Insect Bites and Stings

Some information on bites and stings......

Insect bites are a very common cause of over the counter consultations in pharmacy. Some bites last for minutes, some for an hour or two, but those that last longer are an allergy, and should be treated as such. Apart from biting insects irritating most of us at some time, the enjoyment of holidays can be seriously affected if bites and stings are not treated quickly and effectively. Treating symptoms with itch relieving local anaesthetic creams (e.g Lignocaine), while helpful, is not treating the cause of continual itch or discomfort—the allergy itself. Adding an itch reliever to a non sedating (non sleepy) anti allergy tablet or mixture is the optimal way to treat these little annoyances.

Sand fly bites (also known as midges), mosquito bites, and bed bug bites are the most common sources of itchy, annoying reactions we may experience. Any reaction that lasts longer than an hour or two is due to the release of allergic chemical mediators (histamine, cytokines etc) at the site of the bite. These insects all inject foreign proteins (e.g. anticoagulants, anaesthetics) at the bite site, to which the body reacts. Not everybody reacts in an allergic or exaggerated fashion, and some people exhibit more dramatic responses than others. The effective treatment of the bite, and thus the itch/irritation, is to treat this reaction. Treat the allergic response, which minimises the further reactivity of the bite, and the itch is less, and the bites go away faster. Great!

Types of bites

If the causative insect is unknown it can usually be surmised by the pattern of the bites on the body, and by knowing or guessing the geographic location where the bites were obtained. Mosquitoes are usually obvious, sand flies less so (tiny, silent, occasionally painful when biting), and bed bugs are much sneakier again. Note that some bites will be obvious within minutes, and some may manifest after a day or two, depending on an individuals allergy. Either way, avoidance of bites is the goal!

- A large number of bites around the lower legs/ankles usually indicate sand fly (midge) bites. A lot of bites can be accumulated in a short period of time. The "Sand fly" is a group of different tiny insects, not one species. Different sand flies will be prevalent in different locations, and at different times of the year. Some people will react to one type, but not others, and will say they are "not allergic to sand flies," but may be allergic to their latest biter. DEET based repellents containing a minimum of 20% DEET should be effective, and the higher the percentage, the longer it will work as a repellent for. Sand flies bite exposed skin only, and can get through fly screens.

- Mosquitoes will often be seen, felt, and sometimes heard. Some mosquitoes carry viruses, such as Ross River fever, Barmah Forest virus, and in tropical FNQ, dengue fever. It is best to avoid being bitten by mosquitoes wherever possible. All repellents containing DEET will be effective, as long as used properly.

- Bed bug bites are usually accumulated while sleeping. Areas of bare skin exposed at night are prone to attack, which determines the pattern of allergic bite reactions. The most common site of the bite is the arm. In hot climates, necks, legs, and shoulders will also be bitten. The appearance is generally in "lines" of bites, as the bed bugs do not jump or fly, and bite the exposed skin at the level of the sheet. Skin not exposed, such as the front or back of the leg (if sleeping on the tummy, or back, respectively) will not have any/many bites, compared to the sides. Some people have hundreds of bites, and some only a few. It is difficult to be certain of the cause if only a few bites are evident, but if you suspect bed bugs, some general advice on bed bugs is available at www.betterhealth.vic.gov.au - a good source of information. Given most people will spend about 8 hours a night in bed, any repellent that lasts less than 8 hours is pointless, especially as bed bugs seem more active in the hours immediately before dawn. Keeping the skin covered is the best protection if bed bugs are present, or an infestation suspected. Long sleeves, shirt tucked in, gloves, sheets tightly tucked in, may all be necessary.

- Single bites, especially if a little painful/stinging, may be spider bites. Spider venom contains potent chemicals designed to break down tissue to be "sucked out" by the spider (this is how they digest the small insects they prey on). The destruction of tissue at a spider bite site can cause pain and stinging, and lead to nasty secondary infections. Patients can be treated for symptoms like itch or pain, and need to be watchful for secondary infection. Sometimes, if the bite is red, painful and increasing in size, a doctor will need to be seen as antibiotics or antibiotic ointments are required to treat the infection. Bites are commonly on hands (from bites given while gardening) and feet (from spiders hiding in shoes or boots).

- Blue bottle (physalia) stings are very painful, as can be other jellyfish stings. Immediate first aid is ice packs. Some people will also get an allergic response to the sting, and antihistamines are very helpful. Anaesthetic creams and lotions may also be helpful for any itch or discomfort.

NOTE that box jellyfish stings (Chironex) and Irukandji stings are medical emergencies that require immediate medical care.

Coral scratches can also lead to allergic reactions, as well as being a source of infection from the bacteria living in the sea. Betadine is the best first aid, and reactions treated as usual.
Here are some pictures to help you review these different types of bites and stings:

(Please note these bites/stings may present in many different ways and it is useful for your pharmacist to be involved in the diagnosis.)

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<thead>
<tr>
<th>Sand Fly Bites</th>
<th>Mosquito Bites</th>
<th>Bed Bug Bites</th>
<th>Spider Bites</th>
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Some fast facts...

