

# Teaching rational prescribing to general practice registrars: A guide for supervisors

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## Background

Pharmaceuticals play an important role in modern day healthcare, and prescribing is a very common activity in Australian general practice. However, there are significant harms associated with medicine use. Vocational training is a critical period in the development of clinical practice patterns for the future general practitioner (GP), including prescribing behaviour. The general practice supervisor, therefore, has a key role to play in educating registrars about rational prescribing.

## Objective

In this article, we discuss a range of practical strategies for general practice supervisors to use when teaching their registrars rational prescribing in the practice setting.

## Discussion

Teaching rational prescribing should take on a patient-centred focus and incorporate an approach to managing uncertainty. Role-modelling of quality prescribing and use of guidelines is a strong influence on registrar behaviour. Specific strategies include random case analysis, audit and feedback of prescribing practice, topic tutorials and use of specific prescribing resources.

*Many have said of Alchemy, that it is for the making of gold and silver. For me such is not the aim, but to consider only what virtue and power may lie in medicines. – Paracelsus<sup>1</sup>*

## Harms of prescribing

Prescribing medicine is a very common activity in Australian general practice, occurring at a rate of 85.5 medication prescriptions per 100 encounters.<sup>2</sup> For instance, in 2014, there were 214 million Pharmaceutical Benefits Scheme (PBS)-subsidised prescriptions, and an estimated 74 million non-PBS subsidised prescriptions dispensed in Australia.<sup>3</sup> This equated to a cost of more than \$9 billion for the year ending 30 June 2014.<sup>4</sup>

Medicines, if used correctly, can significantly improve levels of health. However, there are also negative consequences and potential harms related to the use of pharmaceuticals. Inappropriate use of medicines can lead to economic waste, with attendant opportunity costs for other healthcare interventions. Non-rational use of antibiotics contributes to antimicrobial resistance, a global public health issue.<sup>5</sup>

But most importantly, medication prescribing can, and does, lead to patient harm. It has been estimated that more than 1.5 million Australians experience an adverse event from medicines each year,

resulting in at least 400,000 general practice visits and 190,000 hospital admissions annually.<sup>6,7</sup> One systematic review of medical error in primary care found that errors occur in more than 10% of all prescriptions written, mainly related to incorrect dosing.<sup>8</sup> Approximately 2–3% of all hospital admissions are medication-related and, of those, approximately 50% are preventable.<sup>9</sup>

Additionally, adverse events can lead to the so-called 'prescribing cascade', the prescription of further medications in the mistaken belief that a new medical condition has developed.<sup>10</sup> This, in turn, can lead to a greater risk of complications and patient harm.

## Quality use of medicines

Quality use of medicines (QUM) is one of the four arms of Australia's National Medicines Policy.<sup>11</sup> QUM is defined as the use of medicines that is:

- judicious (selecting management options wisely)
- appropriate (choosing suitable medicines only if a medicine is considered necessary)
- safe (using medicines safely and effectively to get the best possible results)
- efficacious (choosing medicines that benefit the patient).

In Australia, NPS MedicineWise was formed in 1998 to undertake work in the area of QUM. More recently, NPS MedicineWise has coordinated the Choosing Wisely Australia program, an initiative to improve the quality of healthcare by considering tests, treatments and procedures that lack evidence of efficacy or lead to harm.<sup>12</sup> As part of this initiative, The Royal Australian College of General Practitioners (RACGP) has developed 10 recommendations to reduce such low-value healthcare practices, four of which specifically relate to prescribing (antibiotics, benzodiazepines, proton pump inhibitors [PPIs] and antihypertensives/statins; Box 1).<sup>13</sup>

### Prescribing in general practice

There have been several factors that influence the prescribing behaviour of general practitioners (GPs) described in the literature.<sup>14–20</sup> These comprise:

- doctor factors – clinical knowledge, experience, confidence, risk aversion, evidence-based medicine skills
- patient factors – compliance, ability to pay, specific request
- clinical factors – need, previous adverse events
- medication factors – safety, cost, efficacy
- systems factors – marketing, pharmaceutical representative visits, clinical information sources.

There is evidence that guideline-incongruent prescribing by GPs and general practice registrars is common

in Australian general practice. This includes the prescription of a number of common and important medications such as antibiotics for respiratory tract infections,<sup>21,22</sup> opioids for chronic non-cancer pain,<sup>23,24</sup> benzodiazepines for insomnia and anxiety,<sup>25</sup> and antihypertensives.<sup>26</sup>

### Vocational general practice training

Vocational general practice training is a critical period in the development of general practice registrars' future patterns of clinical practice, including prescribing behaviour.<sup>27</sup> QUM is a core skill of the RACGP's curriculum core skills unit<sup>28</sup> and Australian College of Rural and Remote Medicine's (ACRRM's) primary curriculum.<sup>29</sup> However, previous research has found that QUM is challenging for general practice registrars, including:<sup>30,31</sup>

- the transition from hospital prescribing to prescribing in the general practice context
- judging prescribing quality
- managing uncertainty
- identifying appropriate sources of information at the point of care.

