

Is the Prioritization of Medication Reconciliation as a Critical Activity the Best Use of Pharmacists' Time?

THE "PRO" SIDE

Prioritization of medication reconciliation as a critical activity is definitely the best use of pharmacists' time. We make this argument acknowledging that prioritization is required, as there are many valuable, essential, and important activities to which pharmacists can devote their time. Moreover, medication reconciliation admittedly has some limitations. It is time-consuming, and hospitals often have inadequate resources to be able to provide this service to all patients who need it. It can be a rather tedious activity, and measurement of its effectiveness can be difficult. Still, we are confident in offering the following 5 reasons to support our position.

First, in recent years, evidence has emerged both in Canada and beyond of a critical need to prevent clinically significant patient harm and to address unmet patient needs at transition points. Cornish and others¹ demonstrated that, at the time of admission, 53.6% of 151 patients admitted to a general medicine ward had an unintentional medication discrepancy, and 38.6% of the discrepancies had the potential to cause moderate to severe patient discomfort or clinical deterioration. In one Canadian teaching hospital, where formal medication reconciliation was not performed, Forster and others² found that 23% of 328 discharged patients had an adverse event, 72% of which were adverse drug events. As pharmacists, we should be concerned about what these studies and others reveal about the communication of medication information at transition points and the implications for patient safety.

Second, in prioritizing all of our activities, the profession of pharmacy must return to its *raison d'être*—pharmaceutical care.³ Despite appearances, this point does not run counter to our position. Medication reconciliation and pharmaceutical care are not separate and distinct patient care activities; rather, they overlap and intersect. Ong and others⁴ reported that when patients were assessed with a pharmaceutical care process on admission, 65% of the drug-related problems that were identified were linked to the transfer of medication information. Rather than replacing a holistic pharmaceutical care assessment, medication reconciliation is an integral component of such assessments. A basic foundational element allowing pharmacists to effectively provide pharmaceutical care is effective medication reconciliation. As Hepler has highlighted,⁵ "Seamless care is an essential part of any health care system. Likewise, seamless pharmaceutical care is an essential dimension of any medications management system." As such, a pharmacist cannot perform or provide pharmaceutical care on hospital admission without a complete record of the patient's current

medications (obtained through medication reconciliation). Similarly, are we really taking responsibility for patient outcomes (per pharmaceutical care) if we do not ensure that medication reconciliation also happens upon discharge? In this regard, the identification of discrepancies and the reconciliation process are necessary components of a comprehensive patient discharge care plan that includes follow-up issues for community clinicians. Also, it should not be overlooked that in performing medication reconciliation on admission, pharmacists are initiating and establishing a relationship with the patient that paves the way for more advanced pharmaceutical care assessment.

Third, pharmacists have unique skills and training, distinct from those of other health care professionals, which enable us to take a leadership role on medication reconciliation. Optimal medication reconciliation requires qualified assessment to elevate the quality of the activity from a clerical to a clinical assessment task. In a recent Canadian randomized controlled trial (published in 2007) involving 464 surgical patients,⁶ pharmacist-led medication reconciliation in a preadmission clinic resulted in a 50% reduction in the number of patients with discrepancies linked to home medications. Furthermore, the intervention more than halved the number of patients who had discrepancies with the potential to cause possible or probable harm compared with the standard of care (29.9% and 12.9%, respectively). It should be noted that practice models in which pharmacists collaboratively partner with nurses, physicians, technicians, and/or pharmacy students, rather than acting alone, are consistent with, not opposed to, this leadership role.

Fourth, evidence has recently emerged that medication reconciliation can improve patient outcomes dramatically. In an observational study of almost 3 million patients in 885 US hospitals, Bond and Raehl⁷ demonstrated that the taking of admission drug histories by pharmacists was 1 of 7 clinical pharmacy services associated with a reduction in mortality rate. In fact, the authors highlighted that the reduction in number of deaths per hospital was almost twice that of any other clinical pharmacy service investigated. Furthermore, in a recent systematic review, Kaboli and others⁸ concluded that pharmacists "reconciling medications" was 1 of only 5 interventions by clinical pharmacists that improved outcomes for hospital patients. This evidence of the benefit of medication reconciliation to patient outcomes creates a strong basis for arguing that it should be a high-priority activity for pharmacists.