- About 1 in 10 people bitten by sand flies or bed bugs will react in an allergic fashion.
- The bites will linger for different amounts of time in different people, from a couple of days to a week or two, and can vary in the itching intensity from time to time, and person to person.
- Bites will vary in size, appearance, and itch, due to differing amounts and impact of individual allergic mediators. Histamine is a common mediator, but not the only one.
- These insect pests do not urinate on the skin; they are biting for a blood meal. Only the female sand flies and mosquitoes bite, as they need blood protein to make eggs, and bed bugs need blood meals to grow.
- Some people seem to get bitten more than others. Biting insects seek heat, CO2, and ammonia to find their victims. Certain coloured clothing may have an impact (e.g. march flies love blue colours). As a guide, however, if 2 people are doing all activities together but only 1 has lots of bites, that person is most likely reacting in an allergic fashion, rather than being the only one bitten. The one not exhibiting bites was probably bitten equally, but not reacting. This is commonly seen with bed bug infestations, where the bugs are seldom felt or seen, and the only evidence of a bite is the allergic reaction to it.
- Some individuals have bites that itch a lot, and some have bites that react but hardly itch at all. These non-itchy individuals may still use treatment of the bites for aesthetic reasons, to make them disappear faster.

What else can I do to stop the itch and make the bites go away?

- Small and large red itchy bites will generally be driven by the release of histamine. Antihistamines will minimise itching, redness, and especially the tendency to react further. The bites will be less itchy, and disappear faster. ANY bite that appears to have a fluid/blistery sheen or appearance is also driven by other chemical allergic mediators, not just histamine, and should be treated with the addition of a cortisone based cream. If cortisone is not added to the treatment regime (as a cream available in the pharmacy (Cortic, Dermaid) or from doctors) the bites will remain itchy, and persist in reacting for days longer. The patient may be marginally comfortable with antihistamines alone, but will get more relief with both treatments.
- Avoid hydrocortisone on broken skin, as it may promote infections. Anti itch creams containing local anaesthetics and antibacterial (e.g. Apothecary Itch-eze 5% lignocaine cream with tea tree oil) should give extra relief, and minimise secondary infection.
- Heat and scratching the site will cause a retriggering of the allergic reaction, leading to further itch, and causing the reaction to remain for a longer period of time. Cold showers, evaporative lotions etc can help relieve itching temporarily, if used as adjuncts to anti allergy treatments and local anaesthetics.
- Prevention of secondary infection of the bite, especially by Vibrio bacteria, which live in the sea in the tropics, is essential if people are planning to swim/dive/snorkel. Minimising scratching, especially while asleep, is very important. Not getting too hot while asleep is prudent and hand coverings (e.g. socks) at night may limit scratching.

Overview of products for Optimal Care

- **Antihistamines**—to reduce swelling and itch of bites—tablets and mixtures for children—non sleepy, 24 hour acting. Safe with almost all medications, alcohol, and almost all medical conditions.
- **Itch-eze cream**—this is a fantastic product with a local anaesthetic to numb “itchy skin” and an antiseptic to prevent infection (N.B. Not available in NSW—consider SOOV as an alternative).
- **Hydrocortisone cream** (1% strength is a S3 product, so must be pharmacist recommended) - this will act as an “anti-inflammatory” to make those itchy bites better a lot faster, especially if they look like tiny, watery blisters.
- Effective **insect repellent** (preferably containing DEET—20% minimum for sand flies).
- **Soap free body wash** (e.g. Pinetarsol, QV, Dermaveen) - not irritating to skin, as soaps or other cleansers with artificial fragrances, colours etc may be.
- **Betadine antiseptic liquid**—for coral cuts, and to avoid secondary infection.
So what is DEET???

N,N Diethyl Toluamide (DEET) is internationally recognised as the most outstanding, all purpose repellent available. The New England Journal of Medicine refers to DEET as the ‘Gold Standard’ of repellents. Patented by the US Army in 1956 DEET is deemed the safest and most effective out of over 30,000 chemicals tested over an 18 year period and is the standard by which other repellents are compared. Used by an estimated 200 million people a year around the world DEET is used in both consumer and military grade repellents.

How does it work?
Repellents work on spatial action. They place a vapour barrier between the skin and blood seeking insects. For this barrier to be effective all exposed skin must be covered.

How to Apply Repellents
Regardless of the repellent’s strength, to be effective all exposed skin must be covered. The percentage of DEET in the formula will determine only the length of protection time.

NOTE: the stronger the DEET based repellent, the longer it works for, and because it is applied less often, LESS DEET is absorbed through the skin, despite the higher concentration. Some people worry about DEET, and that it dissolves plastic. People are NOT made of plastic.

Summary Points.....

- If bites are itchy, and persist for more than an hour or two, they are allergies.
- If you are not treating the allergy, you will not be minimising symptoms, or minimising their duration.
- Local anaesthetic creams are very helpful symptom relievers, especially when used in combination with antihistamines, and hydrocortisone cream, if required.
- Hydrocortisone is an invaluable adjunct to antihistamines if there is any fluid/blistery look to intact bites.
- Very bad cases (e.g. lots of blisters, unresponsive to effective pharmacy treatment, unbearable itch etc) need to be referred to a doctor for systemic steroids, checks for secondary infection etc.
- A week can be a miserably long time if suffering from lots of itchy bites. A holiday ruined by sleeplessness due to itching, followed by scars or red marks, is very memorable. It should not be.

Not all people with bites will consult a pharmacy for advice. If you see people suffering with bites, tell them to visit their local LiveLife Pharmacy for help and advice. Not all will accept it, but those who do will be grateful. It should save them a lot of distress, discomfort, and potential scarring.