General practice registrars learn by the 'apprenticeship model', working under the supervision of experienced general practice supervisors, but otherwise operate as independent practitioners (including for prescribing). Supervisors have a core role in assessing learning needs, teaching and providing feedback to registrars as part of this workplace-based learning.<sup>32</sup>

### Strategies for teaching rational prescribing in the practice setting

The rational prescription of medicines is defined by the World Health Organization (WHO) as 'the situation in which patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements for a sufficient length of time, with the lowest cost to them and their community'.<sup>33</sup>

Specific teaching on medication prescribing has been shown to lead to improvements in prescribing competency,<sup>34</sup> as well as reducing medication errors.<sup>35</sup> While some of the teaching in Australian general practice training occurs as part of external workshop activities, the majority occurs within the practice between the supervisor and registrar. There are a number of general and specific approaches that the general practice supervisor can adopt to facilitate the teaching of rational prescribing in the practice setting (Box 2).

### General approaches

Patient-centred practice has been shown to enhance patient satisfaction and lead

#### Box 2. Teaching strategies to promote rational prescribing in the practice setting

##### General strategies

- Patient-centred approach
- Tolerance of uncertainty
- Role modelling
- Reflective practice
- Positive learning environment

##### Specific strategies

- Four-stage model of prescribing
- Consultation observation
- Problem case discussion
- Random case analysis
- Topic tutorials
- Scenario-based discussion/role plays
- Communication skills training
- Approach to pharmaceutical representatives
- Use of clinical guidelines
- Prescribing audit

#### Box 1. RACGP's Choosing Wisely recommendations specifically related to prescribing<sup>13</sup>

- Do not use proton pump inhibitors (PPIs) long term in patients with uncomplicated disease without regular attempts at reducing dose or ceasing
- Do not commence therapy for hypertension or hyperlipidaemia without first assessing the absolute risk of a cardiovascular event
- Avoid prescribing benzodiazepines to patients with a history of substance misuse (including alcohol) or multiple psychoactive drug use
- Do not treat otitis media with antibiotics, in non-Aboriginal and Torres Strait Islander children aged 2–12 years, where reassessment is a reasonable option

to better health outcomes<sup>36</sup> and, more specifically, has also been associated with prescribing fewer medications.<sup>37</sup> Supervisors should therefore frame practice-based teaching through a patient-centred approach,<sup>38</sup> including the need for registrars to identify patients' concerns and expectations.

Patient-centred prescribing also embraces the concept of 'concordance'. This is defined as 'an agreement or partnership between patient and prescriber about obtaining the best use of treatment, compatible with what the patient desires and is capable of achieving'.<sup>39</sup> Concordance is based on the notion that decisions about prescribing should be a true negotiation between doctors and patients.<sup>40</sup> Concordance is not synonymous with compliance or adherence, and the supervisor can use these different terms in discussing the importance of shared decision making with patients.

Prescribing as a 'test of treatment' has been identified as a common strategy in diagnosis (eg trialling asthma puffers for nocturnal cough).<sup>41</sup> This is particularly common in undifferentiated presentations, where the response to treatment is used to help refute or confirm a working diagnosis. As part of fostering an overall approach to uncertainty in their registrars, the general practice supervisor can discuss the role of a 'test of treatment' (including its pitfalls and limited evidence base) in the management of ambiguous presentations.<sup>22,42</sup>

Role-modelling has a strong influence on general practice registrars' behaviours, and has previously been described as 'the primary teaching strategy of clinical education'.<sup>43</sup> Supervisors should therefore model best practice in prescribing, and use appropriate guidelines and evidence-based medicine resources (eg Therapeutic Guidelines).<sup>44</sup>

Prescribing is often thought of simply as the act of writing a prescription but, in fact, is a highly complex and high-risk intervention that requires satisfactory competence. A set of principles has

been described to guide training for undergraduates and postgraduates in prescribing.<sup>45</sup> These include:

- scheduled time to reflect on prescribing, with appropriate feedback
- supervision that allows discussion of problems and encourages the seeking of advice
- feedback on identified prescribing errors in a blame-free learning environment.

### Specific approaches

Core competencies for safe prescribing have been described, and these reflect the four stages of the prescribing process – information gathering, clinical decision-making, communication and monitoring, and review.<sup>46</sup> This four-stage model provides a useful framework for in-practice teaching, formative assessment and feedback of registrar prescribing practice, regardless of the learning activity used.

Rational prescribing can be specifically assessed and taught using a range of traditional supervision methods, including direct consultation observation and problem case discussion. However, a number of specific strategies are ideally suited to teaching the safe and effective use of medicines in the practice setting.

