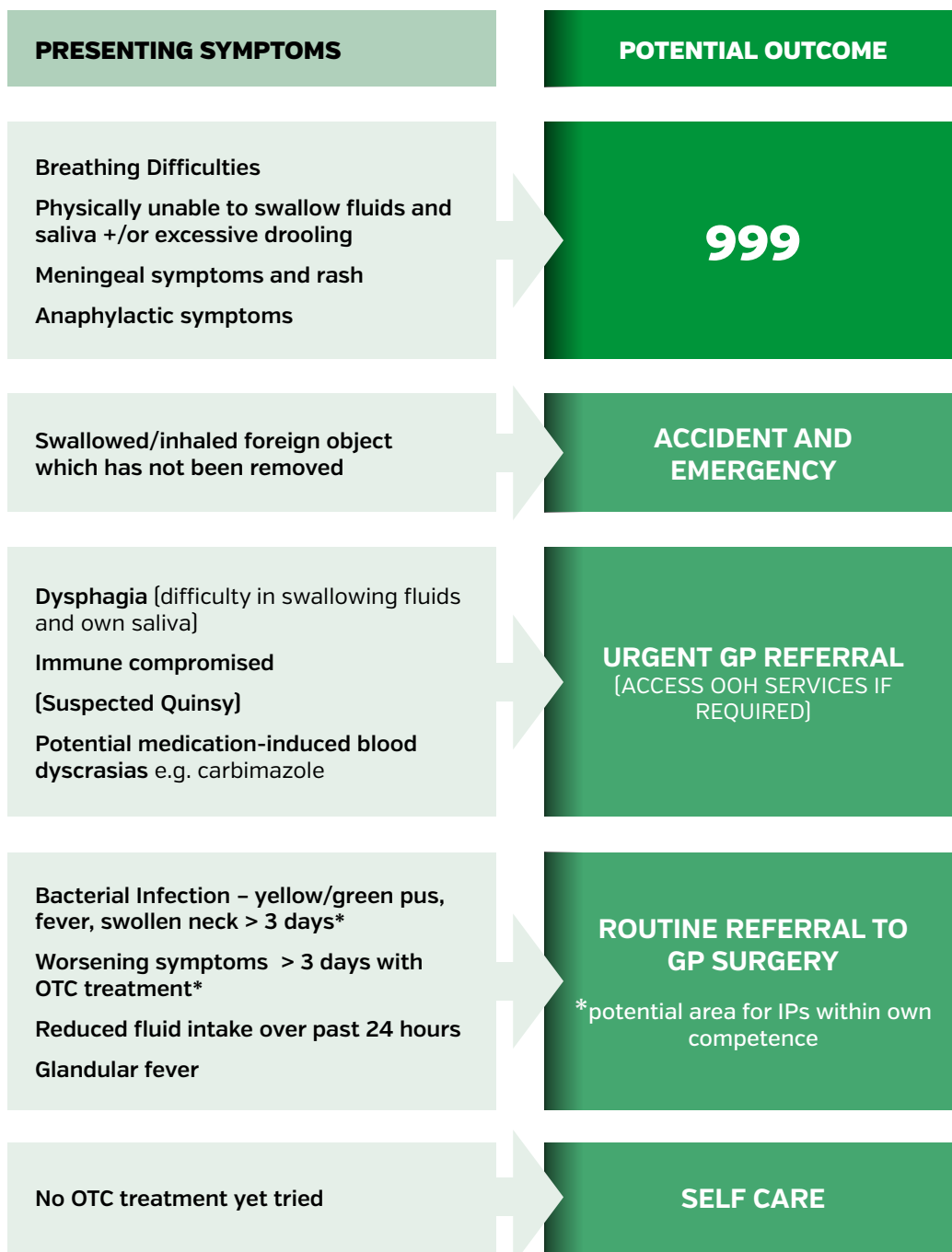
GP COMMENT

Refer patients with an accompanying fever to their own GP to rule out more serious systemic causes.

Ref: SIGN 34
Management of Sore
throat and indications
for tonsillectomy



7.8 SORE THROAT ALGORITHM



7 EYES, EARS AND ORAL HEALTH

CASE STUDIES



Case Study 11

A young mum brings her six-month-old baby for you to look at. The mother is breastfeeding and has noticed that there are white patches on the inside of the baby's mouth. The baby has been more irritable and fretful at feeds in the last couple of days. She suspects oral thrush and asks if there is any treatment. On examination, you confirm the mother's diagnosis and you offer *miconazole gel*.* A 1.25ml amount is to be applied in the mouth, using a clean finger, gently twice daily. Treatment is to continue for 48 hours after the lesions have cleared up. She also reports a shooting pain in her breast and wonders if this could be related, which it may well be, but treatment of the infant should resolve this. If the pain persists, routine referral to the health visitor or GP may be needed. You ask about how breastfeeding is going in general in case there is need for support with this (e.g. breastfeeding support groups or consultation with health visitor), but mum feels that feeding is well established and is very happy with how easy it is now [after some hard work at the beginning]. *Ref: BNF for children, accessed online July 2015*



Case study 12

Mrs Donaldson is known to you and asks about her five-year-old son, who is complaining of earache. There is no sign of discharge or redness. He has a slight fever and has been suffering from cold symptoms over the previous week. It is likely that he has developed otitis media, for which you recommend* *ibuprofen 100mg/5ml suspension* and advise a 7.5ml dose three times a day. Mrs Donaldson wonders whether she should make an appointment with the GP for antibiotics, but you explain that this should not be necessary as most ear infections clear up within three days. If the symptoms persist beyond this and there is no improvement, an appointment could then be sought.

Case study 13

An elderly gentleman is collecting his repeat prescription for his hypertension medication. It is a windy day and he comments that he hates this kind of weather as it really nips his eyes and they stream quite badly, often making the skin around the eye red, sore and irritated. On further questioning he comments that he frequently gets watery, gritty eyes, finds it worse in windy conditions or when he visits his brother who smokes, but that he just “makes do” with his symptoms. Both eyes are affected and he does not have any sticky discharge. Due to the trigger of environmental factors you believe that he has dry eyes and explain that this is a common condition, as we get older. He does not wear contact lenses and so you recommend* *hypromellose drops* and advise him to apply one drop to both eyes regularly and particularly before going outdoors on a windy day or into smoky atmospheres.



* In Scotland, you can supply these products within the Minor Ailment Service (MAS).

7 EYES, EARS AND ORAL HEALTH

SUGGESTED RESPONSES TO EARS, EYES AND ORAL HEALTH ACTIVITIES



What drugs would cause tear deficiency or aggravate dry eye syndrome?

Drugs which can cause decreased tear production:

- diuretics ▪ oestrogen ▪ beta-blockers
- antimuscarinics [e.g. antihistamines, tricyclic antidepressants]

Drugs that can aggravate symptoms of dry eye:

TOPICAL PREPARATIONS:

- antihistamines
- glaucoma medications
- vasoconstrictors
- corticosteroids

SYSTEMIC PREPARATIONS:

- antihistamines
- diuretics
- oestrogens
- androgen antagonists
- antidepressants
- cardiac arrhythmic drugs
- isotretinoin
- beta-blockers



Why should choline salicylate gel not be applied to dentures?

Excessive application or retention of the gel under a denture irritates the oral mucosa and can itself cause ulceration. Once the gel is applied, 30 minutes should be left before re-insertion of dentures.

Ref: BNF 53 September 2007.



Why can children under 16 years not use a salicylate in this form?

CSM warning on topical oral pain relief products containing non-aspirin salicylates salts, such as teething gels, states that they should not be used in children under 16 years as a cautionary measure due to the theoretical risk of Reye's syndrome.

Ref: BNF 69 March 2015.

OBJECTIVES

After completing this section you should be able to:
Recognise, manage and advise on the symptoms of

- ECZEMA
- CONTACT DERMATITIS
- SEBORRHOEIC SCALP CONDITIONS, CRADLE CAP
- PSORIASIS
- URTICARIA
- WARTS AND VERRUCAS
- NAPPY RASH
- ACNE VULGARIS
- BURNS AND SCALDS
- SUNBURN
- BITES AND STINGS

itches scratch
rashes swelling
spots
itches sting
rashes pimples
pimples itches
sting scratch

8 SKIN

8.1 ECZEMA

Atopic eczema is a chronic, relapsing, inflammatory skin condition characterised by an itchy red rash, which is often found in skin creases such as the folds of the elbows or behind the knees. It is associated with other atopic disease such as asthma and hayfever. A tendency to dry skin results from a reduced lipid barrier that increases transdermal water loss and lowers resistance to irritant substances.

