

Avoiding **drug errors** in the pharmacy

by Dr David Webb BSc (Hons), MBBCh

The safe and effective use of medicines is perhaps one of the most important challenges that healthcare providers face on a daily basis.¹

With rising costs of healthcare, the internet and easy access to medical information, more and more consumers are turning to self-diagnosis and self-treatment. While, in the case of minor illnesses or self-limiting complaints, over-the-counter (OTC) treatments allow immediate access to medicines and possibly considerable savings on healthcare expenses, where there is more serious pathology this behaviour may also delay accurate diagnosis and appropriate treatment.

Furthermore, although many over-the-counter medicines may be generally well tolerated when used in the correct dose for the correct length of time, no medicine is without risks.

In a study published in 2010, 3 040 patients from 69 community pharmacies in Europe were surveyed for drug related problems (DRPs).² DRPs were reported by 21% of these consumers and in just over one fifth the DRP was regarded as 'serious' or of 'high safety-relevance'.

Self-medication and new medications were the two factors most significantly associated with DRPs.

The point is that most consumers are often inadequately informed about the medicines that they are buying, how to use them and the potential for adverse effects. Even with prescription medicines, many patients leave the doctor's rooms ill-informed as to what has been prescribed and how to use it properly. Furthermore, adverse effects associated with OTC medicines, and especially unregulated supplements or remedies, are often unrecognised for what they are and go unreported, so they cannot be addressed.

Pharmacy staff are in a unique position to ensure the safety of customers who purchase health products in the pharmacy. By talking to the customer, asking them a few simple questions (Table 1) and ensuring that they understand how to take their medication, the pharmacist or pharmacy

assistant can help to ensure that they leave with a product that is right for them and unlikely to cause or exacerbate health problems.

The following points explain why it is important to speak to consumers before dispensing medicines or other OTC products.

1. All OTC products have the potential for adverse effects

Regardless of claims that are made concerning safety and

Table 1

Checklist to discuss medications and OTC products with customers

- 1. Who is the medicine for?**
- 2. Why are they asking for it?**
 - Symptoms and expectations from treatment
- 3. Ingredients**
 - Allergies
 - Contraindications
 - Concomitant medicines (including prescription, OTC, supplements and herbals)
- 4. Correct dose and how to take it**
 - Amount and how to measure
 - Frequency and duration
 - When to take it
 - Precautions
 - Breaking a tablet
- 5. Side effects**
 - Precautions (eg driving)
 - When to seek advice
- 6. When to see the doctor**
- 7. General advice**

About the author

Dr David Webb BSc(Hons), MBBCh, Killian Webb Medical Marketing & Training, Johannesburg

tolerability, all pharmaceutical compounds can potentially cause adverse effects. This, of course, is not only true for medicines, but applies also to supplements, tonics, herbal remedies and so-called 'natural' remedies. To claim that a compound is 'natural' and therefore devoid of the possibility of side effects is nonsense – up to 14% of people self-report allergies to simple foods, including fruits and vegetables.³ The potential for adverse effects will vary from individual to individual depending on, among other things, previous exposure, genetics and atopy; age; co-existing medical illnesses (eg asthma or diabetes) and co-morbidities, such as liver and renal dysfunction; and co-administered drugs or supplements.

Adverse effects have different implications in different patients. For example, whereas mild light headedness may be inconsequential in a young adult, it may cause an elderly person to fall, causing an injury or fracture.

2. Self-diagnosis may be incorrect

It is important to determine why a customer is asking for a particular medicine, if the self-diagnosis is correct and whether the medicine is appropriate. Patients and parents or caregivers buying medicines for children, are often seeking treatments for symptomatic relief (eg for relief of fever or pain) rather than treatment for a specific illness. Asking about symptoms, including their severity and duration, can not only help to confirm a diagnosis, but may

also identify more concerning symptoms that require referral to a doctor or clinic. Sometimes seemingly minor complaints, such as a protracted cough, sore throat or headache may be symptomatic of more serious pathology that requires further investigation.

Presumed classic symptom presentation or previous history of a condition do not necessarily ensure that self-diagnosis is accurate.^{4,5} In a group of women reporting a prior history of vaginal candidiasis self-diagnosing and using OTC preparations for a presumed repeat infection, only one third were correct in their diagnosis and were using appropriate medication.⁴

3. Consumers don't always know what they are taking or what they are buying

Many consumers will be familiar with the trade name of a brand of medicine, but they are frequently unaware of the active ingredients and are confused about brand and generic drug names.⁶ Although analgesics are among the most commonly used OTC medications, more than 60% of consumers are unable to identify the active ingredient in their brand of analgesic.¹ Consequently, they cannot have sufficient knowledge about drug usage, side effects, possible drug interactions and contraindications.

If this is true for medications, then it is even more so for OTC supplements, alternative

treatments, herbal and 'natural' remedies, which often contain a myriad of claimed 'active' ingredients, some of which may be poorly understood or undisclosed on the label.

