

Inhalers and the health of the mouth

“What asthma and lung disease patients need to know”

Some important points covered in this leaflet:

1. It is critically important to provide all known details of all your medications, naturopathic remedies and supplements to all healthcare professionals including the dentist. The drug name, the dose taken (strength and number of tablets or capsules) and how often the drug is taken, are important data and should be recorded in your clinical notes. If you cannot remember all this information, ask your GP for a medication summary to keep in your wallet or handbag.
2. Patients should ask their GP for a medical summary to be carried with them, particularly as they get older, or if their medical condition becomes more complex. This can be very important if you have an accident and are taken to hospital to help the medical team provide the right care for you.
3. Inhaled medicines used for the treatment of asthma and chronic obstructive pulmonary disease (COPD) can have adverse affects on oral health. However, the benefits the drugs have on lung function far outweighs the usually mild nature of oral adverse effects.
4. The longer these drugs are taken the more likely they are to cause adverse effects in the mouth.
5. Adverse effects in the mouth may be a sign of incorrect use of the inhaler.
6. Correcting use of the inhaler may assist in reducing oral side effects and may allow the inhaled medicine to have a greatly enhanced effect in treating the lung disease and prevent flare-ups.
7. There are over 30 different types of inhalers on the Australian market, most of which are nothing like a “Ventolin” and require different techniques for use.
8. Correct use of an inhaler and medication is required to achieve the best treatment and reduce unwanted side effects.

DETAILED & ACCURATE MEDICAL HISTORY

When dental patients are asked to complete a medical history form, they frequently fail to provide details of all their drugs, medications, supplements, naturopathic remedies and over the counter medications or other substances they may take, including “*recreational*” drugs.

Generally it is **injections, pills, capsules and liquid medications** that patients associate with taking medicine. They often overlook **inhalers**, and this again is something that may only be discovered in their consultation in a one-to-one discussion between the patient and their dentist or surgeon.

With adverse oral effects being linked with the use, or inadvertent misuse, of all drugs taken by inhalers, it is best for patients to bring a list of all the medicines they use.

The medical history must include all pills, capsules, liquid medications, injections and inhalers/puffers, including trade names, dosage, frequency and duration of use.

If patients are not aware of these details, their GP can be asked to provide a medical summary, which includes a summary of all medical conditions, and the medications being used by the patient. Details of over-the-counter, naturopathic remedies and complementary medicines should also be obtained. For this reason, please bring a list of these additional medications with you to your consultation appointment.

Medical or naturopathic medications may influence clinical care of a patient and **it is extremely important that patients give every possible detail to all health care professionals who provide them with any health care service, no matter how unimportant or trivial it may appear to the patient. Too much information is safer than incomplete information.**

This leaflet will provide details of the possible **adverse oral effects** that can arise from the use of **asthma and other lung disease inhaled medications.**

Oral adverse effects of inhaled medication

There are several adverse effects that can arise in the mouth of patients who routinely use asthma and COPD medications by inhaler. These adverse effects are exaggerated if the inhaled drugs are used incorrectly as the drug “sticks” to the soft tissues in the mouth and throat.

If adverse oral effects are seen in a patient using inhaled medication for lung disease, the first approach should be to improve the technical use of the inhaler, then consideration should be given to reducing the drug dose used, and consideration may be given to using a spacer device for those patients unable to improve their technique using a metered dose inhaler.

The adverse effects caused are outlined below:

- **Dry mouth also known as “xerostomia”**, is probably the most commonly encountered adverse oral effect caused by several medications. Many different types of medicines can cause this side effect by altering the composition of saliva and reducing saliva production. With reduced saliva, oral tissues can become tacky making speech more difficult, reducing lubrication of the food leading to difficulty swallowing, and taste sensations can also be altered. Reduced saliva can cause soreness on the oral soft tissues and denture wearers may be unable to wear dentures due to the lack of lubrication and adhesion of the dentures. Patients should drink or sip water regularly, chew sugar-free gum to stimulate saliva production and consider using lubrication medications including Biotene® products available from pharmacies and supermarkets.

- **Dental decay** is frequently the result of reduced salivary production or poor quality saliva in a mouth where there is dental plaque and regular intake of sugars. This is the case in many patients of all ages. Saliva plays a significant role in both buffering (neutralising) the acidity produced by plaque following the breakdown of sugars in the mouth. Saliva also contains enzyme systems that have an antibacterial effect and hence if there is reduced salivary activity, bacterial numbers may be far greater. These greater numbers of bacteria can lead to enhanced disease activity due to the suppression effect of the corticosteroids on the immune system. Intense and effective oral hygiene techniques are required for any patient with a dry mouth, particularly if they are using inhaled medications or cortisone-based anti-inflammatory medications. Additional regular use of topical remineralising oral pastes are also advised for these patients including ToothMousse.
- **Dental erosion (loss of tooth from the chemical dissolution of tooth tissue)** results in loss of the outer enamel of the crowns of teeth in the mouth. With gradual loss of this hard protective layer, the underlying softer dentine can become exposed to the oral environment. Resulting root and dentine caries (decay) can result and its progress is found to be far more rapid than usual decay that occurs in patients with adequate enamel thickness to delay the entry of decay into the dentine. The use of remineralising agents helps reinforce the damaged tooth surface to improve the resistance to decay.
- **Gum disease** also known as periodontal disease is the result of a balance between the damaging bacterial factors, the patients' own defence mechanisms in the mouth and the general immune system and other environmental factors of the mouth. Saliva forms part of these environmental factors.
- **Disturbance of normal taste** is to be expected with a lack of the normal oral preparation of the food before swallowing in the absence of saliva.
- **Changes to the oral soft tissue surface** including the appearance of ulcers and redness due to frictional trauma resulting from the absence or reduction in salivary lubrication.
- **Bad breath** also known as halitosis
- **Dysphonia** – difficulty speaking can result from the local effects of the drugs and steroids on the function of the pharynx/larynx
- **Infection with Candida (fungus)** also known as thrush or Candidiasis.