Triggers for atopic eczema are irritants such as soap, extremes of temperature, stress and hormone changes in women. Inhaled allergens such as house dust mites, pollens, pet dander, and moulds may also aggravate atopic eczema. It is most common in children and often involves the face and scalp.

DANGER SYMPTOMS

Secondary bacterial infection may occur which would require referral for treatment, possibly presenting as impetigo or worsening of eczema, with increased redness and crusting.

Differential diagnoses

It is important to distinguish between eczema and psoriasis, contact dermatitis, seborrhoeic dermatitis, fungal infections, scabies and other infestations.

Treatment options

The aim of management of eczema is to control skin dryness and itching and reduce the frequency of flare-ups. Emollients should be applied frequently and use should be encouraged as part of the daily routine. Topical emollients should be applied after bathing to prevent evaporative water loss. Bath emollients are good for widespread dry areas.

The lipid content of emollients varies. Ointments tend to have less patient acceptability but have a higher lipid content than lotions and creams. Patients may use a combination of formulations, e.g. an ointment as a soap substitute and a cream for use during the day. Creams are less likely to stain clothing. Antiseptics are added to some products to theoretically reduce *Staphylococcal aureus* carriage. Urea may be added to act as a hydrating agent.

A mildly potent corticosteroid can be recommended for adults and children over 10 years for acute flare-ups, applied once or twice daily for a maximum of one week (OTC licence). *Hydrocortisone 1%* and *clobetasone butyrate 0.05%* are both licensed for OTC use in eczema. They cannot be recommended OTC in pregnancy, for the face or anogenital areas. Skin thinning is a commonly associated adverse effect with topical corticosteroids, however this is associated with use of more potent corticosteroids over a period of four weeks or more. Topical corticosteroids may worsen acne and rosacea. When using topical corticosteroids, the patient should wait for 30 minutes before applying emollients to avoid diluting the steroid.



**Infected Eczema****PRACTICAL TIPS**

Avoid irritation to the skin by using an emollient soap substitute and advising the person to:

- use gloves when handling irritants such as detergents
- avoid extremes of temperature and humidity
- use non-abrasive clothing fabrics, such as cotton
- reapply emollients after wetting the skin

Bath emollients can create a slippery surface therefore users and family members need to take extra care in the bathroom, and the bath should be cleaned thoroughly after use to reduce the risk of slipping. A bath mat or handrails may be useful.

Avoidance of biological washing powder is not necessary. There is no evidence that vitamin and mineral supplementation, for instance, with evening primrose oil or vitamin E helps symptoms.

If food sensitivity is suspected through observation or food diaries, dietary exclusion may be practical but should ideally be done with the advice of a dietician. Common food culprits are cows' milk, eggs, soya, wheat, fish, and nuts. Even when following a food exclusion diet, regular skin care with emollients is still the mainstay of treatment.

8 SKIN**SPECIAL CONSIDERATIONS:****Children**

Children with eczema often have dry, itchy skin. In babies, eczema may start with a dry itchy rash on the cheeks, which spreads all over the body. As the child gets older, distinct patterns are often seen, e.g. patches in the flexures of the elbow and behind the knee. Children will often grow out of eczema. There is frequently a familial link and the child will have an increased tendency to suffer atopic illnesses such as asthma and hayfever. Treatment with the routine use of emollients will prevent skin dryness and should reduce the itch, which will help any associated sleep disturbance.

Exclusive breastfeeding for at least three months may reduce the risk of eczema in infants with a family history of eczema. A systematic review of prospective cohort studies (4,158 infants) found a significant reduction in the risk of atopic eczema developing after a mean of 4.5 years. However, subgroup analysis found that the preventive effect was significant only in children with a family history of atopic eczema.

GP COMMENT

Crusted yellow lesions may be suggestive of impetigo although this will be hard to distinguish from a flare-up of eczema. Impetigo should be referred to the GP for a routine appointment. If there is suspicion that the eczema is infected, refer to the GP for antibiotic treatment otherwise the flare-up will not resolve.

*Ref: Smethurst, D.
and Macfarlane, S.
(2003) Atopic eczema.
Clinical Evidence
10(Dec), 1785-1803*



8.1 ECZEMA ACTIVITIES

Look at the various emollients which are available, including topical, bath and shower products. Note down when you would recommend the different products to patients, either developing your own individual formulary or examining the products you tend to choose and why. There may be a local formulary in your area to consult and compare your selection to.



What are the relative potencies of the topical corticosteroids available over the counter?



8 SKIN**8.2 CONTACT DERMATITIS**

Contact dermatitis occurs in response to external irritants or allergens interacting with the skin. It is an itchy rash often with crusting, scaling, cracking, or swelling of the skin.

Allergic contact dermatitis is a type IV hypersensitivity reaction that occurs in predisposed individuals after sensitisation with an allergen.

Irritant contact dermatitis is more common and is a non-immune inflammatory response to damage to the skin, usually caused by chemicals. It may be associated with certain occupations, e.g. hairdressing or cleaning, because of the regular wetting of skin and exposure to soap and detergents. The dermatitis may improve with a change of environment or activity. Contact irritant dermatitis is often easy to recognise from the distribution of the rash. Common irritants and allergens are listed in Table 1 on p157.

**DANGER SYMPTOMS**

Secondary bacterial infection is possible if the skin is broken by scratching and is seen as a particularly red, oozing and inflamed area.

**Differential diagnoses**

Psoriasis, atopic eczema, fungal infections, and other types of dermatitis, such as seborrhoeic dermatitis.

Treatment options

Remove the irritant if possible. Dry skin should be managed with emollients. Topical corticosteroids can be used to treat localised inflammation, as long as there is no broken skin or sign of infection. It should be applied once or twice a day for up to seven days in adults and children over the age of 10 years.

PRACTICAL TIPS

Avoidance of allergens or irritants is advisable but may be difficult. Other measures to help minimise the dermatitis include:

- rinsing with water or washing with soap as soon as possible after contact (but overuse of skin-cleaning agents can aggravate contact dermatitis)
- using soap substitutes
- replacing strong irritants with weaker ones
- reducing the duration and frequency of contact with an irritant
- using gloves and other forms of protective clothing



**Allergic Contact
Dermatitis – Hairspray**

Table 1: Common irritants and allergens

[CKS (2005) Contact dermatitis (PRODIGY Guidance). Clinical Knowledge Summaries Service. www.cks.library.nhs.uk/dermatitis_contact]

IRRITANTS	ALLERGENS
Water (especially hard, chalky, and heavily chlorinated water)	Metals (e.g. nickel and cobalt in jewellery, chromate in cement)
Detergents and soaps	Topical medications, including topical corticosteroids
Solvents and abrasives	Cosmetics, particularly fragrances, hair dyes, preservatives, and nail varnish resin
Oils	Rubber, including latex
Acids and alkalis, including cement	Textiles, particularly from dyes and formaldehyde resins
Reducing agents and oxidizing agents, including sodium hypochlorite	Epoxy resin adhesives
Powders, dust, and soil	Acrylic and formaldehyde present in adhesives and plastic resins
Certain plants (e.g. ranunculus, anemone, clematis, helleborus, mustards)	Plants, e.g. chrysanthemum, daffodils, tulips, and primula

8 SKIN

8.3 SEBORRHOEIC SCALP CONDITIONS, CRADLE CAP

Seborrhoeic dermatitis occurs in areas of the skin with a rich supply of sebaceous glands and manifests as red, sharply margined lesions with greasy looking scales. On the scalp or eyebrows it appears as dry, flaking desquamation (dandruff is considered to be a mild form of seborrhoeic dermatitis) or yellow, greasy scaling with erythema.

The causative organism in the majority of cases is thought to be *Malassezia (Pityrosporum) ovale*. It is a chronic condition which often flares up or remits spontaneously. It is more common in men than women and often occurs in conjunction with skin conditions such as blepharitis, rosacea and acne vulgaris. Most babies have a mild form of seborrhoeic dermatitis in the first six months of life, known as cradle cap. It does not cause discomfort and is not harmful and will generally resolve itself by about eight months of age. An associated rash may also sometimes occur, present on the eyebrows, nose or nappy area.

DANGER SYMPTOMS

There may be secondary bacterial infection with increased redness and crusting. Referral may also be necessary because of the impact of the condition on the person's self confidence and esteem, especially if OTC treatment has not been effective.

Differential diagnoses

Psoriasis, eczema and scalp ringworm (tinea capitis).

In tinea capitis, infected areas of the scalp present with red round or oval patches, with hair loss or scaling. There is often alopecia at the site of infection as infected hairs are fragile. It is a problem in pre-pubertal children, particularly in the immigrant population. *T. tonsurans* and *Microsporum canis* are possible causative organism, transmitted from pets, particularly cats. Tinea capitis infection requires referral for systemic antifungal treatment; additional topical application of an antifungal may reduce the risk of transmission.

