

18 COMMON INFECTIONS

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Minor infections are among the most common health problems likely to be experienced by a traveller. The usual infections seen at home such as colds and the myriad of minor and self-limiting viral infections are also common abroad. However, it is important not to assume that a fever can be ignored when it could be a sign of a much more serious and potentially lethal infection such as malaria (see Chapter 19). By and large exotic tropical infections are comparatively rare.

Diarrhoea (gastroenteritis), also common at home, is more common on expeditions because standards of food hygiene are frequently less good. Judging by the variety and richness of the terminology – Delhi belly, Montezuma’s revenge, Hottentot runs, Saddam’s secret weapon, to name but a few – there can be few travellers who have not had personal experience of traveller’s diarrhoea.

Diseases like HIV or hepatitis B that occur at home are much more common in certain parts of the world, but can be avoided by preventing exposure, or by vaccination in the case of hepatitis B. Many infections, some of which are serious and occasionally lethal, can be prevented by vaccination prior to departure (see Chapter 2). These include hepatitis A and B, polio, diphtheria, tetanus, typhoid, yellow fever, Japanese encephalitis, tick-borne encephalitis, rabies and meningococcal meningitis.

DIARRHOEA

Traveller’s diarrhoea is extremely common and is likely to afflict the majority of longer-term travellers to developing and tropical countries. In a study of over 17,000 Swiss tourists on two-week holidays the attack rate ranged from 4% to 51%, depending on where they went. One report in British tourists recorded an attack rate of 26% in Africa and 8% in North America.

Diarrhoea = more than three stools per day of increased volume

Dysentery = blood mixed with stool

Cholera and other serious diarrhoeas kill by dehydration, fluid replacement saves lives

A change in bowel habit may be caused by a change in diet or the stresses of travel but infective diarrhoea is caused by consuming food or water contaminated with a pathogenic organism. If it were possible to have immaculate hand hygiene and adequately to cook, boil or peel everything that was consumed, traveller's diarrhoea could be avoided. In reality such high standards are difficult to achieve and it is impossible to have control over food preparation by others while travelling. Since to refuse new and interesting foods would greatly diminish the experience of travel, most travellers must accept diarrhoea (gastroenteritis) as a calculated risk. Most traveller's diarrhoea is caused by strains of *Escherichia coli* (a normal commensal of the bowel) which produce a toxin. This toxin upsets the normal passage of electrolytes and water across the bowel wall and thus causes watery diarrhoea. The locals are probably immune to the infection. *E. coli* causes abdominal cramps and pain, diarrhoea, loss of appetite, and sometimes nausea and vomiting. It is self-limiting which means that it will get better without treatment after 24–48 hours. Gastric viral infections cause similar signs and have much the same duration. Other infections can cause a longer duration of symptoms and although usually self-limiting can on occasions cause more serious and persistent infection.

Causes and mechanisms

The following is a brief guide to the common causes of diarrhoea.

Prevention

Almost all of these organisms are transmitted in the same way: by contaminated food and water. Infective material must be swallowed in order to contract the illness. One result is that all causes of diarrhoea can be prevented by devoting rigorous attention to hygienic food preparation and handling, and to water sterilisation. Preparing one's own food is the best way to prevent gastroenteritis.

The following pose a potential risk to health, and are best avoided:

- *Shellfish and seafood.* Molluscs and crustaceans are filter feeders, and accumulate whichever organisms happen to be present in the local sewage system. They need a minimum of 8 minutes' vigorous boiling to be rendered safe.
- *Salads, raw fruit and vegetables.* These have the reputation of being healthy and nutritious at home, but human and animal excreta are widely used as fertiliser in most developing countries. They require careful sterilisation and preparation.
- *Rare meat (including undercooked chicken), raw fish.* There may be a high risk of parasitic contamination.
- *Buffets, food left out in warm temperatures.* Bacteria multiply fast at warm temperatures, and trivial contamination can rapidly turn into a serious risk.

