

Seven Strategies to Strengthen Our Medication-Use System

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In a previous issue of *CJHP*, Tisdale discussed the magnitude of drug-related problems and the responsibilities of pharmacists to provide pharmaceutical care.¹ Since his editorial was published, the magnitude of this problem has been estimated at an even higher level. Ernst and Grizzle² recently updated the Johnson and Bootman³ cost-of-illness model of drug-related morbidity and mortality in the ambulatory setting in the United States, and they now place the annual cost at US\$177.4 billion, more than double the 1995 estimate of US\$76.6 billion.

As pharmacists, we are aware that the drug-related problems classified by Strand and others⁴ are common and that they result in significant morbidity and mortality. Lazarou and others,⁵ at the University of Toronto, estimated that adverse drug reactions are the fourth to sixth leading cause of death, claiming the lives of up to 10 000 Canadians each year.⁶ Medical errors result in 44 000 to 98 000 deaths each year in the United States, and medication errors constitute the single largest category of these errors.⁷ Other researchers observed that the number of deaths related to medication errors in the United States increased by 257% between 1983 and 1993.⁸ The National Post recently reported on a soon-to-be published study in which physicians' knowledge of their patients' medication use was inaccurate 96% of the time in 120 older adults living in Kingston, Ontario.⁹ These studies and others suggest that adverse drug-related outcomes are now pandemic: the problems are widespread, worsening, and worrisome.

What, then, is wrong with the medication-use system? Grainger-Rousseau and others,¹⁰ from the University of Florida, have proposed that for a drug therapy system to be considered both safe and effective, 8 elements are essential:

- prompt and accurate recognition of drug indications and other signs and symptoms relevant to drug use
- safe, accessible, and cost-effective medicines that are legally available at reasonable cost
- appropriate prescribing to meet explicit (clear, measurable, and communicable) objectives
- correct distribution, dispensing, and administration of drug products, accompanied by appropriate patient advice
- active cooperation between patients and caregivers (what Grainger-Rousseau and others¹⁰ refer to as intelligent adherence)
- monitoring to ensure detection and resolution of drug-related problems
- documentation and communication of drug-related information and decisions
- evaluation and improvement of systems for use of drug products and medications

How can CSHP take a leading role in improving the medication-use system and in ensuring that these elements are in place each time a patient receives a medication? I believe that a combination of strategies is needed to make Canada's medication-use system safer and more effective. I will review 7 strategies, which, if embraced by CSHP, would greatly help to reduce the pandemic of adverse drug-related outcomes.

THE STRATEGIES

Strategy 1: Promote Seamless Pharmaceutical Care

Seamless pharmaceutical care should be promoted both within and between institutions. CSHP and the Canadian Pharmaceutical Association should be applauded for their efforts to bridge the gap in pharmaceutical care between institutional and community settings. Still, seamless care needs to move beyond a few isolated demonstration projects to become readily accepted and adopted as a standard of practice. Within institutions, more effort is needed to encourage truly multidisciplinary teams with clearly defined roles and responsibilities in the medication-use system. Two nurses in Colorado, who were involved in a fatal medication error involving penicillin G given to a baby boy and who have published a report of their



experience, realized this need: “The biggest error that day was lack of collaboration. We should have collaborated with the hospital pharmacist . . . no one person knows everything about an issue.”¹¹ That error and many like it can be attributed to insufficient communication and feedback, lack of explicit organizational responsibility, assumptions that “someone else is taking care of that”, and poor documentation. Pharmacists in all settings need to ask themselves, “Is this patient’s progress toward drug treatment goals being recorded anywhere, and, if so, is the information being shared among health professionals?”

Strategy 2: Communicate the Value of Pharmacists to Health-Care Decision Makers

As Tisdale¹ argued, there is considerable evidence that pharmacists can improve drug-related outcomes and reduce costs within the health-care system. As a profession, we have done a very good job of publishing rigorous studies that show the value of pharmaceutical care. For example, McLean¹² has written a comprehensive review of these studies, which each pharmacist should have on hand to give to skeptical physicians and others. Conversely, we have done a very poor job of communicating this information beyond our own profession. Most of the studies have been published in pharmacy journals that are not read by health policy makers and administrators. Likewise, we need to become more familiar with the publications that are read by these individuals, such as *Benefits Canada and Canadian Healthcare Manager*.