Treatment options

Ketoconazole 2% shampoo (e.g. *Nizoral*[®]) has been shown to be efficacious, safe and well tolerated for the treatment and prophylaxis of the *Malassezia* yeast. It is the treatment of choice and may be supplied OTC for the prevention and treatment of dandruff and seborrhoeic dermatitis, with a maximum frequency of application of once every three days.

Selenium sulphide (*Selsun*[®]) is as efficacious as ketoconazole but is not as well tolerated. It may be a useful second-line treatment.

Pyrrithione zinc containing shampoos (e.g. *Head and Shoulders*[®]) will often control mild seborrhoeic dermatitis when used daily or every other day.





Cradle cap

Tar shampoos [e.g. *Polytar*[®], *T/Gel*[®]] are widely available but there is little evidence to support their use over antifungal preparations. They are usually applied once or twice weekly.

Cradle cap in infants may be treated with an oil such as olive or arachis oil to soften the plaques, followed by shampooing with a gentle baby shampoo. There are some proprietary cradle cap preparations available, e.g. *Dentinox*[®] cradle cap shampoo [containing surfactants] and *Metanium*[®] cradle cap cream [contains salicylic acid 1.5%]. Gentle brushing with a baby hair brush after shampooing may improve the appearance of the rash.

PRACTICAL TIPS

Daily washing with soap and water helps to remove the lipid substrate used by the yeast.

GP COMMENT

Seborrhoeic dermatitis is more common in patients with HIV and is more widespread in these patients, with a rapid onset. This rare possibility should be borne in mind if patients are presenting with a widespread case of seborrhoeic dermatitis. Oral imidazoles are likely to be used.

Ref: McGrath, J. and Murphy, G.M. (1991) The control of seborrhoeic dermatitis and dandruff by antipityrosporal drugs. Drugs 41[2], 178-184



8 SKIN

8.4 PSORIASIS

There are several forms of psoriasis and an affected individual may move from one form to another, e.g. it may change from stable plaques to an unstable form, with eruptive lesions which are irritated by topical treatment. Patients will often suffer flare-ups, which can go into remission unexpectedly.

Chronic plaque psoriasis is characterised by the appearance of scaly red patches, covered with silver, white scales, located on the extensor surfaces of the body and scalp. The patches may be itchy and can crack and bleed. The lesions are characterised by cells multiplying too quickly (epidermal hyperproliferation), cells not maturing normally (abnormal keratinocyte differentiation) and the presence of cells which cause inflammation.

There may be nail pitting and separation of the nail from the nail bed in approximately one third of sufferers. In 1-10% of sufferers, psoriatic arthritis may occur, where there is pain and swelling in the joints as well as inflammation of the tendons, commonly affecting the fingers.

Guttate (exanthematous papulosquamous) psoriasis, where small plaques are found all over the body, often appears post *streptococcal* infection, and is a self-limiting condition. Scalp psoriasis can occur alone or in combination with another form of psoriasis and looks like severe dandruff.

There may be a family history of the disease, but physical trauma, acute infection, and some medications (e.g. beta blockers, NSAIDs, lithium salts and chloroquine) are believed to trigger the condition. A few observational studies have linked the onset or relapse of psoriasis with stressful life events and personal habits, including cigarette smoking and, less consistently, alcohol consumption. Psoriasis can have a major impact on quality of life, depending on the site of the lesions and the attitude of the patient.



DANGER SYMPTOMS

Routine referral in mild to moderate psoriasis is generally only needed for treatment failure if the patient is concerned.



Psoriasis

Differential diagnoses

Atopic eczema, seborrhoeic dermatitis, fungal nail infections are all possibilities. A previous diagnosis of psoriasis by the GP would normally be expected.

Treatment options

Treatments aim to induce remission, as there is no cure for psoriasis. Under-treatment or incorrect application is often a cause of treatment failure, therefore careful instruction is necessary. Acute flare-ups could be treated with OTC treatment, where appropriate.*

Emollients are used to soften scaling and reduce skin irritation.

[See section 8.1, treatment options]

Tar-based preparations have anti-inflammatory and anti-scaling properties. A tar-based shampoo is first line for scalp psoriasis (e.g. *Polytar*[®]). Regular emollient use is likely to be supplied under a repeat prescription.

Keratolytic agents, such as *salicylic acid*, are useful where there is significant scaling.

Dithranol is an effective treatment for chronic plaque psoriasis which is believed to act through inhibition of DNA synthesis. It is extremely irritant, especially to flexures, and contact with normal skin must be avoided, as it is irritant and may cause staining, burning and severe blistering. It is not suitable for widespread small lesions or the face. Vitamin D analogues such as *calcipotriol* are a POM treatment used for chronic stable plaque psoriasis and are often more acceptable to the patient than tar or dithranol products because they do not smell or stain clothing. None of these products should be used during an inflammatory phase of psoriasis when frequent and generous emollient use is recommended.

Refs: Online BMJ Clinical Evidence. Psoriasis (chronic plaque). Naldi L and Rzany B. March 2006 - cited Naldi L, Chatenoud L, Linder D, et al. Cigarette smoking, body mass index, and stressful life events as risk factors for psoriasis: results from an Italian case-control study. J Invest Dermatol 2005;125:61-67.

Mason AR, Cork MJ, Dooley G, Edwards G, Mason JM. Topical treatments for chronic plaque psoriasis. [Protocol] Cochrane Database of Systematic Reviews 2004, Issue 1.

GP COMMENT

Topical corticosteroids, which are not licensed for OTC supply in psoriasis, may be used to suppress psoriasis in the short term. They should not be used on large areas of body due to risk of systemic absorption and the condition may be exacerbated once treatment is discontinued.

* Treatment for acute flare-ups can be treated under the Minor Ailment Service (MAS) in Scotland, where appropriate.




8 SKIN

8.4 PSORIASIS ACTIVITIES



What are the instructions for application of dithranol?



The British Association of Dermatologists website contains useful links to a variety of patient information leaflets which may be useful for your patients. Go to www.bad.org.uk and click on 'patient information leaflets' to have a look at these.

8.5 URTICARIA

Urticaria is itchy skin accompanied by superficial swelling, also referred to as hives. The rash usually appears suddenly and can affect any area of skin. Small raised areas called weals develop on the skin, which look like mild blisters. The 'weal and flare' rash of urticaria looks similar to the rash caused by a nettle sting. The weals usually disappear within 24 hours but others may appear. They occur in response to various factors including allergies

DANGER SYMPTOMS

Angio-oedema may accompany urticaria and if this causes swelling which affects the tongue or throat, there may be difficulty breathing. In this case urgent referral, often by a 999 call for an ambulance, is necessary.

If the urticaria persists for longer than six weeks, refer.



Differential diagnoses

Allergic contact dermatitis may be hard to distinguish from urticaria.

Chronic pruritus may be confused with urticaria. Pruritus, which is severe itching, may be caused by systemic disease, drug hypersensitivity or as an effect of skin disease such as eczema and scabies.

Treatment options

Oral *antihistamines* are the first-line treatment, counteracting the histamine released in the mast cell activation in urticaria. Non-sedating antihistamines (*acrivastine, cetirizine, loratadine*) are preferred, although some patients may still experience some drowsiness.

Oral antihistamines are best avoided in pregnancy, particularly in the first trimester, but if needed, chlorphenamine has the most experience of use in pregnancy.

Topical *corticosteroids* are of no value in the treatment of urticaria.

Topical *calamine lotion* may help to relieve the itch.

8 SKIN



Urticaria

PRACTICAL TIPS

A cool bath or shower will often help the symptoms.
Avoid causative factors such as stress, overheating and tight clothing.
Aspirin and codeine may aggravate urticaria and should be avoided.
Keep a food diary to aid in identification of particular foods as possible trigger factors.

GP COMMENT

Urticaria is often one of the symptoms presenting along with anaphylaxis reactions, such as breathing difficulties, in peanut allergy.



8.6 WARTS AND VERRUCAS

Warts are caused by the human papilloma virus (HPV) and frequently affect the hands, feet and anogenital area. Warts can be transmitted by contact and is particularly likely where the skin barrier and/or immune system is weakened.