Finally, pharmacists' involvement with medication reconciliation affords us a unique opportunity. Nationally, the Canadian Council on Health Services Accreditation has made medication reconciliation a mandatory requirement, and Safer Healthcare Now!, a national patient safety campaign, has proposed medication reconciliation as one of a handful of core patient safety strategies. In North America, both the CSHP 2015



(http://www.cshp.ca/programs/cshp2015/index_e.asp) and ASHP 2015 (http://www.ashp.org/s_ashp/cat1c.asp?CID=218&DID=255) initiatives have endorsed activities linked to medication reconciliation as a high-priority activity for pharmacists. Internationally, the World Health Organization (WHO) has recently prioritized medication reconciliation as 1 of 5 patient safety strategies within the collaborative initiative “Action on Patient Safety: High 5s”.⁹ The WHO has bestowed on Canada the distinct privilege of leading medication reconciliation (through development of standardized operating protocols) for the participating countries. The Canadian Patient Safety Institute is leading Canada’s participation in the “High 5s”, and the Institute for Safe Medication Practices Canada is leading the medication reconciliation intervention, based on the Safer Healthcare Now! campaign. These efforts will showcase Canadian quality improvement experience for medication reconciliation internationally. With the world’s attention now focused on this issue, it is time for pharmacists to step up to the plate.

Medication reconciliation should not be viewed as a burden, but rather as a tremendous opportunity for pharmacists to demonstrate unique value in direct patient care. Ultimately, unmet needs for medication reconciliation constitute an important patient safety gap that can be bridged by pharmacists prioritizing it as a critical activity.

References

1. Cornish PL, Knowles SR, Marchesano R, Tam V, Shadowitz S, Juurlink DN, et al. Unintended medication discrepancies at the time of hospital admission. *Arch Intern Med* 2005;165(4):424-429.
2. Forster AJ, Clark HD, Menard A, Dupuis N, Chemish R, Chandok N, et al. Adverse events among medical patients after discharge from hospital. *CMAJ* 2004;170(3):345-349.
3. FIP statement of professional standards: pharmaceutical care. The Hague (Netherlands): International Pharmaceutical Federation; 1998.
4. Ong SW, Fernandes OA, Cesta A, Bajcar JM. Drug-related problems on hospital admission: relationship to medication information transfer. *Ann Pharmacother* 2006;40(3):408-413.
5. Hepler CD. Foreword. In: *Seamless care: a pharmacist’s guide to providing continuous care programs*. MacKinnon NJ, editor. Ottawa (ON): Canadian Pharmacists Association; 2003. p. ix-xiii.
6. Kwan Y, Fernandes OA, Nagge JJ, Wong GG, Huh JH, Hurn DA, et al. Pharmacist medication assessments in a surgical preadmission clinic. *Arch Intern Med* 2007;167(10):1034-1040.
7. Bond CA, Raehl CL. Clinical pharmacy services, pharmacy staffing, and hospital mortality rates. *Pharmacotherapy* 2007;27(4):481-493.
8. Kaboli PJ, Hoth AB, McClimon BJ, Schnipper JL. Clinical pharmacists and inpatient medical care: a systematic review. *Arch Intern Med* 2006;166(9):955-964.
9. Action on patient safety—high 5s [Internet]. Geneva (Switzerland): World Health Organization; [cited 2008 Feb 26]. Available from: <http://www.who.int/patientsafety/solutions/high5s/en/>

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THE “CON” SIDE

Medication reconciliation as defined by the Safer Healthcare Now! campaign involves obtaining a complete and accurate list of each patient’s current home medications, including name, dosage, frequency, and route.¹ Although few would dispute that medication reconciliation to achieve a reduction in medication errors is important, simply matching lists and even detecting discrepancies will not lead to a reduction in inappropriate medication use, any more than rearranging the chairs on the *Titanic* would have kept the ship afloat. As such, medication reconciliation should not be a prioritized service for pharmacists. To mandate or even philosophically embrace such an approach within a pharmacy department or association denies the reality that providing good patient care requires contact with patients, time, effort, skill, decision-making, and commitment.

The literature about prioritized clinical services²⁻⁴ cites medication reconciliation only infrequently.³ Most of these studies identify surrogate outcomes such as discrepancies and not more clinically relevant outcomes such as morbidity.^{5,6} Conversely, the impact of pharmacist-initiated medication histories or other programs on morbidity is profound.^{3,4} In fact, those medication reconciliation trials that have demonstrated benefit probably involved medication history-taking masquerading as medication reconciliation.^{5,6} The terminology here is critical, and no definition of medication reconciliation mentions appropriateness of therapy. So, while a medication history encompasses medication reconciliation, the converse is not true.

There is little doubt that determining appropriateness is more complex than simply ensuring the accuracy of the list. Is appropriateness an issue? We would argue “yes”. For example, it has been suggested that up to 70% of proton pump inhibitor use is inappropriate.⁷ Two examples of inappropriate use, among many, include the prescription of atypical antipsychotics for elderly nursing home patients⁸ and the use of anticholinergic therapies to manage side effects in patients with dementia who are taking cholinesterase inhibitors.⁹ In fact, a recent analysis found that 1 out of every 3 admissions to an internal medicine service at the London Health Science Centre was associated with drug use.¹⁰ As such, we suggest that the appropriate use of medications is a very real issue. Simply matching lists of medications to ensure continuity will only serve to ensure that inappropriate and potentially harmful therapy persists.