4. Consumers do not necessarily make informed decisions about medicines

Consumers often seek a treatment that has been recommended to them by a friend or family member. Sometimes this may be a medication that has been initially prescribed by a physician. Consequently, the medication may be inappropriate for them or for their condition. Furthermore, consumer choices may be swayed by label language and graphics on the product packaging, which influence interpretation of OTC product indications and appropriateness for specific age groups (for example, a flower on a box of antihistamines, or a picture of a teddy bear on a cough mixture). Poor literacy and numeracy skills increase the risk of misinterpretation of these products.⁷ Advertising of unscheduled products, often with unsubstantiated claims and promises of better health or an improved cosmetic appearance, may also influence consumer choice. Compared to regulated medicines, these products present a challenge, because their actual ingredients may be unknown and some have been shown to contain

unregulated pharmaceutical compounds that are not stated on the label.^{8,9}

5. Dosing errors are easy to make

Even with medicines with apparently simple dosing, dose errors may occur. For example, overdosing may occur when too much medicine is taken at one time (eg two tablets instead of one), when the time interval between two doses is too short (eg 4 hours instead of 6), or when too many doses are taken in a 24 hour period. Dosing intervals need to be clearly explained; ie 3 times a day means every 8 hours; 4 times a day means every 6 hours. Where it is inappropriate, patients need to be cautioned not to break or chew tablets.

Dosing can be especially complicated when administering specific volumes of liquids and particularly when giving them to children. Age-related dosing is often inappropriate and dose should rather be individualised based on body weight (eg ml per

It's the shell that makes Ecotrin safer.

Safety-Coated
Ecotrin 81mg
The ORIGINAL low dose aspirin
for optimum cardio-protection

Each tablet contains Aspirin 81mg, Reg No.: 29/2.7/0767
Pharmatica (Pty) Ltd, 33 Hulbert Road, New Centre, Johannesburg 2001
Under licence from Goldshield Pharmaceuticals Ltd, U.K.

kg). How to do this needs to be clearly explained and, if necessary, demonstrated. Two thirds of caregivers surveyed in a paediatric emergency department were unable to accurately calculate and measure a correct dose of paracetamol based on weight for their child.¹⁰

Administration devices may also be complicated and dosing instructions in the packaging may be confusing or inconsistent with the measuring device provided.¹¹ For example, because of its shape, 2,5ml is not visually equivalent to half of a 5ml medicine spoon and may look more like a full spoonful to some. A medicine spoon is not equivalent to a household teaspoon. Customers need to be given the correct administration and measuring devices and shown how to use them. Medicines should never be drunk straight from the bottle.

Polypharmacy presents a specific challenge, because it combines different medicines with different doses, times of administration, dosing instructions (eg in relation to



mealtimes), administration devices and storage instructions. Unfortunately some of the patients, such as the very elderly, who have the most trouble with memory and dexterity, are the patients who have the most prescriptions. These patients need to be properly educated on how to take their medicines and guided with easy-to-use written instructions that they can take away, and other devices, such as compartmentalised weekly pill boxes.

6. Drug interactions can be common and significant

Although pharmacokinetic drug interactions do occur, they are less frequently clinically significant than interactions that occur when taking two drugs with similar or antagonistic effects. Without knowledge of active ingredients, it is easy to overdose or exacerbate adverse effects when taking two or more products that contain the

same active components, different drugs from the same class, or different drugs with similar effects (eg cough and cold preparations containing an analgesic or antihistamine in combination with separate analgesics or antihistamines).

The link between different drugs and their potential for interaction is not always clear from the drug's indication. For example chronic administration of a non-steroidal anti-inflammatory drug (NSAID) for arthritis will interfere with the cardioprotective effect of low-dose aspirin if dosing is not spaced appropriately; beta-blockers for a cardiac indication may interfere with medication for asthma.

When considering the potential for drug interactions, non-scheduled and 'health' products must not be forgotten. In one study of elderly women, at least one drug interaction considered to be of moderate or high health risk was identified in 74% of subjects, and 52% were between OTC products and herbs.¹²

Consumers and patients seeking to buy medicines must be asked about all of the other products they are taking,

including medicines, OTC products, supplements and alternative health remedies. They also need to be instructed as to whether there are any special instructions about drug-food interactions or restrictions on alcohol while taking their medication.

7. OTC medicines are perceived to be weaker or safe

Many consumers consider OTC preparations to be too weak to cause any significant harm, and there is often a perception that if it is available OTC or in the supermarket, it must be safe¹. Both aspirin and paracetamol, two of the most widely used first-line analgesics and both of which are available off the shelf in supermarkets, are fatal in overdose.¹³ Furthermore, as with other medications, they are specifically contraindicated in some people and under certain conditions.