One message that would receive a welcome reception in today’s health-care environment is our ability to reduce health-care costs. Spending on drugs is expected to have risen by 9% between 1999 and 2000 and to represent 15.5% of total health spending.¹³ Allan Rock, the federal minister of health, recently stated that “pharmaceuticals have become the number one cost driver in our health care system”.¹⁴ He went on to ask, “Can these costs be managed more effectively?” We can answer that question with a resounding “Yes! — Use Canada’s pharmacists more effectively.”

Strategy 3: Lobby for Elimination of the “Quality Tax”

A statement echoed by many pharmacists is “I’d like to provide pharmaceutical care, but I can’t do so because of financial realities.” Hepler calls this the “quality tax” and argues that “a pharmacist who provides care beyond the minimum level is financially penalized. His or her patients may do better than they would have without this higher level of care, but this is largely unrecognized and

unremunerated.”¹⁵ This problem of lack of financial incentive to spend time with the patient in direct care is not limited to hospital pharmacists; indeed, it is a problem for our community pharmacist colleagues, nurses, and physicians. Because this problem is shared by all health-care professionals, we would be wise to join forces with the stronger physician and nursing lobbying groups to encourage changes in the reimbursement system to facilitate the provision of medical, nursing, and pharmaceutical care.

Strategy 4: Contribute to the Development of a System for Measuring Quality in Pharmacy

At first glance, the development of a system for measuring quality may appear to address a non-issue, given the existence of the National Association of Pharmacy Regulatory Authorities, which sets national standards of practice; provincial boards of pharmacy, which inspect pharmacies and keep pharmacists accountable to the public; and quality improvement committees in institutions. Yet despite the existence of these bodies, we lack a national system of reporting and measuring many adverse drug-related outcomes such as medication errors and preventable drug-related morbidity. In addition, there is no national system of measuring the services offered by pharmacists and no method of measuring how the provision of these services relates to patient outcomes. Some progress is being made through the formation of ISMP Canada to facilitate the reporting of medication errors and through the development of pharmaceutical quality indicators by the Canadian Institute for Health Information. Still, there is an opportunity for CSHP to take a lead in determining what should be measured in hospital pharmacy, before external agencies dictate these measures to us.

Strategy 5: Support Evaluations of the Impact of Drug-Use Policies on Patient Outcomes

Many tools and techniques are currently used to help influence the use and cost of medications, such as formularies, prior authorization programs, and copayments. Still, there is considerable debate over the impact of these policies on patient outcomes, as exemplified by the excellent exchange of ideas in the Focus on the Formulary column in this journal. More thorough evaluations of drug-use policies are needed, such as Tamblyn’s recent review¹⁶ of the policy of prescription coinsurance and implementation of deductibles for seniors and welfare recipients in the province of Quebec. In her interrupted time-series analysis, use of essential medications decreased by 9.1%



among seniors and by 14.4% among welfare recipients after the introduction of cost-sharing, while the rates of serious adverse events and visits to the emergency department related to reductions in the use of essential drugs increased significantly in both groups. We need to consider the impact on patient outcomes of the drug-use policies we set.

Strategy 6: Help Ensure that Pharmacists Have Access to Patient-Specific Information

Many hospitals are investing heavily in information technology systems in an attempt to reduce paperwork and improve the efficiency of the delivery of health care. In many of these cases, however, the new systems do not allow for adequate communication of patient-specific information between departments. As a result, pharmacists lack the information they need to provide adequate pharmaceutical care. One could argue that a pharmacist cannot provide pharmaceutical care at all if he or she does not have basic information such as the diagnosis. Access to patient-specific information should not be limited to clinical pharmacists at the bedside; it is also needed in the dispensary, in clinic pharmacies, and in community pharmacies.