In the real world, medication reconciliation at all 3 critical phases (admission, transfer, and discharge) in a 700-bed facility is estimated to require 9 full-time equivalent positions (unpublished data on file). Unfortunately, funding for



medication reconciliation is currently very limited, and matching lists requires fewer resources than would determining appropriateness. Without funding, those services, including medication histories and patient care rounds, that positively affect patient care may be abandoned in favour of providing medication reconciliation.

Is there a risk to the profession if it embraces medication reconciliation as a prioritized service? We have observed pharmacists reconciling medications that were unimportant in terms of the patient's problems while neglecting clinically significant medication-related issues, yet still feeling that they had done their job. We believe that medication reconciliation could indeed lead to this degree of professional complacency. It is also disturbing that pharmacists continue to look for tasks to perform rather than applying judgement and knowledge by providing care. We all need to realize that tasks like creating lists can be automated with technology, whereas care cannot.

The likelihood that medication reconciliation will be performed increases if it also becomes the mandate of the interdisciplinary team, which includes nursing and medicine as well as pharmacy. Appropriate technologies should be used and expanded to collect the information required for medication reconciliation. In this context, what specific role should pharmacy play? In some facilities, pharmacy technicians perform medication reconciliation, thereby allowing pharmacists to focus on direct patient care. This seems a logical approach and should continue.¹¹ In institutions where pharmacists take medication histories, medication reconciliation is, by default, occurring, and this too should continue. However, asking pharmacists who currently provide direct patient care to create a medication list as an outcome in itself is regressive.

Although pharmacy is perhaps the profession most passionately concerned about medication errors, it is important to realize that even if we prevented every possible medication error, we would only reduce total drug-related mortality by approximately 10%.¹² Further reduction of adverse medication-related outcomes requires that pharmacists provide pharmaceutical care, including a medication history that assesses appropriateness. Pharmacists should strive to meet these patient needs by providing the best possible services. While medication reconciliation promises much, given the current health care environment and logistic constraints, it is bound to come up short on the delivery. Let's hope that the current obsession for matching lists doesn't deflect us from our ultimate goal of providing pharmaceutical care and determining the most appropriate therapy to provide.

References

1. *Med Rec: getting started kit* [Internet]. Canadian Patient Safety Institute; 2005 Nov 6 [cited 2007 Nov 26]. Available from: <http://www.saferhealthcarenow.ca/Default.aspx?folderId=82&contentId=124>
2. Kaboli PJ, Hoth AB, McClimon BJ, Schnipper JL. Clinical pharmacists and inpatient medical care: a systematic review. *Arch Intern Med* 2006;166(9):955-964.
3. Bond CA, Raehl CL. Clinical pharmacy services, pharmacy staffing, and hospital mortality rates. *Pharmacotherapy* 2007;27(4):481-493.
4. Bond CA, Raehl CL. Clinical pharmacy services, pharmacy staffing, and adverse drug reactions in United States hospitals. *Pharmacotherapy* 2006;26(6):735-747.
5. Cornish PL, Knowles SR, Marchesano R, Tam V, Shadowitz S, Juurlink DN, et al. Unintended medication discrepancies at the time of hospital admission. *Arch Intern Med* 2005;165(4):424-429.
6. Kwan Y, Fernandes OA, Nagge JJ, Wong GG, Huh JH, Hurn DA, et al. Pharmacist medication assessments in a surgical preadmission clinic. *Arch Intern Med* 2007;167(10):1034-1040.
7. Forgacs I, Loganayagam A. Overprescribing proton pump inhibitors. *BMJ* 2008;336(7634):2-3.
8. Rochon PA, Stukel TA, Bronskill SE, Gomes T, Sykora K, Wodchis WP, et al. Variation in nursing home antipsychotic prescribing rates. *Arch Intern Med* 2007;167(7):676-683.
9. Gill SS, Mamdani M, Naglie G, Streiner DL, Bronskill SE, Kopp A, et al. A prescribing cascade involving cholinesterase inhibitors and anticholinergic drugs. *Arch Intern Med* 2005;165(7):808-813.
10. Connelly SE. Adverse drug reactions causing admissions to hospital: a pilot study examining drug exposure [thesis]. London (ON): The University of Western Ontario; 2006.
11. Guimont P, Gadawaski M, MacDonald S. Establishment of an admission medication reconciliation program [abstract]. *Can J Hosp Pharm* 2006;59(Suppl 2):38.
12. Eaton L. Adverse reactions to drugs increase. *BMJ* 2002;324(7328):8.

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