Down-scheduling of medicines has given consumers greater access to drugs that would have previously only been available on prescription and use of which would have been monitored by a doctor. Sometimes the OTC indications are different, recommended doses are smaller and recommended durations of treatment are shorter than on prescription, but how they are used, nevertheless, goes unguided and unsupervised. Pharmacy staff are ideally placed to educate their customers about the proper use of medicines and the potential dangers of misuse.

'CAP' IT!

'CAP' the cost, 'CAP' the pain...

Lancap
LANSOPRAZOLE 15 mg; 30 mg

SA Lancap 15 mg. Each capsule contains 15 mg lansoprazole. Reg no. 40/11.4.3/0247
SA Lancap 30 mg. Each capsule contains 30 mg lansoprazole. Reg no. 40/11.4.3/0248

pharma *dynamics*
EFFECTIVE AFFORDABLE HEALTHCARE
www.pharmadynamics.co.za
CUSTOMER CARE LINE: 0860-PHARMA (742 762)

1) Martindale. The complete drug reference. 36th edition, page 1696.

Table 2

Why doesn't the medicine work?

1. They are not taking it

- Dose too complicated:
 - Multiple medications
 - Frequent doses
 - Size/number of tablets
 - Formulation/method of administration
- Device too complicated
- They don't understand the instructions
- They forget
- They felt better and stopped using a prophylactic medication
- They have not given it time to work and gave up
- Someone else told them there was something better
- Side effects
- Price

2. They are taking it

- Are they taking it properly?
 - Correct dose
 - Correct frequency
 - Correct use of device
 - Drug-food interactions
 - Drug-drug interactions
- They are vomiting and/or have diarrhoea
- Wrong diagnosis, eg viral vs bacterial infection, sinusitis vs allergic rhinitis
- Inappropriate medicine/worsening illness, eg asthma, allergic rhinitis
- Inappropriate use of medication, eg rebound, tolerance
- Recurrent or chronic condition, eg bacterial vaginosis, eczema
- The product/supplement really does have no clinical benefit

8. Medicines do not always work

For patients who complain that their medication is not working, some gentle probing can help to establish a possible reason for that before sending them back to a healthcare provider or dispensing something else. Table 2 lists some of the reasons why a medicine may not seem to be addressing symptoms.

Foremost, one needs to establish if the customer is taking their medicine properly, or even at all! Complicated dosing or administration devices increase the risk of poor compliance. Ask the

patient how they are taking their medicine and to demonstrate how they are using their administration device (for example, an asthma metered dose inhaler). Re-explain the correct dose and demonstrate the correct use of the device if necessary. Providing tips to help patients remember doses (eg leave the medicine next to your toothbrush) and addressing emergent side effects and price issues may solve problems of non-adherence.

Emphasise that prophylactic medications (for example an intranasal corticosteroid for allergic rhinitis) need to be taken regularly to maintain health and that discontinuing

them will lead to a return of symptoms. Care needs to be taken to diagnose worsening symptoms of a chronic condition such as asthma, which may require a change in dosing or of medication. Inappropriate chronic use of medication may cause its own problems. For example frequent use of analgesics may cause chronic rebound headache, and of nasal decongestants may result in worsening nasal congestion. Care needs to be taken to recognise these conditions so that the medication can be stopped and the patient referred to specialist care if necessary.

Finally, recurrent medical illnesses or conditions may require referral to the clinic or a doctor for further evaluation and treatment.

9. Pharmacy staff should advise patients on general principles

Of course, the most effective way to avoid medicine errors is not to dispense unnecessary drugs and supplements!

Whilst one recognises that the pharmacy is a business, medication is, of course, only one element of recuperation from illness. Many patients will get better without medication and will benefit from general advice on rest and how to make themselves feel more comfortable. Common sense principles apply. For example, patients with a cold should be advised to use disposable tissues instead of cloth

handkerchiefs, to sneeze into their upper sleeve rather than their hand and to wash their hands frequently.¹⁴ Ill patients, especially if they are infectious, should be advised to stay home until they are better, to understand how to recognise warning signs of worsening illness and when to seek medical assistance.

Finally, one cannot stress enough the importance of general advice about a healthy balanced diet, exercise and a healthy lifestyle. For example, it is astounding that there are individuals who will drop various natural foods or even food groups from their diet in the belief that they are not suitable (eg to their blood group) or healthy and replace them with commercial supplements based on unsubstantiated marketing claims promising health. Worse still is when they inflict the same prescription on their children.

If in doubt, refer the patient to the pharmacy clinic.

References are available on request.

It's the shell that makes Ecotrin safer.

Safety-Coated **Ecotrin** 81mg

The ORIGINAL low dose aspirin for optimum cardio-protection

Each tablet contains Aspirin 81mg. Reg No.: 29/2.7/0767
Pharmatica (Pty) Ltd, 33 Hulbert Road, New Centre, Johannesburg 2001
Under licence from Goldshield Pharmaceuticals Ltd, U.K.