- Common warts appear as firm, rough, raised papules with a cauliflower like surface, up to 10mm in diameter. Tiny black dots may be seen on the surface.
- Plantar warts, commonly called verrucas, are found on pressure areas such as the soles of the feet. The warts grow inwards and appear as a small area of horny, rough skin and can be painful. Small black dots can be seen if the thickened skin is removed.
- Plane warts are small, slightly raised, smooth skin coloured plaques usually found on the face and back of hands. They are usually asymptomatic.
- Genital warts often appear in large clusters and may extend to the perianal area. These require referral for treatment.
- Molluscum contagiosum is a viral skin infection caused by a pox virus. It appears as small, raised, smooth, pink papules and on the face, neck or trunk. A central spot is apparent which is characteristic of the condition. The lesions can be squeezed although the condition should resolve without intervention over a period of months.

DANGER SYMPTOMS

Routine referral is required for warts on the face and anogenital area.



Differential diagnoses

Seborrhoeic warts occur from middle age and appear as raised flat areas. They may be skin coloured or pigmented and can be found on the trunk, head, neck or arms. Treatment (by excision or cryotherapy) is only required if cosmetically unacceptable or problematic because of site.

Hand, foot and mouth disease presents with lesions on these sites that look like small blisters with a surrounding red ring. It is caused by the Coxsackie virus and resolves spontaneously in one to two weeks. It is infectious during this time; so direct contact with others should be avoided.

Treatment options

If a wart is not causing pain or problems, treatment may not be necessary.

Warts often resolve spontaneously and recurrence rate with all therapies is high. There are no specific antiviral agents and the treatment is based on local tissue destruction.

8 SKIN



Wart of the heel

Salicylic acid based products are common first-line choices, e.g. *Salactol*[®]. They should be applied daily, protecting healthy skin with either petroleum jelly or a plaster with a hole cut in it.

Other agents available are *glutaraldehyde* and *lactic acid*. Some products contain a combination of agents, e.g. *Bazuka*[®]. These products should be used for up to three months before an alternative is considered.

Cryotherapy, freezing the wart using liquid nitrogen, is carried out by some GP surgeries. It can be painful so will not be a first-line choice for young children. OTC preparations using the same principle are available [e.g. *Wartner*[®], containing dimethyl ether and propane].

PRACTICAL TIPS

Warts are contagious and preventing their spread is important. A waterproof plaster or sock should be used to cover verrucas if swimming to prevent infection to others.

The wart should be filed using an emery board or pumice stone once weekly to remove dead, hardened skin and enable the treatment to penetrate to the 'root' of the wart.

GP COMMENT

Seborrhoeic warts have a "stuck on" appearance; the major differential diagnosis for these is melanoma or squamous cell cancer, so if in doubt refer.





SPECIAL CONSIDERATIONS:

Patients with poor circulation

Salicylic acid products contain a warning that they are not suitable for patients with poor circulation, ie patients with diabetes or peripheral vascular disease. There is an increased risk of damage to skin, nerves and tendons and the development of neuropathic ulcers. A referral to chiropody services is warranted for treatment of warts and verrucas, to check for callous formation, which is often the precursor to an ulcer.

Precipitating causes of foot ulceration and infection in the diabetic patient are:

- friction in ill-fitting or new shoes
- untreated callous
- self-treated callous
- foot injuries (e.g. unnoticed trauma in shoes or when walking barefoot)
- burns (e.g. excessively hot bath, hot water bottle, hot radiators, hot sand on holiday)
- corn plasters
- nail infections (paronychia)
- artefactual (self-inflicted foot lesions are rare; occasionally failure to heal is due to this cause)
- heel friction in patients confined to bed
- foot deformities (callous, clawed toes, bunions, pes cavus, hallux rigidus, hammer toe, Charcot's foot, deformities from previous trauma or surgery, nail deformities, oedema)

*Ref: ABC of diabetes.
The Diabetic Foot.
Watkins, P. BMJ
2003;326:977-979*

8 SKIN**8.7 NAPPY RASH**

Nappy rash is a dermatitis confined to the area covered by the nappy. There are a variety of causes that may co-exist and include irritant dermatitis, candida infection, psoriasis and seborrhoeic dermatitis. Advances in nappy design have meant a reduction in the incidence of irritant dermatitis caused by the action of faecal proteases on the skin, enhanced by the alkaline urinary pH.

Nappy rash appears as redness although secondary infection may cause weeping of the rash. Candidiasis is often implicated as it is an opportunistic infection in damaged skin and is thought to be secondary to irritant nappy rash, although may be the primary cause in moderate to severe cases. It is identified by a bright red, marginated rash, which may have satellite pustules or erosions. A sharply marginated appearance is more suggestive of psoriasis. The skin folds are spared in irritant nappy rash.

Differential diagnoses

Secondary infection with *Staphylococcal* or *Streptococcal* species must be considered if standard treatments for nappy rash fail, in which case referral would be necessary.

If mild nappy rash persists then refer, as it may be a sign of eczema.

Treatment options

Barrier creams based on *zinc* and *castor oil* [*Sudocrem*®], *titanium* [*Metanium*®] or *dimethicone* [*Conotrane*®] will protect the skin from faecal matter and excess moisture. They should not be applied too liberally or they will prevent moisture absorption by the nappy.

Topical anticandidal therapy [*imidazoles: clotrimazole, econazole, miconazole*] should be applied to limit the *Candida* infection, usually caused by *Candida albicans*. There is no evidence that any particular agent has an advantage. They should be applied two to three times daily and continue application for seven to ten days after the rash has cleared.



Infantile Atopic Dermatitis

PRACTICAL TIPS

Nappy rash can be reduced by increasing the frequency of nappy changes to avoid prolonged contact of faecal matter and urine with the skin. Disposable nappies containing a gel core have been shown to cause less irritation than cotton nappies. Avoid materials which abrade the skin, e.g. plastic pants. Allowing the child to have time without the nappy, exposing the skin to fresh air, often improves the condition.

The use of baby powder is controversial as it is considered by some to have an abrasive action causing friction and clumping in the presence of moisture. Inhalation of the powder may constitute a potential hazard and care should be taken to keep the powder away from the baby's face.

GP COMMENT

Topical corticosteroids, not licensed for OTC use for nappy rash, may be applied once daily to reduce inflammation in moderate to severe nappy rash. They are best prescribed separately to an antifungal agent to reduce potential unnecessary overuse of steroids in the area.



8 SKIN**8.8 ACNE VULGARIS**

Acne is a common skin condition in adolescence affecting over 80% of teenagers at some point. It is characterised by comedones (blackheads and whiteheads), papules, pustules, inflamed nodules, superficial pus filled cysts, and (in extreme cases) canalising and deep, inflamed, sometimes purulent sacs. Lesions are found most frequently on the face and may appear on the neck, shoulders, chest and back. It can be a distressing condition which can have a marked psychological effect on sufferers.

The four factors which contribute to the development of acne are increased sebum secretion rate, abnormal follicular differentiation causing obstruction of the pilosebaceous duct, bacteriology of the pilosebaceous duct, and inflammation. Severity varies and the most severe cases can cause scarring. It is classified as mild, moderate, or severe.

Mild acne is defined as non-inflammatory lesions (comedones), a few inflammatory (papulopustular) lesions, or both.

Moderate acne is defined as more inflammatory lesions, occasional nodules, or both, and mild scarring.

Severe acne is defined as widespread inflammatory lesions, nodules, or both, and scarring; moderate acne that has not settled with six months of treatment; or acne of any "severity" with serious psychological upset.

Differential diagnoses

Acne rosacea usually begins as erythema on the cheeks, nose, chin, forehead or, in particular, around the middle of the face, sometimes in a "butterfly" pattern round the eyes. At first, the erythema may wax and wane. Over time, it persists and patients develop telangiectasia (thin, spidery blood vessels), papules, pustules and lymphoedema. It is often confused with acne, but there are no comedones present in rosacea. The onset of rosacea is usually after the age of 30. The butterfly rash may also be associated with systemic lupus erythematosus (SLE); the rash is usually red or purplish and scaly. Fever, malaise, joint pains and fatigue are other common symptoms of SLE which is often difficult to diagnose. Routine referral would be required for either case.

Treatment Options

Treatment should be commenced early to prevent scarring. Mild to moderate acne may be treated first line with topical preparations containing *benzoyl peroxide* (*Brevoxyl*®), available OTC. Lower strength preparations should be used first and can be gradually increased to the higher concentrations. Adverse effects include dryness, scaling, burning, tingling, and redness. The redness often subsides with continued treatment, especially if used with a reduced frequency of application. Aqueous gels or cream are available. Patients should be warned that the preparations can bleach clothing.

Nicotinamide gel (e.g. *Nicam*[®]) is available for inflammatory acne vulgaris but there is very little clinical evidence available for topical use alone.

Patients with moderate to severe acne that has not responded to topical preparations should be referred as prescription only products such as topical or systemic antibiotics would be the next treatment step.

