

How many clinical interventions should occur – an economist's perspective

By Peter Brownscombe

It has been accepted, almost as a principle of community pharmacy practice, that if a pharmacist identifies a need, in the course of dispensing a prescription, to safeguard a patient's health or well being, then corrective action will be taken. A slightly more contentious proposition is that a community pharmacist should go looking for opportunities for clinical intervention to maximise the quality use of medicines – with a view to avoiding that patient experiencing avoidable expense or unwellness.

In the course of the university training to become a pharmacist, students are provided with guidance and education on how to recognise an opportunity for a 'clinical intervention' and what to do about one when it is found.

It is clear from research done at the Unit for Medication Outcomes Research and Education (UMORE) at the School of Pharmacy, University of Tasmania that there are large variations in the rate of clinical interventions into drug-related problems in community pharmacies. For instance, in a trial conducted in 2005,¹ the rate of intervention varied between three and 20 per 1000 prescriptions examined in approximately 50 Melbourne pharmacies.

There also seems to be a belief within the pharmacy profession that increasing the rate of clinical interventions is a good thing. The primary reason why it is considered to be a 'good thing' is that there are health benefits to the patient and generally cost savings as a result of the avoidance of hospital admissions or doctor visits or laboratory tests.

But when an economist looks at this issue of clinical intervention by a community pharmacist, the situation is more complex. Firstly the economist says that more and more clinical interventions should not be a primary objective. The economist says that the pharmacist should only undertake a clinical intervention if the benefit from the intervention is greater than the cost of the intervention.

Initial research¹ suggests that the average time taken to perform a clinical intervention into drug-related problems by a community pharmacist is about 6.5 minutes. This converts, based on a pharmacist cost of say \$45/hour, to approximately \$5/intervention. Accordingly, if the benefit to be derived from a clinical intervention is less than \$5, *prima facie*, there is no valid economic reason for doing the intervention.

Fortunately, the research identified earlier also indicates that the average benefit of a clinical intervention is way in excess of \$100 – but this needs further review and verification.

The second complication raised by the economist relates to 'perspective'. That is to say, from whose viewpoint is

the assessment of costs and benefits being assessed? If the assessment is from the 'society' perspective, then a much wider range of 'benefits' are relevant. For instance, these would include the cost of the patient being off work or the time taken up in travelling to the hospital or to see a doctor etc.

If the assessment of benefits is purely from the 'health sector' perspective, a smaller range of financial issues are relevant – mainly restricted to the costs avoided by not having to go to hospital or to see a doctor.

But if the perspective is of the employing community pharmacist as the owner of a business that is required to make a profit, the benefit will be even further restricted. Potentially it will be restricted to just the financial compensation, if there is any, from the Commonwealth Government or the patient directly – and possibly some 'feel good' factor.

As a third factor, but as a derivative of the first two, the economist will be arguing that, as there must be a limit to the number of clinical interventions that can be identified and acted upon by a pharmacist each day, the focus must be on those clinical interventions that have the largest net benefit (the limit is because of time and money constraints). In this context, net benefit means the difference between the cost of a clinical intervention by a pharmacist and the benefit from that intervention.

For instance, initial research¹ also shows that clinical intervention directed at dealing with cardiac-related drug problems are likely to be very cost effective – largely because they are likely to avoid a visit to an accident and emergency department at a public hospital. However, economists don't just recognise direct and indirect financial cost savings as the only consequence of a clinical intervention into a drug-related problem. They also recognise that people generally would prefer to be feeling healthy and not feeling unwell.

Economists believe that it is possible for people to 'reveal their preferences' about how good they feel or, more importantly in this discussion, how bad they feel when they are experiencing a particular kind of unwellness. Therefore, it is possible to ask people to score their level of unwellness for particular situations and for those scores to be used as indicators of unwellness avoided by a clinical intervention by a community pharmacist. Most people are likely to feel a larger negative health impact or an extra level of unwellness

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if a clinical intervention into a drug-related problem is not dealt with by a pharmacist.