Strategy 7: Provide Training for Pharmacy's Leaders

Canada's hospital pharmacy supervisors, managers, directors, and other management personnel face considerable pressure as the cost of pharmaceuticals rises at the same time as the budgets of many hospitals are reduced. In this stressful environment, training for hospital pharmacy's managers and leaders occurs primarily on the job. There are few suitable educational opportunities for hospital pharmacy management personnel, because there are no pharmacy-specific Canadian graduate programs that concentrate on management training and few management-focussed continuing education events. Furthermore, at present we do not know which skills are essential in hospital pharmacy management, whether Canada's hospital pharmacy managers have these skills, and, if not, how to best foster the learning of these skills. Clearly, there is much to be done to address the needs of the leaders of our pharmacy departments, upon whom the provision of pharmacy services is so dependent.

CONCLUSION

This list of strategies is certainly not comprehensive, but accomplishing them would take us a long way toward making our medication-use system safer and

more effective, a goal that I suspect is important to each member of CSHP.

References

1. Tisdale JE. Drug-related problems — much ado about something. *Can J Hosp Pharm* 2000;53:314-6.
2. Ernst FR, Grizzle AJ. Drug-related morbidity and mortality: updating the cost-of-illness model. *J Am Pharm Assoc* 2001;41:192-9.
3. Johnson JA, Bootman JL. Drug-related morbidity and mortality. A cost-of-illness model. *Arch Intern Med* 1995;155:1949-56.
4. Strand LM, Morley PC, Cipolle RJ, Ramsey R, Lamsam GD. Drug-related problems: their structure and function. *Ann Pharmacother* 1990;24:1093-7.
5. Lazarou J, Pomeranz BH, Corey PN. Incidence of adverse drug reactions in hospitalized patients. A meta-analysis of prospective studies. *JAMA* 1998;279:1200-5.
6. Abraham C, Taylor P. Drug reactions kill thousands: researchers. *Globe & Mail [Toronto]* 1998 Apr 15:A3.
7. Kohn LT, Corrigan JM, Donaldson MS, eds. *To err is human. Building a safer health system*. Washington (DC): National Academy Press; 1999.
8. Phillips DP, Christfeld N, Glynn LM. Increase in US medication-error deaths between 1983 and 1993. *Lancet* 1998;351:643-4.
9. Arnold T. *Most doctors don't know what medicines seniors are taking, study shows*. National Post [Toronto] 2001 Jan 10:B5.
10. Grainger-Rousseau TJ, Miralles MA, Hepler CD, Segal R, Doty RE, Ben-Joseph R. Therapeutic outcomes monitoring: application of pharmaceutical care guidelines to community pharmacy. *J Am Pharm Assoc* 1997;NS37(6):647-61.
11. Golz B, Fitchett L. Nurses' perspective on a serious adverse drug event. *Am J Health Syst Pharm* 1999;56:904-7.
12. McLean W. Pharmaceutical care evaluated: the value of your services. *Can Pharm J* 1998;131(4):34-40.
13. Canadian Institute for Health Information. *Drug expenditures in Canada 1985-2000*. Ottawa (ON): The Institute; 2001. Available from: <http://www.cihi.ca/wedo/hexpenddrug.shtml> (revised 2001 Mar 14, accessed 2001 Apr 21).
14. Rock A. Speaking notes for Allan Rock, minister of health. 133rd annual meeting of the Canadian Medical Association (2000 Aug 14). Ottawa (ON): Health Canada; 2000. Available from: <http://www.hc-sc.gc.ca/english/archives/speeches/14aug2000mine.htm> (accessed 2001 Apr 21).
15. Hepler CD. Observations on the conference: a pharmacist's perspective. *Am J Health Syst Pharm* 2000;57:590-4.
16. Tamblyn R, Laprise R, Hanley JA, Abrahamowicz M, Scott S, Mayo N, et al. Adverse events associated with prescription drug cost-sharing among poor and elderly persons. *JAMA* 2001;285:421-9.

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