TABLE 18.1 CAUSES OF DIARRHOEA

<i>Cause</i>	<i>Usual duration of illness</i>	<i>Symptoms</i>	<i>Antibiotic treatment (if required)</i>
<i>E. coli</i>	24–48 hours	Diarrhoea, abdominal pain, loss of appetite	Ciprofloxacin
Virus	24–48 hours	Diarrhoea, abdominal pain, loss of appetite	No antibiotics
<i>Campylobacter</i>	2–10 days	Diarrhoea, abdominal pain, loss of appetite, occasionally blood in faeces	Ciprofloxacin or erythromycin
<i>Salmonella</i>	2–7 days	Diarrhoea, abdominal pain, loss of appetite, occasionally fever	Ciprofloxacin
<i>Shigella</i>	2–10 days	Explosive diarrhoea, abdominal pain, fever, listlessness, loss of appetite, blood in faeces (severe cases)	Ciprofloxacin
<i>Giardia</i>	3–14 days	Diarrhoea, abdominal pain, loss of appetite, flatulence, bloatedness	Metronidazole or tinidazole
<i>Entamoeba</i> (amoebic dysentery)	3–14 days	Diarrhoea of gradual onset, blood in faeces	Metronidazole or tinidazole

TABLE 18.2 THE WORLD HEALTH ORGANIZATION'S "TEN GOLDEN RULES FOR SAFE FOOD PREPARATION"

1. Choose foods processed for safety
2. Cook food thoroughly
3. Eat cooked foods immediately
4. Store cooked foods carefully
5. Reheat cooked foods thoroughly
6. Avoid contact between raw food and cooked food
7. Wash hands repeatedly
8. Keep all food preparation surfaces meticulously clean
9. Protect food from insects, rodents and other animals
10. Use safe water

- *Food on which flies have settled.*
- *Food stored and reheated after cooking.*
- *Spicy sauces and salsa, left out on the table.*
- *Food handled by other people's dirty fingers.*
- *Milk products and ice cream.*
- *Foods containing raw egg (e.g. mayonnaise).*
- *Fruit juices from street vendors.*
- *Ice.*
- *Tap water, even for brushing teeth.*
- *Hospitality.* If you are offered unsafe food make an excuse and refuse it.

The following foods are usually safe:

- Freshly, thoroughly cooked food, served hot.
- Fruit peeled or sliced open by yourself (bananas, melons, papaya, avocado).
- Freshly baked bread (find the bakery).
- Packaged or canned food.
- Bottled drinks opened in your presence; the safest are carbonated.
- Boiled water, tea.
- If nothing else looks safe, ask for chips, omelettes, boiled eggs or other dishes that must be cooked to order.

Drugs for prevention

For practical purposes there are no effective drugs for prevention

Prevention is only possible by rigorous hygiene

Many drugs have been proposed for prevention, but none is entirely suitable. Advocates of such treatment argue that precautions can be difficult to follow, and do not always work. The contrary view is that drugs can cause harm without offering complete protection, and make travellers more likely to expose themselves to risk in the mistaken belief that they are protected against all ills.

Bismuth subsalicylate (Pepto-Bismol) is one drug that is believed to reduce the incidence of traveller's diarrhoea, and has some popularity in the United States. It needs to be taken in substantial doses, and may cause a black, furred tongue and black stools.

Another approach is to use the quinolone group of antibiotics (e.g. ciprofloxacin). However, these drugs are expensive, not without risk, and may make it more difficult to diagnose and treat any illness that does occur despite the treatment. Prophylactic drugs are not recommended.

Treatment

Most cases of diarrhoea improve without treatment, but rehydration is always important.

Rehydration

The most important aspect of treatment is to correct dehydration, particularly in a tropical environment, and particularly if the sufferer has not yet acclimatised to the heat; in such circumstances, fluid losses can be considerable. Children and elderly people are most at risk from the consequences of dehydration; for them rehydration must be an urgent priority. Healthy adults only rarely become severely dehydrated due to diarrhoea, but rehydration is none the less worthwhile, making sufferers feel rapidly better.

The fastest and most effective way to replace fluid is to use oral rehydration solutions. These are available as sachets of powder to be made up in clean water. Well-known brands include:

- Boots Diareze Oral rehydration powder (Boots)
- Oralyte (UNICEF)
- Dioralyte (Rhône-Poulenc Rorer)
- Rehidrat (Searle)
- Electrolade (Eastern).

Alternatively, add eight level or four heaped teaspoons of sugar (white, brown) or honey, plus two teaspoons of salt, to 1 litre of boiled water. Adding a little citrus juice adds potassium and makes the drink more palatable. A further alternative is to use the water in which rice has been cooked. Rehydration should occur at a dose of 200–400ml of solution after every loose motion.

Drugs for the treatment of diarrhoeal symptoms

Anti-motility drugs, such as loperamide (Imodium) or codeine phosphate, are widely promoted and used to treat traveller's diarrhoea. These drugs treat the symptoms of diarrhoea by reducing the frequent bowel motions, but they do not necessarily make you feel better and do not treat the infection. The author does not recommend the use of anti-motility drugs routinely. These drugs are useful if there is irregular access to toilet facilities; if you have to sit on a bus for 4 hours they are indispensable.