Tea tree oil is known to have antiseptic and antifungal properties. One Australian study has found a 5% tea tree oil gel to be as effective as 5% benzoyl peroxide in acne, although it had a slower onset of action. It was associated with fewer adverse effects.



Acne Vulgaris

PRACTICAL TIPS

Wash with a mild soap and lukewarm water, no more than twice a day, avoiding vigorous scrubbing of the skin. Antibacterial washes are popular with patients although there is no real evidence that they have any impact on acne.

There is no evidence that foods cause or aggravate acne. A sensible, healthy diet is advisable containing regular portions of fruit, vegetables and plenty of water.

Squeezing the pimples or spots will only make them worse and increase the likelihood of scarring, therefore advise patients to leave them alone!
Some acne treatments dry the skin.

Patients should be advised to use a water-based moisturiser as greasy or oily creams and foundations block the pores and may cause pimples.

Ref: Bassett I, Pannowitz D, Barnetson R [1990]. "A comparative study of tea-tree oil versus benzoylperoxide in the treatment of acne." Med J Aust 153 (8): 455-8

8 SKIN**8.9 BURNS AND SCALDS**

Superficial partial thickness burns are defined as those which affect the epidermis and upper dermis. Thermal burns are caused by sufficient exposure to heat to damage these layers of the skin, e.g. from electrical items such as hot irons, or sunburn (see below). Scalds are thermal burns caused by hot liquids. Chemical burns are also possible, e.g. with bleach.

Burns present as red, moist skin (blanching under pressure) which is hypersensitive and painful, blistering within hours of injury. Healing is usually uneventful and generally takes two to three weeks, with no scarring as long as there is no infection. The age and health of the individual including co-existing diseases will affect the healing time.

First aid for thermal burns consists of immersing the affected area in cold water for 20-30 minutes within three hours of injury. This can help to reduce inflammation, redness and pain. Care must be taken not to overdo this as prolonged cooling can cause tissue damage. Chemical burns require irrigation and removal of contaminated clothing and substances.

Treatment with wound dressings aims to prevent infection and provide a warm, moist environment in which to encourage skin regeneration. Creams should not be applied to a burn.

DANGER SYMPTOMS

If the burn is greater than the size of the patient's hand or if it is on the face, urgent referral should be made. If it is a deep burn, heavily blistered or painful, then urgent referral is also advisable.

If there is any shortness of breath or respiratory problems following a chemical burn, urgent referral is necessary.

Treatment options

Pain relief such as paracetamol or ibuprofen is useful if required. Little research is available on wound dressings and their effectiveness in treating and promoting the healing of burns and scalds. Dressings may be used to promote healing and to protect the skin: *Alginate*, *paraffin gauze* and *clear film dressings* are all appropriate.

Chlorhexidine and silver sulfadiazine have been shown to prolong healing times and should not be used.



**Thermal burn**

PRACTICAL TIPS

First aid advice on immersing the wound in cold water is important, as specified above. In addition if there is jewellery such as a ring or watch, this should be removed to avoid discomfort if the area swells. Clothing should not be pulled off if it is stuck to the skin. Blisters should be kept intact if possible.

Care should be taken to avoid accidents involving burns and scalds. Children and the elderly are most at risk. Areas in the home with highest risk are the bathroom and the kitchen. Preventative measures include keeping pan handles turned inwards, and avoiding trailing electrical flexes from kettles or irons. Bath water should be tested for children and the elderly to avoid scalds.

Further information and safety advice in the home can be obtained at the website for the Royal Society for the Prevention of Accidents:

www.rospa.com

GP COMMENT

Burns which are very pale, charred or painless are likely to be deep and should be referred urgently.



8 SKIN**8.10 SUNBURN**

Sunburn is a result of too much exposure to ultraviolet (UV) light. The skin overheats, becomes red and painful, and may later peel or blister. Severe sunburn can cause blistering, swelling of the skin and fever. There may also be symptoms of heatstroke, such as dizziness, headaches, and nausea.

Melanin skin pigment is produced when skin is exposed to sunlight to help protect against the burning effect of UV light. It does not prevent the other harmful effects of UV such as premature ageing and cancer. Fair-skinned people have less melanin so are more likely to burn quickly.

**DANGER SYMPTOMS**

Severe burns or sunburn in babies and children will need referral to the GP.

Suspected melanomas (See GP comment).

PRACTICAL TIPS

Prevention is better than cure!

Advice includes:

- Cover up in the sun, e.g. wear a wide-brimmed hat.
- Seek shade, especially during the hottest part of the day (between 11am and 2pm).
- If skin is exposed to the sun, use a sun cream with a suitable SPF (sun protection factor). Research has shown that people over rely on the protective benefits of suncream. Suncream should be generously applied and re-applied frequently.

If affected by sunburn, the patient should be advised to stay out of the sun and drink plenty of fluids to prevent dehydration (avoiding alcohol for this reason). The Cancer Research site has further information on the 'Sunsmart' campaign:

www.cancerresearchuk.org/health-professional/prevention-and-awareness/sunsmart

Treatment

Painkillers are useful to relieve the pain of sunburn. Calamine and glycerin cream relieves itching and soreness. Aftersun treatment which moisturises the skin may help relieve symptoms.

**GP COMMENT**

Suspect pigmented lesions would be assessed using a seven-point checklist to determine if melanoma is likely and referral to a skin specialist is required:

Major features of the lesions (score 2 points for each):

- change in size
- irregular shape
- irregular colour

Minor features of the lesions (score 1 point for each):

- largest diameter 7 mm or more
- inflammation
- oozing
- change in sensation

Suspicion is greater for lesions scoring 3 points or more. However, if there are strong concerns about cancer, any one feature is adequate to prompt urgent referral.

Ref: Referral for suspected cancer. NICE 2005: www.nice.org.uk/cg027



8 SKIN

8.10 SUNBURN ACTIVITY



Check your understanding of SPF and the ratings given for UVA and UVB protection to sun protection preparations.

8.11 BITES AND STINGS

Insect bites, e.g. by a midge or mosquito, cause irritation and inflammation where the skin has been bitten. The reaction occurs as a result of salivary secretions deposited by the insect and is dependent on previous exposure to bites from insects of the same species. Small, extremely itchy, papular lesions are usually seen.

Insect stings cause an intense burning, painful sensation. Venom from the sting of insects such as bees and wasps contain toxins which provoke a skin reaction. If the sting has been left in the skin it should be removed as soon as possible. Allergic reactions and secondary infection may also occur.

Ticks are insect-like creatures which usually live on the blood of larger animals such as deer, but can also attach themselves to humans. They like warm, moist areas, e.g. the crotch or armpit. Removal of the tick is important to avoid bacterial infection especially as it can carry the causative organism of Lyme disease. It burrows its head into the skin and must be removed intact. The tick should be removed using tick removers or tweezers and should be grasped as close as possible close to the skin and pulled straight upwards, in a slow, steady motion, without jerking.

Traditional methods for removing ticks include use of petroleum jelly and applying a lit match or hot needle. These methods are not recommended as they may encourage the tick to release more saliva which increases the risk of bacterial infection. The bite area should be cleaned and checked regularly to see if a rash appears. In that case, referral to the GP is necessary as this may be a sign of Lyme disease, which is difficult to diagnose. It often lies dormant for years but early symptoms are chills, fever, headache and joint aches and pains.

Mammalian bites are most commonly caused by dogs and cats and occur most frequently in children. Human bites are also a possibility either due to playing or fighting in children or as a result of physical or sexual abuse in adults. Mixed aerobic and anaerobic bacterial infection is possible with mammalian bites. Deep puncture wounds, particularly to the hand, may require antibiotic treatment and it is advisable that the tetanus immunisation is updated.



Tick bite



DANGER SYMPTOMS

There is a risk of cellulitis, a bacterial infection of the skin, because of bacterial entry at the punctured site. It appears as a patch of reddened and inflamed skin and common pathogens are *streptococci* and *staphylococcus aureus*. The skin will feel hot and painful. It usually occurs on the legs and arms and the area will gradually increase in size. There may also be a fever and vomiting. If suspected, referral is required as it can be easily treated with systemic antibiotics. Bacterial infection secondary to an insect bite may also present as impetigo or folliculitis.

Signs of Lyme disease following an insect bite may occur up to four weeks afterwards. A red spot appears around the site of the bite which will get bigger and often have a pale centre (erythema migrans).

Stings by wasps or bees may cause anaphylactic shock to those who have been previously sensitised. Urgent referral is needed or administration of adrenaline if the person carries the drug (usually in the form of an auto-injector such as *Epipen*[®] or *Anapen*[®]).