Random case analysis (RCA) is a powerful tool for learning needs analysis, teaching, and feedback.<sup>47</sup> In RCA, the registrar's clinical notes are randomly selected and the case analysed in detail. The particular strength of RCA is in identifying 'unconscious incompetence' or the 'unknown unknowns' of the learner. Prescribing can be reviewed in the context of the actual clinical case; but hypothetical scenarios, for example, 'What if the patient was allergic to that medication?', 'What if the patient was a child?', can also be posed to further challenge the registrar.

Audit and feedback has been found to lead to improvements in professional practice, including prescribing behaviour.<sup>48</sup> There has been a recommendation that 'general practice registrars should be provided with explicit feedback about the process and outcomes of prescribing decisions, including the use of audits,

in order to improve their ability to judge their own prescribing'.<sup>30</sup> Another specific teaching method available to the supervisor is, therefore, auditing registrar prescribing behaviour. Informal audit and feedback can be readily performed using RCA, or by reviewing the list of prescribed medications for a particular session in the computerised medical record. Learning can be further enhanced when this process is reversed and the registrar has an opportunity to critique supervisor prescribing behaviour in a collaborative two-way learning manner. Box 3 outlines a suggested framework for analysis (using the four-stage prescribing model above). Box 4 lists some suggested questions for each stage.

Formal clinical audits involving data collection and feedback reports have also been demonstrated to positively influence prescribing practice.<sup>48</sup> NPS MedicineWise provides freely available clinical e-audits on a number of common general practice topics.<sup>49</sup>

Pharmaceutical representative visits and drug samples are known to influence the prescribing behaviour of physicians, as well as trainees.<sup>50,51</sup> It has been found that some doctors deny they are influenced by pharmaceutical company marketing, or claim that it influences others but not themselves.<sup>52,53</sup> There is

#### Box 3. Framework for audit and feedback of prescribing practice

- Randomly select a patient record
- Registrar to review the patient record and tell the story – 'What?' questions
- Supervisor to explore the four stages of prescribing:
  1. Information gathering
  2. Clinical decision making
  3. Communication
  4. Monitoring and review
- Supervisor to explore clinical reasoning with 'Why?' questions
- Supervisor to extend the registrar with hypothetical 'What if?' questions
- Supervisor to give feedback and identify learning needs

evidence that training junior doctors about the influence of pharmaceutical marketing can improve prescribing practice.<sup>54</sup> Consequently, the supervisor can usefully provide communication skills training for their registrar on interactions with pharmaceutical company representatives, including the use of role play scenarios. Registrars may choose not to see pharmaceutical company representatives during their placement. However, debriefing after a meeting with a representative may assist in learning how best to evaluate the material provided.

Similarly, communication and conflict resolution skills can be taught around dealing with patient expectations for inappropriate prescriptions.<sup>55</sup>

Supervisors can undertake specific topic tutorials on rational prescribing, covering important concepts such as influences on prescribing, risk factors for non-adherence, approach to polypharmacy and deprescribing,<sup>56</sup> and common prescribing pitfalls. Additionally, supervisors can target teaching towards a number of common prescribing scenarios. These include:

- taking a medication history from a new patient to practice

- opportunistic review of the medication list of an existing patient
  - the so-called 'simple script' request
  - starting a new drug for a chronic disease.
- Some medications are particularly challenging for general practice registrars to prescribe (eg anticoagulants, analgesics), and targeted teaching in these areas can be valuable.<sup>57</sup> The RACGP's prescribing recommendations for Choosing Wisely Australia also provide a useful list of teaching topics (Box 1).<sup>13</sup>

A number of specific resources have been developed on rational prescribing, useful in both practice-based teaching or as a self-directed learning resource. In particular, NPS MedicineWise offers a wide range of learning activities and resources in QUM, including online case studies and courses, MedicineWise News (a topic-based newsletter) and decision tools (eg back pain management).<sup>58</sup>

## Conclusion

Rational prescribing is a core learning area for general practice registrars and known to be a challenging area of practice. The general practice supervisor has a key role in supporting learning in this area by targeted teaching and feedback. A number of general approaches and specific

teaching strategies are suited to teaching this topic in the general practice setting.

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### Box 4. Suggested questions for audit and feedback of prescribing practice

#### Information gathering

- Tell me more about the presentation
- Were there risk factors for non-adherence?
- What other clinical information might have assisted you in managing the case?

#### Clinical decision making

- What was your diagnosis?
- What was the assessment of the severity and management of the disease?
- Why did you decide to prescribe that particular drug?
- What are the risks of prescribing or not prescribing?
- What alternatives could you have used, and what are their advantages and disadvantages?
- What if the patient was a child/elderly/very unwell?
- Where could you seek evidence-based guidance on management of this condition?

#### Communication

- How did you communicate your management to the patient?

#### Monitoring and review

- What are your plans for follow-up and monitoring?
- What if the patient does not respond to the prescribed medication?

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