The most effective and fast-acting drug for controlling the symptoms of diarrhoea is loperamide (Imodium, Arret). It should be remembered, however, that this does not treat the underlying infection. Loperamide should not be used in children; it is otherwise widely considered to be a safe drug. Concern has been expressed on theoretical grounds that such medication might have the effect of prolonging infection,

but several studies have shown such fears to be unfounded. The dose of loperamide is two 2mg capsules at once, followed by one capsule with each loose stool.

Other drugs used in the treatment of diarrhoeal symptoms include: Lomotil, which is a combination of diphenoxylate (a morphine-like drug) and atropine (the atropine component of this combination is included only to prevent Lomotil from being abused and results in symptoms such as a dry mouth and headache); and codeine phosphate. Both of these drugs have constipating effects. None has any advantage over loperamide.

Drugs for the treatment of infection

Traveller's diarrhoea caused by *E. coli* is self-limiting and usually resolves in 24–48 hours. Salmonella, shigella and campylobacter infection can be more severe and prolonged. The problem is that, in the absence of accessible and immediate laboratory diagnosis, it is impossible to know whether you have an illness that is almost certain to get better after a couple of days or one that will persist for some time. Largely for this reason, and for the fact that even 24 hours spent lying prostrate and feeling miserable is best avoided if possible, it is usually worth taking 500mg of the antibiotic ciprofloxacin as soon as the first symptoms of impending gastroenteritis are felt, in other words the first griping abdominal pain closely followed by the first really watery bowel motion, and a feeling of not wanting to eat the next meal. Ciprofloxacin should be used with caution in patients with a history of epilepsy, with liver or kidney impairment, in pregnancy, when dehydrated and in children. Often a single dose will bring the infection to an immediate halt. If necessary continue the ciprofloxacin (500mg) twice daily for 3 days. Do not forget the importance of rehydration at all times.

If amoebic dysentery (diarrhoea with blood) is suspected, the drug of choice is tinidazole (500mg, four tablets every morning for 3 days) followed by diloxanide furoate (Furamide 500mg, three times a day for 10 days). If *Giardia* is suspected (abdominal pain, bloatedness, wind, diarrhoea) take a single 2g dose of tinidazole. If tinidazole is not available, metronidazole (Flagyl 400mg, two tablets three times a day for 5 days) is also an effective alternative for both amoebic dysentery and giardiasis. Note that no alcohol should be drunk while tinidazole or metronidazole is being taken.

When to seek medical attention

Symptoms that justify seeking further medical assessment and support are: a temperature above 40°C; significant fever lasting longer than 48 hours; diarrhoea lasting longer than 4 days; severe diarrhoea with difficulty keeping down fluid and salt replacement; and diarrhoea with blood. Laboratory tests may also be necessary.

Persistent diarrhoea

The commonest cause of diarrhoea persisting after returning home is giardiasis.

Other causes are cryptosporidiosis and cyclospora. Laboratory tests are worthwhile and essential to exclude other possible causes. However, a negative laboratory result may not completely rule out the possibility of giardiasis and, if the symptoms are convincing, presumptive treatment such as with tinidazole, as described above, preferably taken under medical supervision, may be worthwhile.

Another important cause of persistent diarrhoea is lactose intolerance. This is not an infection, but a problem that frequently follows damage to the lining of the small intestine after one or more episodes of severe gastroenteritis. In this condition, lactose – the sugar present in milk and all milk products (yoghurt, cheese and so on) – is poorly digested and instead undergoes a fermentation process. This results in symptoms that are similar to those of giardiasis. There is no easy way of confirming the diagnosis, other than by excluding infective causes and completely eliminating lactose from the diet. It is usually necessary to avoid lactose for about 6 months.

TABLE 18.3 GASTROENTERITIS – A SIMPLE PLAN OF MANAGEMENT

<p>SYMPTOMS</p> <p>Diarrhoea</p> <p>Often with crampy abdominal pain</p> <p>Nausea, loss of appetite</p> <p>↓</p> <p>Ensure good oral fluid and electrolyte replacement</p> <p>Dioralyte, rice water</p> <p>↓</p> <p>Most traveller's diarrhoea will settle of its own accord in about 48 hours</p> <p>Single dose of ciprofloxacin 500mg taken at onset of symptoms may settle symptoms</p> <p>If symptoms persist continue ciprofloxacin 12 hourly for 3 days and rehydration</p> <p>↓</p> <p>Loperamide for symptomatic relief</p> <p>Useful to reduce frequency of bowel motions (especially while travelling) and rehydration</p> <p>↓</p> <p>If diarrhoea persists this may be a protozoal infection – <i>Giardia</i> or <i>Entamoeba</i> (amoebic dysentery)</p> <p>Take metronidazole 2g once a day for 3 days and rehydration</p>
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OTHER COMMON INFECTIONS