Differential diagnoses

Urticaria, contact dermatitis, chickenpox, scabies and pubic lice would all need to be ruled out.

Treatment options

Antihistamine creams may relieve pruritus but are associated with sensitisation. *Crotamiton* cream or lotion has soothing qualities and may help to relieve the itch caused by insect bites, although there is no objective proof of its anti-pruritic activity. It is licensed for the relief of itching and skin irritation caused by insect bites and stings.

Oral antihistamines may be useful for widespread urticarial reactions, those causing drowsiness will be useful for the sedative effect to prevent scratching and further irritation of the bites at night.

Topical steroid creams, e.g. hydrocortisone 1%, will relieve local inflammation.

Local anaesthetics are often included but may cause local sensitisation. Antiseptics are also often included to prevent secondary bacterial infection.

PRACTICAL TIPS

Avoid insect bites by using insect repellent and wearing loose clothing with long sleeves and legs. Insect repellents containing diethyltoluamide (DEET) are the most effective. There are reports of garlic and thiamine ingestion for insect repellent properties, but no evidence has been found to support their effectiveness.

Educating children to avoid unknown animals can help prevent animal bites. To avoid tick bites specifically, avoid walking in long grassland as well as wearing insect repellent on clothes and exposed skin.

If there has been a wasp or bee sting, the sting should be carefully removed from the skin, trying to scrape it out rather than grabbing it (to avoid squeezing venom into the skin).

A cold compress can reduce swelling and relieve pain. Treatment with antihistamines and anaesthetics as described above are useful, particularly for children.

GP COMMENT

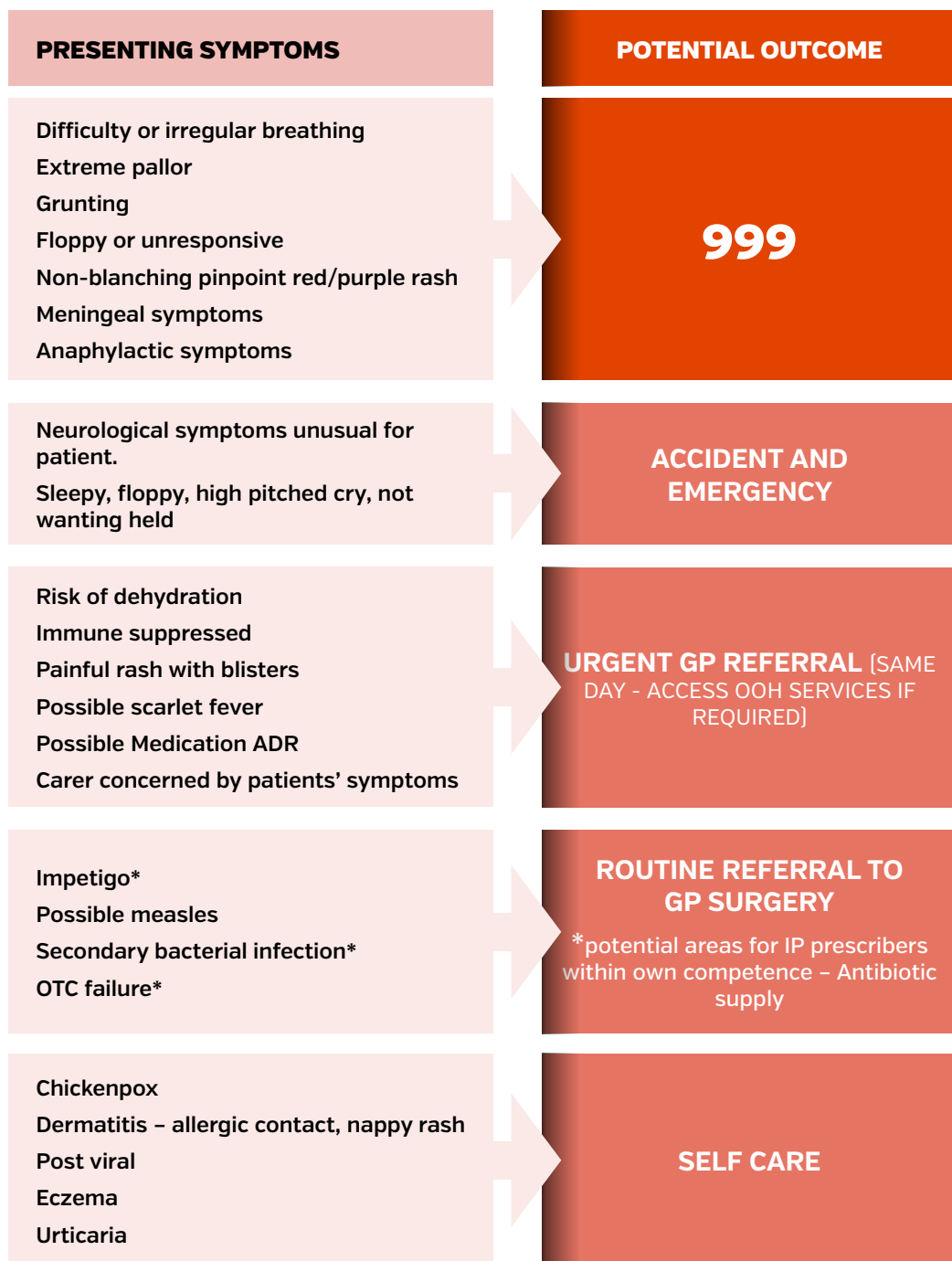
In animal bites which have punctured the skin, antibiotics should always be considered and referral to an Accident and Emergency Department or GP should be made. A tetanus booster may be required.

Lyme disease is caused by infection with *Borrelia burgdorferi* which is transmitted by ticks in temperate areas (North America, Europe and Asia). It typically causes an expanding circular rash around the infectious tick attachment site. Incidence of this disease in the UK is rising. People are not always aware that they had been bitten or forget, as there can be a delay in onset of symptoms.



8 SKIN

8.11 RASH - CHILD - ALGORITHM



8.11 BITES AND STINGS ACTIVITY

What are the signs of anaphylactic shock?



CASE STUDIES**Case study 14**

A mother brings her little girl, aged around three years, and shows you her arm. The mother is concerned that there is a rash which does not seem to be clearing up. It has the appearance of small, raised, smooth, pink papules with a distinctive cream spot seen centrally and there are about twenty located along the inside of the girl's upper arm. On inspection you confirm that it is the viral skin infection *Molluscum contagiosum* and you reassure the mother that there is no need for treatment, as the condition will clear up by itself with time. The mother wonders whether the spots should be squeezed, which you advise against due to the age of the child and the fact that this may then risk secondary infection to the spot. They are currently not causing any pain and are out of sight, so the mother agrees.

**Case study 15**

A teenage girl asks for you to recommend something for an irritation on her wrist. She has been wearing a watch that she got free with a purchase of perfume and is experiencing itchy, dry, red skin where the watch has been. The skin is not broken and on further questioning you find out that the girl also suffers from hayfever but is not currently taking anything for it. You advise that it is contact dermatitis, she has already stopped wearing the watch. You recommend 1% hydrocortisone cream to treat the inflammation and irritation, advising her to apply the cream twice a day. An emollient cream such as E45 or an unperfumed moisturiser could also be used to counteract the dryness.

SUGGESTED RESPONSES TO SKIN ACTIVITIES

Look at the various emollients which are available, including topical, bath and shower products. Note down when you would recommend the different products to patients, either developing your own individual formulary or examining the products you tend to choose and why. There may be a local formulary in your area to consult and compare your selection to.

Refer to the BNF and advice such as Clinical Knowledge Summaries (PRODIGY Guidance) and the National Eczema Society.



What are the relative potencies of the topical corticosteroids available over the counter?

Hydrocortisone is classed as mild.

Clobetasone butyrate is classed as moderate.

Ref: BNF 69 March 2015.



What are the instructions for application of dithranol?

Treatment should be started with a low concentration such as dithranol 0.1%, and the strength increased gradually every few days up to 3%, according to tolerance. Proprietary preparations are more suitable for home use; they are usually washed off after 5 to 60 minutes ('short contact'). Specialist nurses may apply intensive treatment with dithranol paste which is covered by stockinette dressings and usually retained overnight. Dithranol should be discontinued if even a low concentration causes acute inflammation; continued use can result in the psoriasis becoming unstable. When applying dithranol, hands should be protected by gloves or they should be washed thoroughly afterwards.

Ref: BNF 69 March 2015.

