



Diagnosis and therapeutic goals

What are you actually treating?

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This is the second article in the series on general practice prescribing. Last month's article introduced the World Health Organisation's 'Guide to Good Prescribing'. This month we will focus on step 2: Determining the therapeutic goal for each patient.

BACKGROUND Bad prescribing frequently involves writing a prescription for a symptom or a diagnosis and not considering the other steps in the prescribing process.

OBJECTIVE To illustrate the process of therapeutic goals.

DISCUSSION Therapeutic goals are the answer to the patient's question: 'Why am I taking this medication?' Taking this step in the prescribing process allows for a greater consideration of available treatment options, greater individualisation of therapy, avoids treatment on the basis of surrogate endpoints, and may result in greater patient concordance.

Case history 1

Frederick is an 82 year old widower living on his own. He sees you regularly for a prescription for his reflux disease and he has a yearly checkup. At this visit he is found to have a fasting blood sugar level of 7.8 mmol/L and diabetes is confirmed on an oral glucose tolerance test. On specific questioning he admits to some nocturia and polydipsia/polyuria but otherwise appears to be asymptomatic.

Physical examination is also normal with no evidence of retinopathy or neuropathy. His blood pressure is 140/85 and has generally been similar in the past. His body mass index is 28, and a HbA1C comes back as 7.3%, his total cholesterol is 5.8 mmol/L with a HDL of 0.8 mmol/L. He has no evidence of proteinuria.

What are 'therapeutic goals'?

A therapeutic goal is what you want your therapy to achieve put in terms of a meaningful outcome for the patient. The therapeutic goal for each condition is the answer to the patient's question: 'Why am I taking this medication?' Fundamental to the process of better prescribing is distinguishing between prescribing for a diagnosis and prescribing a therapeutic goal. Case 1 illustrates this point.

What would you prescribe for Frederick?

Most cases of bad prescribing occur when prescribers go straight from the diagnosis to the prescription, eg. bronchodilators for asthma, antihypertensives for hypertension, statins for hypercholesterolaemia, without consideration of the therapeutic goals for the patient. In fact, in some

cases the diagnosis step is bypassed as well and medication is prescribed for a symptom alone such as bronchodilators for a wheeze, antibiotics for a cough, and diuretics for ankle oedema or basal crepitations. Haven't we all been guilty of that at some stage! In the case of Frederick this might be simply to prescribe an oral hypoglycaemic for his diabetes without further consideration of other issues.

Defining therapeutic goals

Diabetes

Table 1 lists some therapeutic goals for the management of diabetes and steps that may be undertaken to achieve them. (This list is by no means exhaustive, but serves to give you a feel for the process of thinking in terms of therapeutic goals.) As you can see, stopping to think about therapeutic goals has the first advantage of making you think more broadly about

Table 1. Potential therapeutic goals for a patient with diabetes and strategies to achieve these goals

Therapeutic goal	Examples	Strategies to achieve goal
Control of acute symptoms	Hyperglycaemia	Diet Hypoglycaemic medication
Prevention of microvascular complications	Renal failure	Blood pressure control Agent acting on renin-angiotensin system Diet Hypoglycaemic medication
	Loss of vision	Regular ophthalmology review Diet Hypoglycaemic medication
	Foot complications	Patient education Regular podiatry review Diet Hypoglycaemic medication
	Myocardial infarction	Blood pressure control Lipid modifying treatment
Prevention of macrovascular complications	Cerebrovascular accident	Antiplatelet therapy Angiotensin converting enzyme inhibitors independently of blood pressure Diet Hypoglycaemic medication
Prevention of infections		Education Vaccination

the treatment options that are available. In our example of prescribing for diabetes, you might not automatically consider options such as blood pressure control, antiplatelet therapy or vaccination as potential treatments that Frederick should be offered. Yet these are all treatments that are likely to benefit him. Wider consideration of these therapeutic options has been the basis of a number of recent educational initiatives and the Practice Incentive Program, and you can see that it can all flow on from consideration of therapeutic goals.

Hypertension

Hypertension is another good example of the benefit of thinking in terms of therapeutic goals. For many clinicians, the therapeutic goal is to bring down the patient's blood pressure. Although this is important, a better view would be that the therapeutic goals are to prevent symptoms of hypertension such as

headaches (not very common) and to prevent long term cardiovascular complications such as strokes and heart attacks. If you set the reduction of blood pressure as the therapeutic goal, then all you would do is to prescribe an antihypertensive. If however, the therapeutic goal is to prevent cardiovascular complications, you would then also consider lipid lowering therapy, dietary changes, antiplatelet therapy and so on.