Respiratory infections

Viral **upper respiratory tract infections** are more common in travellers, partly because of increased exposure to other people in crowded airports, aircraft, buses and so on, and partly because of exposure to new strains of viruses to which the traveller has not previously developed immunity. Coughs, colds and flu are unpleasant but rarely life threatening. These infections are self-limiting but symptomatic treatment with paracetamol or aspirin may help. Most sore throats are viral in origin and also get better with time. However, some may be bacterial, caused by bacteria such as *Streptococcus pyogenes*. If there is evidence of pus (white spots) on the tonsils (**tonsillitis**) or at the back of the throat, it may be prudent to take antibiotics. Phenoxymethylpenicillin or erythromycin (500mg, four times a day for a week) would be reasonable choices. Ampicillin/amoxycillin should be avoided in these circumstances as it may lead to a severe rash if the sore throat is due to glandular fever (infectious mononucleosis).

If an expedition member develops a cough with a fever and brings up purulent (yellow/green) sputum, he or she may have **bronchitis** or **pneumonia** caused by *Streptococcus pneumoniae* or “atypicals” such as *Mycoplasma pneumoniae*. Pneumonia is more serious and is often accompanied by breathlessness and chest pain that is made worse by deep breathing. In these circumstances, antibiotic therapy with erythromycin (500mg, four times a day for a week) is appropriate, but patients with severe pneumonia will need evacuation and hospital care.

Sinus infections can sometimes be a problem, presenting with nasal stuffiness, pain and tenderness over the sinuses, and sometimes a fever and headache. Although usually caused by viruses, some are bacterial in origin and complicate viral colds and flu. If flu or cold symptoms persist for longer than a week with new symptoms suggestive of **sinusitis**, an antibiotic such as co-amoxiclav (Augmentin 375mg, three times a day for a week) should be considered.

Ear infections

These may be a particular problem for expeditions involving diving or caving. Sometimes the lining of the ear canal becomes infected (**otitis externa**) and is red and painful. This can usually be treated with antibiotic ear drops, such as hydrocortisone (Otosporin, two drops, three times a day), and careful attention to keeping the ears as dry as possible. Rarely in adults the middle ear can become infected (**otitis media**). Again, pain in only one ear is the main symptom and, if observed, the eardrum appears red. Oral antibiotics should settle this down, co-amoxiclav (Augmentin 375mg, three times a day for 5 days) being first choice.

Eye infections

Sometimes the small glands in the eyelash follicles in the eyelids become blocked and

infected, producing a painful swelling called a **stye**. This will usually settle with topical antibiotics, such as chloramphenicol ointment. Warm compresses help the symptoms.

Conjunctivitis is not uncommon and is normally bacterial in origin. The best treatment is usually chloramphenicol ointment or drops (drops are easier to insert without a mirror). Put a little snake of cream on the turned down lower eyelid. Pull the upper eyelid over it and massage gently. This should clear the infection in the course of a couple of days. It should be remembered that this condition is highly contagious so an affected person should not share face flannels or towels with others. Other eye infections are rare in otherwise healthy people, but trauma to the eye may lead to secondary infection. If trauma does occur urgent help should be sought, but if none is readily available it is appropriate to use chloramphenicol eye ointment prophylactically.

People who wear contact lenses, especially soft ones, are at increased risk of infection and need to be scrupulous with their hygiene. A widely present amoeba can occasionally infect the cornea, which can lead to serious scarring. It is important to discuss the situation with a contact lens practitioner before leaving home. If it is not possible to guarantee good hygiene, contact lens wearers should revert to spectacles.

Orbital cellulitis is extensive redness, pain and swelling around the eye. It can result from spread of infection from the eye or spread from an infected sinus. This needs urgent medical attention and intravenous antibiotics. Start co-amoxiclav (Augmentin 375mg 8 hourly) and ampicillin (500mg 8 hourly) initially while evacuating.

Management of eye infections

For conjunctivitis use chloramphenicol ointment. For a stye – usually staphylococcal – if severe use flucloxacillin 500mg orally 6 hourly as well as chloramphenicol ointment. If the infection is more severe, particularly if associated with contact lenses or orbital cellulites, evacuate and seek medical attention but initially start co-amoxiclav (Augmentin 375mg 8 hourly) and ampicillin (500mg 8 hourly).