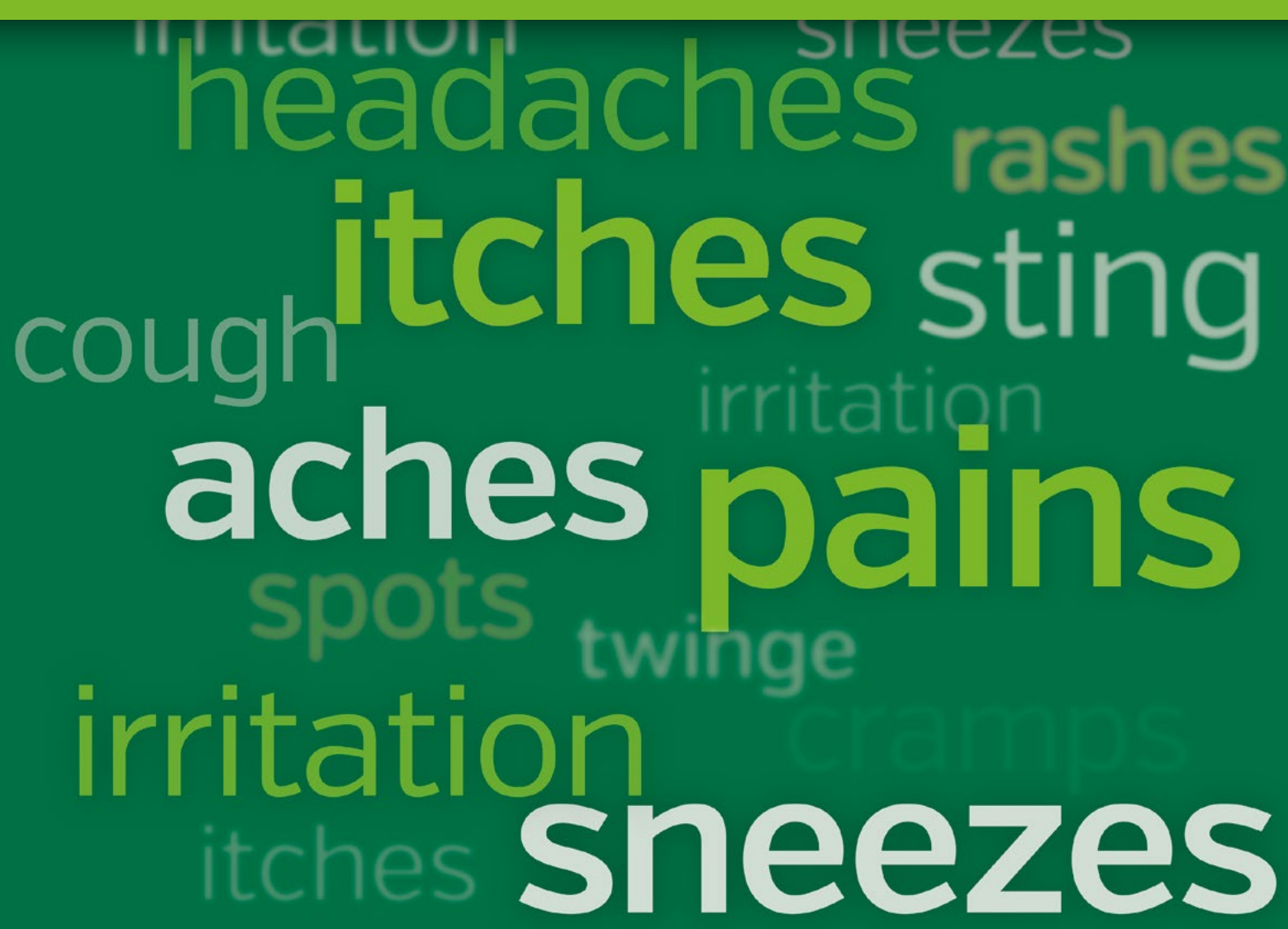


What are signs of anaphylactic shock?

- hypotension
- laryngeal oedema causing respiratory distress
- bronchospasm
- loss of consciousness
- vomiting and diarrhoea
- urticaria



8 SKIN



9 APPENDICES

APPENDIX 1: RESOURCES

Sources of information that have been used, and would be useful for further research are:

Clinical Knowledge Summaries (CKS) Service (formerly known as PRODIGY Guidance) www.cks.nice.org.uk

BMJ Clinical Evidence

(www.clinicalevidence.com/ceweb/index.jsp)

The Cochrane Library (www.thecochranelibrary.com)

TEXTBOOK RESOURCES WHICH WILL BE USEFUL TO YOU ARE:

- Blenkinsopp A, Paxton P. [2002] **Symptoms in the Pharmacy (4th edn)**. Oxford: Blackwell Science.
- Edwards C, Stillman P. [2000] **Minor Illness or Major disease? Responding to symptoms in the pharmacy (3rd edn)**. London: Pharmaceutical Press.
- Harman RJ, Mason O. [2002] **Handbook of Pharmacy Healthcare (2nd edn)**. London: Pharmaceutical Press.
- Nathan A. [2005] **Non-prescription medicines (3rd edn)**. London: Pharmaceutical Press.
- Rutter P. [2004] **Community Pharmacy. Symptoms, Diagnosis and Treatment**. Edinburgh: Churchill Livingstone.

INTERNET RESOURCES WHICH WILL BE USEFUL TO YOU ARE:

- NetDoctor, a good source of information on minor illnesses, intended for lay readers: www.netdoctor.co.uk
- Scottish Intercollegiate Guidelines Network (SIGN): www.sign.ac.uk/guidelines/published/index.html
- NHS 111, is the national direct access confidential telephone service for healthcare in England (Telephone number 111), whose website aims to provide healthcare information to patients: <https://www.england.nhs.uk/ourwork/pe/nhs-111/>
- NHS Direct Wales, the national direct access confidential telephone service for healthcare in Wales (Telephone number 0845 4647), whose website aims to provide healthcare information to patients: www.nhsdirect.wales.nhs.uk/
- NHS24, the national direct access confidential telephone service for healthcare in Scotland (Telephone number 111), whose website aims to provide healthcare information to patients: www.nhs24.com
- MeReC, a bulletin on evidence based health care produced by the National Prescribing Centre in liaison with NICE: www.npc.co.uk/merec.htm
- Merck manual, a comprehensive medical textbook with much useful information on minor as well as more serious illness: www.merck.com/mrkshared/mmanual/sections.jsp
- NHS Inform, has A-Z of illness useful to refer patients to: www.nhsinform.co.uk

OTHER INFORMATION SOURCES ARE:

- **Chemist and Druggist Guide to OTC Medicines and Diagnostics.** Published twice a year and distributed free to subscribers of Chemist and Druggist magazine.
- **PAGB OTC directory.** Published annually by the representative organisation of OTC medicines manufacturers and distributed free to pharmacies and GP practices.

9 APPENDICES**APPENDIX 2: ABBREVIATIONS**

ACE	Angiotensin-converting enzyme
BNF	British National Formulary
CNS	Central nervous system
COPD	Chronic obstructive pulmonary disease
CSM	Committee on Safety of Medicines
DEET	Diethyltoluamide
DLSO	Distal or lateral subungual onychomycosis
GI	Gastro-intestinal
GORD	Gastro-oesophageal reflux disease
GP	General Practitioner
GTN	Glyceryl trinitrate
HIV	Human immunodeficiency virus
HRT	Hormone replacement therapy
IBS	Irritable bowel syndrome
INR	International normalised ratio
NSAID	Non-steroidal anti-inflammatory drug
ORT	Oral rehydration therapy
OTC	Over-the-counter
PIL	Patient information leaflet
PPI	Proton pump inhibitors
SPF	Sun protection factor
TENS	Transcutaneous electrical nerve stimulation

APPENDIX 3: A SUMMARY OF CHILDHOOD INFECTIONS

Chickenpox: Chickenpox is caused by a herpes virus, the varicella-zoster virus (VZV). It remains a common childhood infection. Chickenpox is highly infectious from person-to-person contact. It has a relatively long incubation period of 10 to 21 days and the rash is usually preceded by a day or two of fever. The rash is quite distinctive, with crops of small, raised, red spots that develop into vesicles (blisters) of varying size, lasting three to five days. The rash is variable but generally occurs more on the head and trunk than on the limbs. Mild cases may have no spots at all, while, in severe cases (especially in immunodeficient patients), the body may be completely covered. The patient is infectious from two days prior to the eruption of the rash until all the spots have crusted over. Most children with chickenpox recover uneventfully, with no specific treatment.

Antipyretics may be useful if there is fever present.