Setting priorities

Another benefit of considering therapeutic goals is that individual patients will vary in their priorities for achieving the various goals for a particular diagnosis. Different treatments are likely to have efficacy in achieving these goals as well. For example, Frederick is elderly and lives alone. Hence, his risk of significant hypoglycaemia causing harm would be great. On the other hand, given his age and the fact that he does not have any

proteinuria, it is unlikely that he will develop symptomatic renal impairment as a complication of his diabetes. His risk of macrovascular complications would still be fairly high however (~40% five year risk of cardiovascular events using New Zealand Guidelines Group calculator).¹ Hence, the important therapeutic goal for Frederick would be prevention of macrovascular complications, with less emphasis on preventing microvascular complications. Paying close attention to his blood pressure and lipids, and less so to his blood sugar control, is more likely to achieve the therapeutic goals that are important to Frederick. Metformin would also be an ideal oral hypoglycaemic, because it has been shown to be superior to sulphonylureas in the prevention of cardiovascular events in obese patients and is associated with a lower risk of hypoglycaemia.²

Migraine

Another example of different medications achieving different therapeutic goals is the treatment of migraine.

Case history 2

Charlene is a 19 year old single mother with a girl aged two years. She suffers from migraines and has seen a neurologist in the past, but was not keen to take any preventive therapies. She has classic migraines once every 2–3 months, where she is quite debilitated by pain, photophobia and vomiting.

The therapeutic goals for the management of Charlene's acute migraine would be to:

- treat her pain
- treat her nausea and vomiting, and
- allow her to get back to her normal level of functioning.

This latter goal may be particularly important to her because she is a single mother. Table 2 lists the agents that can be used and their efficacies in achieving these outcomes. Although opiates are commonly

Table 2. Therapeutic goals and medication for acute migraine

Therapeutic goal	Aspirin + metoclopramide	Opiate	Ergotamine	5HT _{1B/1D} agonists (triptans)
Relief of pain	++	?++	+	++
Relief of nausea	++	–	–	++
Returning to functioning	++	–	+	++

used in this situation, there is little clinical trial evidence supporting their use,³ they can worsen nausea, and because of their sedation, many patients sleep out their migraines, rather than getting back to their usual activities. Ergotamine is not sedative, however, it too can make the nausea and vomiting worse.⁴ Aspirin at a high dose, eg. 900 mg in combination with metoclopramide to treat the gastric stasis associated with migraine has been shown to be as efficacious as sumatriptan in the management of acute migraine. Both these approaches can treat the pain and nausea, and help patients get back to work.⁵ Hence consideration of the relative importance of different therapeutic goals is important in individualising therapy for different patients, and often helps with the choice of therapy as well. Engaging patients in the discussion of these options may also help achieve greater concordance with the treatment being offered.

Avoiding treating ‘surrogate endpoints’

A further advantage of thinking about therapeutic goals is that you avoid the temptation of treating for surrogate endpoints. Remember that the therapeutic goal has to be clinically meaningful for the patient. A useful test is to ask: ‘Would my patient feel any different if this therapeutic goal was achieved or not?’ So, for example, the improvement of bone mineral density by itself is not a therapeutic goal, but prevention of fractures is. Surrogate endpoints are commonly used by the pharmaceutical industry to highlight a potential advantage that their product has over their competitors, eg. antihypertensives that provide

better ‘morning protection’, antibiotics that act quickly, new drugs that are more ‘potent’ than their counterparts. Any such differences should have a demonstrated ability to translate into clinically meaningful outcomes for patients, and if there are no trials to support this, then that particular agent has not been shown to achieve that particular therapeutic goal. This is a useful test of whether a new drug should be incorporated into your P-drug list.

Using therapeutic goals decreases your workload

Using this approach involving therapeutic goals might sound like a lot of work for the limited general practice interaction, but once you start thinking about therapeutic goals for one condition, you will find it a lot easier to use this approach to prescribing for all conditions. Also, once you have considered the therapeutic goals that exist for one patient with a particular diagnosis, you have now completed this task for all similar patients, and the recurrent work is customising your treatment for different patients.

In addition there are large similarities between the therapeutic goals in different conditions. For example you will realise that for a large number of conditions, eg. diabetes, hypercholesterolaemia, hypertension, or any ischaemic condition, the therapeutic goal is to prevent cardiovascular events. Hence, the way you approach this broad group of patients is exactly the same. Once you have considered the therapeutic approach (the topic for the next article in this series) for one such patient, you have completed this task for similar patients with a broad range of diagnosis,

and again the recurrent work is customisation of your treatment.

Conclusion

After making the diagnosis and before prescribing any form of treatment, clinicians should assess the range of therapeutic goals which are applicable in the management of a particular patient. The therapeutic goal should be clinically relevant, and patients should participate in decisions regarding which goals are most pertinent for them to achieve. This can result in a broader consideration of available treatment options and greater individualisation of therapy, avoids treatment on the basis of surrogate endpoints, and may result in greater patient concordance.

Conflict of interest: none declared.

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