What are medicated inhalers used for?

There are primarily two conditions for which inhalers are used, these being asthma and chronic obstructive pulmonary disease (COPD). Both conditions are relatively common in the Australian population and affect people of all ages.

Two types of drugs for treatment of asthma and COPD

Both asthma and COPD are managed using a range of drugs that are described as “*relievers*”, “*preventers*” or a *combination* of these. Such medications are administered using various types of inhaler devices.

“**Relievers**” are also known as ‘**bronchodilators**’; they work by relaxing the muscles in the upper airways, opening up those airways and improve breathing fairly quickly.

“**Preventers**” on the other hand, are cortisone-based anti-inflammatories that reduce inflammation and swelling in the walls of the airways gradually allowing air to flow in and out of the lungs more easily. This is the method by which these drugs help to prevent asthma and COPD. The role of preventers is to keep the disease at bay and hopefully eliminate the need to use relievers altogether.

Nowadays the emphasis of lung disease management is on prevention rather than acute treatment, so most inhalers are used on a daily basis. Currently there are between 20 and 30 medications available in different devices and different combinations that all work to manage asthma and COPD.

Some examples of medicines used

A common “reliever” drug used for the treatment of asthma that has been around for over 50 years, is Ventolin. The name “Ventolin” is a trade name for the drug Salbutamol that is a short acting drug that quickly relieves the acute symptoms of asthma. Other brand names of products containing Salbutamol include Airomir® inhaler and Asmol ® MDI.

To better manage these chronic diseases, nowadays there are a number of alternative longer-lasting drugs including diverse products such as Spiriva Handihaler, Incruse Elipta, Seebri Breezhaler, Serevent Accuhaler, Onbrez Breezhaler. Those named here are the products I find patients appear to be prescribed most commonly.

Relievers tend to be cortisone -based drugs (also known as corticosteroids) that have an anti-inflammatory action and these include Pulmicort turbuhaler, Flixotide Accuhaler, Flixotide MDI, QVAR MDI and QVAR autohaler. (*MDI= metered dose inhaler*).

Types of inhalers

There are broadly three types of inhaler available. The simplest of these mechanisms work well, but its effectiveness relies on the patient using it correctly. Particularly in older adult patients, it has been found that incorrect use is common.

Finally there are the combination products that contain the two types of drugs in the one inhaler providing both relief of acute symptoms, and longer-term prevention of further symptoms of asthma and COPD. These include the commonly used Symbicort turbuhaler, Symbicort Rapihaler, Seretide MDI (metered dose inhaler) and Seretide Accuhaler, among others.

Manual inhalers

Although the simplest inhalers like that used with Ventolin appear easy to use, the timing of the release of the drug spray and the patient’s timing of their in-breath must be well synchronised, otherwise most of the drug stays in the mouth and sticks to the wet oral tissues and tissues in the throat. Consequently the drug will do little to relieve the respiratory symptoms. Unfortunately, drug repeatedly deposited on the oral and pharyngeal soft tissues can have a number of adverse effects.

Patients must use inhalers according to the detailed manufacturers instructions.

Pressurised metered-dose inhaler instructions are available online at:

https://www.nps.org.au/data/assets/pdf_file/0010/256195/asthma-inhaler-device-techniques-checklist.pdf)

Summary of Metered Dose Instructions:

1. Remove cap
2. Check dose counter (if applicable)
3. Hold inhaler upright and shake well
4. Breathe out gently, away from the inhaler
5. Put mouth-piece between teeth without biting and close lips to form good seal
6. Start to breathe in slowly through mouth and, at the same time, press down firmly on canister
7. Continue to breathe in slowly and deeply
8. Hold breath for about 5 seconds or as long as comfortable
9. While holding breath, remove inhaler from mouth
10. Breathe out gently, away from the inhaler
11. If an extra dose is needed, repeat steps 2 to 10
12. Replace cap.

Auto-inhalers and dry-powder inhalers

For people who have difficulty coordinating the activation of the inhaler with breathing-in, have weak hands or impaired manual dexterity, there are two other ways to administer asthma and COPD medications using inhalers.

- **The first is using an Auto-inhaler** (e.g. Airomir Autohaler). This releases the metered drug dose automatically activated by the suction, or negative pressure created by the patient breathing in. Many patients find it is helpful to have the in-breath and release of the spray automatically synchronised by the device. .
- The other way in which these drugs can be released is using a **dry powder inhaler** that sends a fine dry powder containing the drug, in an air-flow down to the lungs as the patient breathes in. The technique for using these inhalers can be quite complicated, so the patient needs to have training with their doctor or pharmacist, or watch on-line videos to be sure they are using the inhaler properly.

Spacers

Spacers can be used with inhalers to provide a reservoir for the collection of the drug, allow the patient to breath the drug in over a few breaths, and thereby reduce the deposition of drug in the mouth and throat. However, spacers can only be used with simple pressurised metered dose inhalers, not auto-inhalers or dry powder devices, and they must be kept scrupulously clean if they are to be effective.

Nebulisers

Nebulisers are machines that turn the medicine into a fine mist produced from water that carries the drug. It is delivered via tubing attached from the nebulising machine to the patient who breathes the medicine in via a mask. This technique is far less efficient than inhalers as it has been shown that half

the nebulised drug is lost into the environment. Nowadays use of nebulisers is generally discouraged

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