Urinary tract/genital tract infections

Women are more at risk of urinary infections than men, mainly because of their comparatively short urethra. However, men over the age of 40 have an increasing chance of infection, often originating in the prostate gland. Infections of the urinary tract are usually limited to the bladder and produce a variety of possible symptoms including urinary frequency, pain or discomfort when passing urine, and urgency. Sometimes the urine appears cloudy or smells offensive. If the infection ascends the urinary tract to the kidneys, the patient is usually more unwell with the above symptoms and in addition loin pain, fever and, sometimes, rigors (shivering). Most simple urinary tract infections can be treated with oral antibiotics. Co-amoxiclav (Augmentin 375mg,

TABLE 18.4 MANAGEMENT OF RESPIRATORY AND EAR INFECTIONS

<i>Diagnosis</i>	<i>Symptoms</i>	<i>Treatment</i>	<i>Other</i>
Colds or flu (viral)	Runny nose, dry cough, mild sore throat	Paracetamol or aspirin every 6 hours	Antibiotics do not help
Sinusitis	Pain over sinuses/headache.	Paracetamol or aspirin	If severe persisting pain consider Augmentin 375mg three times a day for a week. Steam inhalations help ease the symptoms
Ear problems	Inflamed (red) ear canal	Otosporin ear drops (two drops, three times a day)	Use antibiotics if there is increasing pain, redness, discharge or if the ear drum is red (Augmentin 375mg, three times a day for 5 days)
Sore throat		Most are viral – paracetamol or aspirin, gargle with soluble preparations if available	If very red throat, swollen tonsils with pus, sometimes with swollen tender lymph glands in the neck give phenoxymethylpenicillin or erythromycin (500mg, four times a day for a week)
Acute bronchitis/ chest infection	Cough and sputum, if persistent purulent (thick yellow/green) sputum	Augmentin 375mg, three times a day for 5 days. If penicillin allergic use erythromycin	May follow a bad cold
Pneumonia	If dry cough ± chest pain, fever, breathlessness	Erythromycin 500mg, four times a day for a week	If same plus productive cough with purulent sputum give Augmentin 375mg, three times a day for 5 days. Consider evacuation

three times a day for 3 days) or ciprofloxacin (250mg, twice a day for 3 days) are all reasonable choices for empirical therapy. A good fluid intake is also important. Proper hydration is a good prophylaxis against urinary infection.

Women may sometimes be troubled by thrush, a vaginal yeast infection (*Candida*), often causing a thick white discharge. Thrush occurs more commonly in trop-

ical climates and may also be triggered by taking antibiotics. Thrush can be treated using local clotrimazole (Canesten) cream and pessaries. Frequent sufferers should discuss the problem with their doctor before leaving home and ensure that they travel with a suitable supply of medication.

Sexually transmitted diseases may present as a discharge from the penis or vagina. This may be chlamydia or gonorrhoea. The medical officer should establish how this was acquired, treat the case, and treat any accessible sexual contacts with ciprofloxacin 500mg as a single dose plus erythromycin 500mg four times a day for 10 days or doxycycline 100mg twice a day (if available). Give health advice regarding risks of HIV, herpes, hepatitis B and syphilis, all of which can be acquired by unprotected sexual contact.

Management of urinary/genital tract infection

1. For cystitis (bladder infection) in young woman – stinging when passing urine, urgency, frequency – give co-amoxiclav (Augmentin 375mg, three times a day for 3 days) or ciprofloxacin (250mg, twice a day for 3 days). Increase fluid intake.
2. For sexually transmitted infection give ciprofloxacin 500mg as a single dose plus erythromycin 500mg four times a day for 10 days. If HIV contact is a strong possibility, consider evacuation for assessment for anti-HIV drugs immediately.
3. For thrush give local clotrimazole (Canesten) cream or pessaries. For other types of discharge (such as anaerobic vaginosis) give metronidazole 2g as a single dose.
4. For prostatitis – burning when passing urine, frequency, urgency and pain give ciprofloxacin 500mg twice a day for 10 days.

Skin and soft-tissue infections

Small cuts and wounds and insect bites easily become infected on expeditions, particularly in the tropics. Most of these infections are caused by staphylococcal or streptococcal bacteria. Any cuts, however small, should receive first aid treatment and be cleaned with an antiseptic solution and covered with a plaster. Wounds that are infected are red, painful and inflamed, and pus may be present. Boils are abscesses of the skin and are usually caused by staphylococci. Soft-tissue infections respond to antibiotics such as flucloxacillin (250–500mg tablets, four times a day for 5 days). Larger abscesses may require incision and drainage of the pus.