Chickenpox in pregnancy may be harmful to the foetus, and is particularly dangerous if contracted just before delivery when chickenpox in the newborn, acquired from a non-immune mother, may be fatal. If the mother is definitely immune there is no risk to the baby. Any pregnant woman or newborn baby who has been in contact with, or is showing signs of, chickenpox should be referred to a doctor immediately.

Shingles (Herpes zoster): After primary chickenpox infection, the varicella-zoster virus may lie dormant for many years in the dorsal root nerve ganglia, adjacent to the spinal cord. The virus may erupt at any time in the skin area supplied by that ganglion, in the form of a localised, painful, red, blistering rash known as shingles. It is less common in children than in adults. It may recur, especially when immunity is suppressed. Susceptible people can contract chickenpox from people with active shingles, but it is not possible to “catch” shingles from anyone.

Measles: After recent controversy with the combined MMR vaccine, there have been reports of increased incidence of measles. In measles, after two or three days of fever, cold symptoms and malaise, the typical rash emerges. This is a red, confluent, blotchy rash that begins at the hairline and progresses down to cover the whole body and lasts three days. Complications are common and include otitis media, laryngitis, pneumonia and, rarely, a fatal, progressive encephalitis.

Mumps: This is caused by a paramyxovirus. Fever is accompanied by painful swelling of one or both parotid glands (these are salivary glands not lymph nodes), seen over and behind the angle of the jaw, and extending backwards behind the earlobe. One of the diagnostic features is pain on swallowing as a result of this swelling. Symptomatic treatment only is required, and recovery is usually uneventful over a week. Complications include encephalitis, pancreatitis, and orchitis (infection of the testes in post-pubertal males that may cause infertility), which is the main justification for the immunisation programme.

Rubella (German measles): This is characterised by symptoms of a cold, fever, and then, about two days later, a generalised red rash and swelling of the lymph nodes. Its main significance is the high risk of damage to the foetus if contracted by women in early pregnancy. For this reason, all infants are now routinely vaccinated against rubella and, therefore, the infection is now uncommon.

9 APPENDICES

Meningococcal disease: This serious bacterial infection still causes a significant number of deaths and permanent disability. It is crucial to recognise and treat it early. The *meningococcus* organism causes both septicaemia and meningitis, but it is the septicaemia that kills rapidly, and that also causes the characteristic rash. Typically, the septicaemia presents as fever and general malaise, not necessarily with symptoms of meningitis. The rash may then appear rapidly anywhere on the body. The rash is blotchy and dark purple, like bruising under the skin, and does not fade (blanch) when a glass is pressed against it.

Any unwell child presenting with a new, developing, dark purple rash should be sent immediately to hospital. First-aid treatment in primary care is intramuscular penicillin, but this should not delay transfer of the child to hospital. Household contacts of definite cases may need to be given prophylactic rifampicin. The recently introduced vaccine prevents only the C strain of meningococcus. Cases caused by the more common B strain still occur.

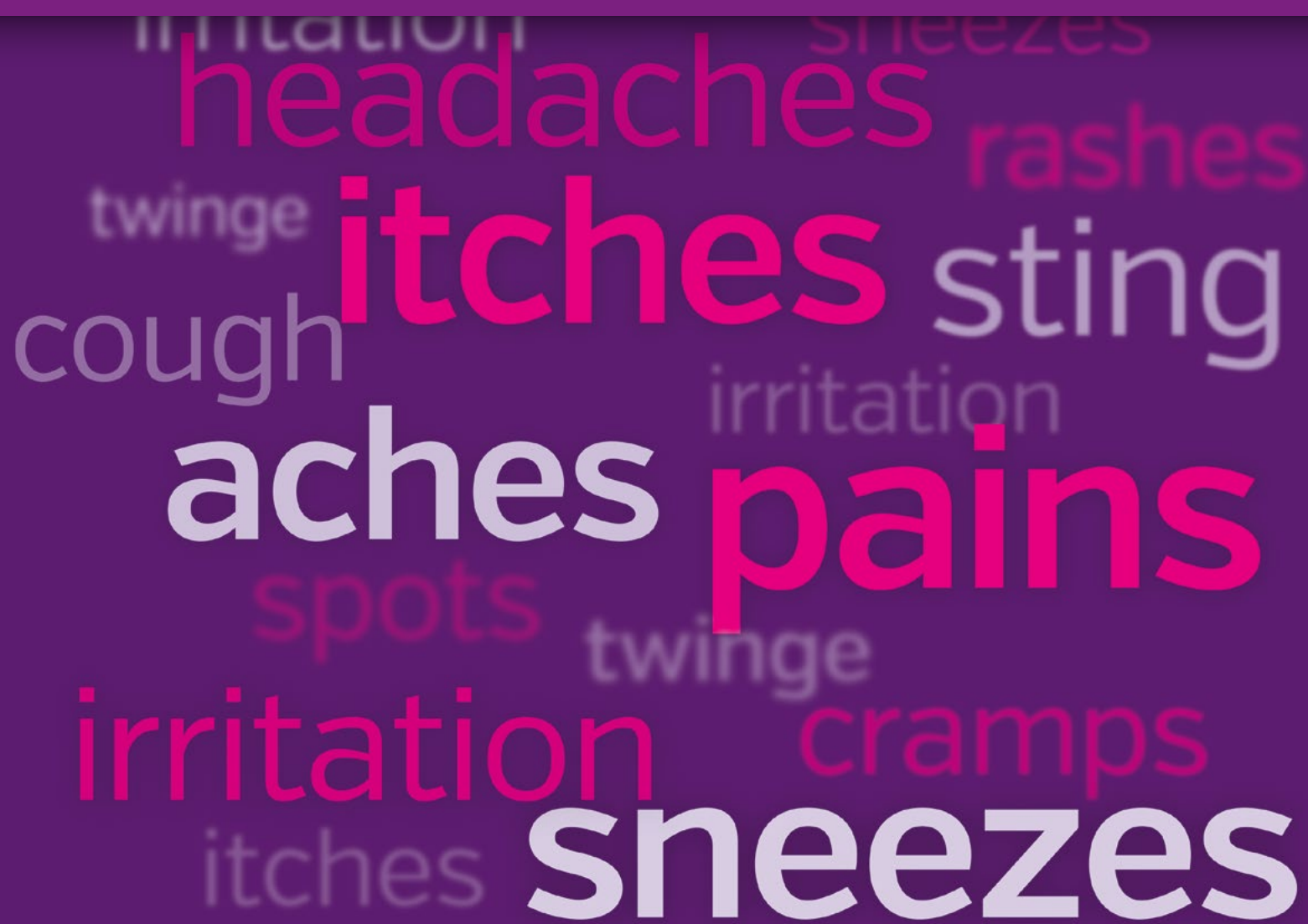
Erythema infectiosum (slapped cheek disease, fifth disease): This infection is caused by a parvovirus. The most characteristic feature is the prominent red rash on the face, hence the “slapped cheek” description, followed by a generalised rash. The preceding fever is variable and may be absent. As with rubella, its significance is in the potential harm to the foetus in pregnancy.

Hand, foot and mouth disease: This is caused by a Coxsackie virus. A mild fever is followed three to five days later by a characteristic vesicular rash inside the mouth and on the tongue, hands and sometimes the feet. It resolves after about a week.

Pertussis (whooping cough): Unlike the other diseases that are routinely immunised against, pertussis remains quite common. The vaccine is less effective than the others, and babies under 2 months - the age of the first immunisation - are particularly vulnerable. Babies often contract the infection from a partially immune older sibling who may have no more than a slight cough. Infants may present with dramatic, spasmodic coughing fits, during which they find it impossible to breathe in, and they may go blue or vomit. Young babies may even stop breathing, and the disease can be fatal. The characteristic “whoop” is heard only in older children. Fever and malaise are generally mild, but the cough can be very troublesome and can go on for several weeks. The causative organism, *Bordetella pertussis*, is a bacterium sensitive to erythromycin, but unfortunately treatment is only effective if given early. Once established, no treatment has much effect. Any baby or young child that has a spasmodic cough with vomiting should see a doctor. Babies will generally need hospital admission, but older children can be looked after at home. Any infant contact of a child with possible pertussis symptoms should be given prophylactic erythromycin, even if completely asymptomatic.

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MULTIPLE CHOICE QUESTIONNAIRE



MULTIPLE CHOICE QUESTIONNAIRE

Congratulations

You have now made it to the end of the pack.

Now is your opportunity to test your understanding of this distance learning package by completing a multiple choice questionnaire (MCQ).

Pharmacists, pre-registration trainees and pharmacy technicians in Scotland should complete the MCQ on Portal (www.portal.scot.nhs.uk).

NES would also appreciate any comments you wish to make, on any aspects of this course. Your feedback allows us to continually improve distance learning packages.



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