By comparing different scores for different kinds of unwellness, a picture can be developed of those kinds of clinical interventions that are most likely to lead to large reductions in the unwellness score. The relevance of this examination of what economists call 'utility' measurements is that it is then possible to look at both the financial and a health score. In this context, the financial score is measured in dollars and the health score measured in something like 'quality adjusted health hours'. (This is a variation of the concept of the Quality Adjusted Life Year or QALY.)

This capacity theoretically allows a much broader and more accurate assessment to be made of the value of a clinical intervention by a community pharmacist – and the concept is equally applicable to hospital pharmacists.

The particular importance of having both measures is because a particular clinical intervention by a pharmacist may not avoid much cost but might avoid or substantially lessen much suffering by a patient. Alternatively, another kind of intervention may be very costly but avoid little suffering.

Both these dimensions need to be considered and are being examined as part of a new project being managed by UMORE called Promise III – (for more information visit: www.promise.org.au). Results from this new study are expected around mid-2010.

The project is clearly a key one in determining the future of community pharmacy practice in Australia.

Reference

1. Peterson, G & Pharmacy Guild of Australia (2007). *Promise intervention study: RFT 2003–2, evaluation of clinical interventions in community pharmacies. Final report/Third Community Pharmacy Agreement Research and Development Program (Series), 1832–7613:40.* Canberra, University of Tasmania.

research news

Significant errors common

A literature review of medication safety in the community has found adverse drug events and medication errors are a significant problem in Australia, according to the National Prescribing Service (NPS).

The study, which cited more than 300 articles from Australia and overseas, is the first comprehensive review of medication safety issues and possible solutions in the community setting. It explores the prevalence, contributing factors, and outcomes of adverse drug events and medication errors in the community. It also considers the impact of methods to improve medication safety including medication reviews, medication reconciliation, patient education and e-health interventions. NPS CEO Dr Lynn Weekes said the review confirmed that medication errors continue to occur at all stages of the medication process – prescribing, supply, administration, monitoring and

documentation. 'Up to 73% of these events are preventable, meaning patient safety is being jeopardised and avoidable burdens are being placed on our health system,' Dr Weekes said.

Some key findings from the report include:

- Those at high risk of adverse events associated with medicines are older people, those with serious health conditions, those taking multiple medications, those using high risk medicines and those being transferred between community and hospital care.
- Around 6% of hospital admissions in Australia are associated with adverse drug events, with almost one third of admissions for the elderly associated with adverse events.
- Consistently high error rates occurred during transfer of care between hospital and community settings; and
- 10% of general practice patients in Australia report experiencing an adverse

drug event; while 25% of high risk patients reported adverse events associated with medicines.

The most commonly reported contributing factor of medication errors and adverse events was poor communication, which is highlighted when patients are transferred between hospital and community settings.

Anemia heart link

A recent Australian study has found a significant rise in the risk of death for chronic heart failure patients who also suffer from the blood disease anemia.¹

Study co-author Lexin Wang, Professor of Clinical Pharmacology at Charles Sturt University (CSU) said, 'what we have found, from collective analysis of nearly 20 published studies, is that when anemia happens, it will worsen a patient's prognosis, making them more likely to be hospitalised or die of progressive heart failure.'

'Heart failure is a common and serious chronic illness. With

contemporary management, the mortality rate from chronic heart failure is still very high, reaching 40% in the very sick patients,' he said.

The significance of this latest study is that health professionals may need to improve current practices to better treat anemia in patients with chronic heart failure.

'Given the clear association between anemia and the mortality rate or hospitalisation rate, optimal treatment of anemia, on top of other heart failure-specific therapies, may reduce the rate of mortality and further improve a patient's prognosis,' Prof. Wang said.

Prof. Wang is Head of the Cardiovascular Group at CSU. The group is currently working on a number of research projects, from predicting sudden death to mental health issues in patients with chronic heart failure.

Reference

1. He S, Wang L. The impact of anemia on the prognosis of chronic heart failure: a meta-analysis and systemic review. *Cognitive Heart Failure* 2009;15(3):123–30.