Sometimes large areas of skin on the legs develop a rapidly spreading infection, usually caused by streptococci, and cause the leg to become painful, red and usually swollen. Sometimes blisters appear in the skin and the lymph glands above the affected area may be swollen and tender. This condition is called **cellulitis** and requires antibiotics. If not treated quickly, the infection may spread further, necessitating intravenous or intramuscular antibiotics. Initially, large oral doses of ampicillin/amoxicillin (500mg–1g three times a day) are the most effective treatment.

Animal bites need urgent attention. Clean thoroughly with antiseptic solution (Savlon, chlorhexidine) or failing that soap and water. Give co-amoxiclav (Augmentin 375mg, three times a day for 5 days). Consider the risk of rabies (see Chapter 19).

Athlete's foot, or **tinea pedis**, is a fungal infection of the skin between the toes. This can be particularly tiresome for people with sweaty feet. Wash the feet thoroughly, and dust the feet and socks with Mycil or some similar antifungal dusting powder, or apply cream, such as Canesten.

Antihistamines can be used to suppress **allergic reactions** of various sorts and are useful in suppressing nettle rash, itchy skin conditions, hay fever and the itch associated with insect bites. Remember that all antihistamines, to a varying extent, cause drowsiness. People who are at all drowsy should not drive. Loratadine (Clarityn), available over the counter, is very effective and only needs to be taken once a day at a dose of 10mg. Chlorpheniramine (Piriton) is a slightly sedating antihistamine but again is very effective taken as 4mg up to six times a day. People who are driving should not use the latter.

Bites by insects, mites, fleas, ticks, etc. may introduce important infections (e.g. malaria, dengue, Lyme disease, scrub typhus, African tick typhus, plague, etc.) and often become secondarily infected, especially if the mouth parts (ticks) are left *in situ* or the itchy bite is scratched.

Cutaneous larva migrans

This is a travelling “worm” track, usually red and itchy, and commonly on the foot or any other part of the body that has come into contact with the ground. It is quite a common problem in many parts of the world, particularly the Caribbean and Africa, and results from infestation with animal parasite worm larvae, usually dog hookworm. It is harmless and self-limiting, because the animal parasite larvae cannot mature in human tissue. It is often irritating and itchy and for that reason those with it want something done about it.

Myiasis

This is maggot infestation. The African variety is caused by the Tumbu fly and is particularly prevalent in West Africa. The fly lays its eggs in clothes hanging up to dry or on the ground near human habitation. The young larvae hatch when they come into contact with warm skin and burrow into the skin and grow. Kill the eggs by ironing clothes (if at all possible) or dry them in the direct sunshine until they become crisp. This kills the eggs. As the maggot grows a lump develops under the skin (usually painless and not red). Cover the little hole at the top of the lump with Vaseline and the maggot will emerge to breathe. Catch it with tweezers and pull out.

The Central/South American variety is caused by the fly *Dermatobia hominis*. It lays its eggs on mosquitoes or ticks which transmit the maggot when they bite a host. Treatment is the same as for the Tumbu fly larva.

Tick bites and Lyme disease

Tick bites can transmit many infections from tick typhus in Africa (see Chapter 2) to Rocky Mountain spotted fever, ehrlichiosis in North America, and tick-borne encephalitis in Europe. Lyme disease is a common infection transmitted by ticks across the northern hemisphere.

Ticks should be removed as soon as they are noticed. There are many patent methods for tick removal. Avoid burning them off as it will hurt you more than the tick. Pulling them off tends to leave the tick mouth parts in the skin. Noxious substances such as insect spray and alcohol will remove the tick but probably not before it has vomited into the wound and this may potentiate the transmission of any infection. Two methods work well. The first is to use a dog tick remover available from pet shops. It is a metal strip with a V groove at one end. This slips under the tick mouth parts and levers the tick out. The second is to cover the tick with Vaseline or sun protector. The tick cannot breathe and releases its hold.

Lyme disease is a bacterial infection transmitted by ixodes ticks. It is characterised by a spreading red rash, often with a red leading edge and pale centre, at the site of a tick bite. If this is present, treat with 10 days' worth of ampicillin/amoxicillin (500mg three times a day) or doxycycline (100mg two times a day). Untreated Lyme disease may lead to spread of the bacteria in the body and cause later complications, lasting from several weeks to months after the initial infection. The most common complication in North American Lyme disease is arthritis. In European Lyme, nervous system complications such as a Bell's palsy (weak face), peripheral neuropathy (weakness or tingling in the limbs) or radiculopathy (pain in a skin area served by a spinal nerve root) can result. If this is suspected the diagnosis should be confirmed with a serological blood test and appropriate treatment should be given by a doctor.

Management of skin and soft-tissue infection

Clean all minor wounds with antiseptic and keep covered and dry.

1. Where skin is infected skin/soft tissue is red, inflamed and tender \pm pus give flucloxacillin 500mg 6 hourly for 5 days.
For spreading cellulitis give ampicillin/amoxicillin 500mg-1g three times a day for 5 days.
For bites – clean, give co-amoxiclav (Augmentin 375mg, three times a day for 5 days) and consider the risk of rabies.
For patients allergic to penicillin treat with a course of erythromycin (500mg, three times a day for 5 days).
2. Chronic (unhealing) ulcer at the site of a sandfly bite. In several parts of the world but especially Central America this may be cutaneous leishmaniasis (a protozoal infection). Not immediately dangerous. Seek medical attention on return.

3. Myiasis: abscess swelling which may be tense but is not usually too painful. It has a central punctum (hole) and no pus. This may be maggot infestation, especially in West Africa (Tumbu fly) or Central America (*Dermatobia*). If suspected cover the hole with Vaseline. Wait several minutes and the maggot will emerge slightly to breathe. Grasp firmly with tweezers and pull out!
4. A circular raised spreading rash, sometimes scaly or damp and oozing, may be fungal “ringworm” infection. Use miconazole (Canesten) cream.
5. Cutaneous larva migrans is a spreading itchy red track travelling just beneath the skin surface, usually found on the foot, leg or buttock. This is the larval stage of an animal parasite. It is not dangerous, merely irritating and will resolve without treatment after 2–3 months. Apply topical thiabendazole liberally over the tracks daily for 5 days (grind up a 500mg tablet with 5g petroleum jelly).
6. For tick bites, remove the tick. If suspected Lyme disease rash develops treat with 10 days’ worth of ampicillin/amoxicillin (500mg three times a day) or doxycycline (100mg twice a day)

HIV and AIDS

HIV and AIDS are increasingly prevalent throughout the developing world, particularly in sub-Saharan Africa, south Asia and Latin America. In these areas HIV is spread mainly through heterosexual activity. In many African cities more than 80% of prostitutes are infected with HIV. There has been a steep increase in the incidence of HIV infection in south-east Asian countries, such as Thailand and the Philippines, and in India.

HIV infection is essentially a sexually transmitted disease. **Unprotected sexual activity carries a risk of HIV infection.** HIV can also be transmitted by transfusion of blood and blood products that have not been properly screened; by intravenous drug abuse when needles or syringes are shared with infected people; by needlestick injuries with contaminated needles (percutaneous exposure); and across the placenta from an infected mother to her fetus. However, the virus is delicate and does not survive for long unless it is in blood or body fluids. It is not spread through the air and is not transmitted by biting insects, handshakes or lavatory seats.

Prevention

For expedition members the message is simple: do not have unprotected sexual intercourse. If having sex a good-quality condom must be worn by the male partner or a female condom by the female. Oral sex is not safe sex. Unprotected sex also carries the risk of acquiring potentially severe hepatitis B infection as well as a wide range of familiar and more exotic sexually transmitted diseases, such as gonorrhoea, chancroid, non-specific urethritis and syphilis.

Unfortunately rape and assault are not uncommon. Try to avoid getting into situations where you are at risk of an assault. If the unthinkable happens, then do not

forget HIV in the aftermath and seek early reliable medical attention. If there is a serious risk of HIV infection then expensive and not always available anti-HIV drugs can be given to prevent infection. Established HIV infection remains incurable, but anti-HIV drugs may prevent infection becoming established if they are given rapidly, within a few hours of exposure if possible or within a few days if not. Specialist advice should be sought after sexual assault and it is best to evacuate the victim to their home country as soon as possible. There is no vaccine against HIV infection and no immediate prospect of one being developed.

Avoiding contaminated needles and blood transfusion in developing countries

Many infectious diseases can be spread in infected blood from person to person through the use of non-sterile needles and unscreened transfused blood. Some of the most important are HIV, hepatitis B and other hepatitis viruses, malaria, relapsing fevers, South American trypanosomiasis (Chagas' disease) and haemorrhagic fever viruses. Intravenous drug abusers (mainliners) are at particularly high risk through contaminated needles. Of course, drugs of addiction have no place on an expedition for, apart from any long-term damaging effects on health, they will dangerously impair the competence and judgement of expedition members.

Earlier in this book it was pointed out that an accident is a common hazard facing all expeditions. It can be small, such as a cut that needs suturing or a cut that has become infected and needs injection of an antibiotic. Lone travellers and small expeditions must take with them a small kit of sterile medical equipment (see Chapter 3, page 32) and insist that the contents be used for any injections or suturing that may be necessary. For larger expeditions a more elaborate kit, containing "giving sets", plasma expanders and so on, is now essential (see Chapter 3, page 32). It is wise for every traveller to have his or her blood group determined before departure. It may be that two or more members of an expedition have compatible blood. If it has been screened in a blood transfusion centre in the UK, it will automatically have been screened for HIV. Find out in advance where you can get access to screened blood supplies in the host country. It may also be possible to obtain cover from Blood Care Foundation, a registered charity that couriers and transfuses compatible blood in the event of an emergency, in return for a nominal fee paid in advance. Cover can be arranged through most travel clinics.

Managing HIV

Practice safe sex (use a condom at all times) – oral sex is not safe sex

Avoid sex with high-risk partners

Avoid contaminated needles and blood products

If raped or assaulted seek urgent medical attention.

If risk of HIV is high, early antiviral prophylaxis may well prevent infection

TABLE 18.5 A SELECTED LIST OF ANTIBIOTICS SUITABLE FOR TREATING MOST COMMON INFECTIONS FOR A LARGE EXPEDITION

<i>Antibiotic</i>	<i>Common uses</i>
Penicillin	Streptococcal sore throat, cellulitis
Ampicillin/amoxycillin	Chest infection, spreading infection on skin (cellulitis)
Co-amoxiclav (Augmentin)	Chest infection, skin infection, bites, urinary tract infection
Flucloxacillin	Staphylococcal skin infections, boils, impetigo
Doxycycline/tetracycline	Chlamydia infection, tick typhus, Lyme disease, atypical pneumonia
Erythromycin	Skin infection, pneumonia and for penicillin-allergic patients
Metronidazole or tinidazole	<i>Giardia</i> /amoebic bowel infection, some genital tract infection
Ciprofloxacin	Urinary tract infection, severe bacterial gastroenteritis
Chloramphenicol eye ointment	Conjunctivitis

TABLE 18.6 A SHORT SELECTION OF ANTIBIOTICS FOR A SMALL EXPEDITION

<i>Antibiotic</i>	<i>Common uses</i>
Co-amoxiclav (Augmentin)	Chest infection, skin infection, bites, urinary tract infection
Ciprofloxacin	Urinary tract infection, severe bacterial gastroenteritis
Metronidazole	<i>Giardia</i> /amoebic bowel infection, some genital tract infection
Chloramphenicol eye ointment	Conjunctivitis
Erythromycin	For penicillin-allergic patients

TABLE 18.7 MANAGEMENT OF A HIGH FEVER

Management of a high fever > 38°C	
Is there an obvious site of infection (i.e. throat, chest, skin, gut, urine)?	
YES	NO
<ol style="list-style-type: none"> 1 Red painful throat ± lymph glands enlarged. Glandular fever or streptococcal throat. Treat with penicillin or erythromycin 2 Chest infection/cough. If productive sputum is purulent (mucky) give Augmentin. If dry cough give erythromycin 3 Severe abdominal pain. This may be a surgical problem, e.g. appendicitis. Emergency – get to hospital Give Augmentin initially 4 Diarrhoea as main feature: – give ciprofloxacin and rehydrate 5 Skin and soft tissue: – spreading redness, swelling and pain (cellulitis), give Augmentin – localised infection/abscess/pus present, give flucloxacillin 6 Pain passing urine or loin pain, i.e. over kidney, give ciprofloxacin or Augmentin 	<ol style="list-style-type: none"> 1 Is this heat exhaustion/dehydration? If so treat appropriately, i.e. cool and rehydrate 2 In a malarious country fever, shakes (rigors), muscle aches, headache = likely malaria. Give quinine 600mg three times a day and evacuate. Emergency 3 Rash that does not blanch when pressed, cool peripheries – hands, feet; with or without stiff neck, headache, aversion to bright light = meningococcal sepsis. Emergency – evacuate. Give intravenous antibiotics (penicillin, ceftriaxone) if available. If not give oral ciprofloxacin + penicillin 4 Tick bites that look inflamed (± black scab). Raised red rash elsewhere. May be tick typhus. Give doxycycline 100mg twice a day