

Should Hospital Pharmacists Provide Postdischarge Follow-Up Care to High-Risk Patients?

THE "PRO" SIDE

With the expanding costs of health care and growing concerns about funding for accessible health care, there is an ever-present need to find areas of cost-saving. One potential area of focus is hospital readmissions, generally defined as admission to the hospital within 30 days after an index admission. Research has shown that not only are these readmissions happening frequently, but they are also a burden on patients' families and the health care system.¹

From April 2010 to February 2011, over 2.1 million patients were admitted to acute care hospitals across Canada, and within 30 days after their discharge, over 180 000 of these patients (8.6%) were readmitted to hospital.¹ Over the same period, more than \$1.8 billion was spent on hospital readmissions within 30 days of the index admission.¹ The cost per stay of these readmissions was 42% (over \$3000) higher than for regular admissions to acute care.¹ This is not an isolated Canadian issue, as data from the United Kingdom² and the United States³ have shown similar trends.

In 2 separate studies, Forster and others showed that the majority (66%) of adverse events following discharge from hospital were drug-related⁴ and that the risk of experiencing an adverse drug reaction (ADR) leading to hospital admission increased as the number of prescription medications increased.⁵ In their study of elderly patients, Budnitz and others⁶ found that nearly two-thirds (65.7%) of hospital admissions through the emergency department were due to unintentional overdoses. Coleman and others⁷ found that medication discrepancies led to a statistically significant increase in the readmission rate (14.3% versus 6.1%, $p = 0.04$). Even more alarming is research suggesting that many of these ADRs are avoidable: across numerous studies, 14% to 50% of ADRs were avoidable and up to 75% were ameliorable.^{2,4,5}

Given the widespread nature of this problem, it is difficult to determine where to focus our attention for best effect. The Canadian Institute for Health Information identified patients with chronic obstructive pulmonary disease and heart failure as

having the highest risk for readmission, with 18.8% and 21.0% of patients, respectively, returning within 30 days of the index admission.¹ Jencks and others³ also identified patients with chronic obstructive pulmonary disease and heart failure as being the most likely to be readmitted. Along with the chronic and progressive nature of these diseases, it appears that the number of medications and the complexity of medication regimens are 2 reasons why these patients end up presenting to hospital and should be a priority for pharmacists.⁵ As described in more detail below, targeted follow-up by hospital pharmacists can reduce readmission rates and emergency department visits by reducing ADRs and improving medication adherence.

Several studies have looked at the impact that pharmacists can have on preventing repeat visits to the hospital. Although there has been significant variability in the pharmacist-driven interventions considered in the literature, there is a common trend that includes patient follow-up.^{8,9} The REACT study, a Canadian randomized trial, investigated the benefits of a support program that included postdischarge follow-up by hospital-based pharmacists for patients with heart failure. The results of this study showed significant reductions in both emergency department visits for cardiovascular issues and hospitalization days.⁸ Similarly, a retrospective cohort study reviewing the role of a pharmacist in transition to home showed that the odds of readmission within 30 days were reduced by half in the pharmacist follow-up group.⁹ More specifically, patients who received assistance from a pharmacist during their transition back to home, including follow-up phone calls, had a readmission rate of 5% compared with 9.5% in the usual care group.⁹ The readmission rates in this study were lower than what many others have reported, which suggests that a lower-risk group might have been included as the study population.¹⁻³ As such, it can be postulated that a greater absolute benefit might be seen in a higher-risk population.

In a recent UK study, over one-fifth of readmitted patients had experienced an ADR that contributed to the readmission.² Fourteen percent of the admissions were definitely avoidable, and close to half were possibly avoidable.² Pharmacists are key players in minimizing ADRs on transition from hospital to community. In a randomized trial of 179 patients, the provision of patient counselling and follow-up by pharmacists mitigated a number of

ADRs at 30 days after discharge.¹⁰ Eleven percent of patients in the control group but only 1% of those in the intervention group experienced a preventable adverse event. The reduction in adverse events was driven by pharmacists clarifying medication regimens and reviewing indications, directions, and side effects with patients on discharge and in follow-up phone calls.¹⁰

Finally, pharmacists can aid with medication adherence. Many randomized studies have examined the factors that influence patient adherence. Despite the design flaws in some of these trials, certain high-risk populations seem to benefit from pharmacist-driven patient education and follow-up. For example, in a recently published randomized study involving 253 patients with acute coronary syndrome, the intervention consisted of 4 components, one of which was follow-up 1 week after discharge. The target adherence level of 0.80 was achieved by 89.3% of patients in the intervention group, compared with 73.9% in the standard care group. These results suggest that a multifaceted education and follow-up approach, including intervention by pharmacists, improves patient adherence.¹¹

In a high-risk population, follow-up is an important part of patient-centred care, and pharmacists can play an important role in decreasing hospital readmission rates, minimizing adverse drug events, and improving patients' adherence to their medication regimens. The evidence on this topic makes it clear that identifying appropriate high-risk patients and ensuring that pharmacist follow-up is combined with other discharge-oriented tasks are vital to the success of these interventions. Hospital pharmacies should dedicate more resources to ensuring that select patients have appropriate follow-up after being discharged from the hospital.

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THE "CON" SIDE

A patient's discharge from hospital is an important time in his or her care journey. This transition from hospital into the community may result in adverse outcomes for the patient if it is not effectively managed by the patient's care team. It has been estimated that between 19% and 23% of patients discharged from hospital experience an adverse event following the discharge, with adverse events due to medications being the most common type of event experienced.^{1,2} Reasons for this preponderance of medication-related problems include medication changes made during the patient's hospital stay, suboptimal or nonexistent patient education at discharge, inadequate communication of medication changes and follow-up plans between hospital-based care providers and the patient's primary care providers, and suboptimal monitoring and follow-up to monitor patient adherence and to assess for efficacy and safety of therapy.¹⁻³

The consequences of adverse drug events after discharge may be serious; they often result in new symptoms or temporary morbidity and can lead to permanent disability or death.^{1,2} Increased health care utilization may also occur.¹ Avoidance of these adverse events relies on the provision of effective seamless care to patients at discharge, with follow-up plans being communicated to and implemented by the patient's primary care providers, including the community pharmacist. Although hospital-based clinical pharmacists have an important role in ensuring effective seamless care *at the time of discharge* from hospital, these pharmacists should not routinely provide *postdischarge* follow-up care to high-risk patients.

Hospital-based clinical pharmacists must prioritize the patients for whom they provide comprehensive care, to ensure that optimal patient benefit is achieved with available resources.⁴ Evidence of benefit of a particular service or activity does not necessarily mean that clinical pharmacist resources should be allocated to that activity and does not guarantee a value-added clinical pharmacist service for patients. For a clinical pharmacist service to be of high priority for implementation and to have high likelihood of adding value to patient care, the following criteria should be met: the service should be rooted in the pharmaceutical

care process, there should be high-quality evidence that the service will improve clinically important outcomes, there should be a well-defined link between provision of the service by a clinical pharmacist and improvement in patient outcomes, and the service should be an effective use of resources.⁴⁻⁶ Hospital-based clinical pharmacists should not routinely provide postdischarge follow-up care to high-risk patients because although this activity is an important component of the pharmaceutical care process and there is some evidence of patient benefit, the evidence is conflicting, and it is not clear that a hospital-based clinical pharmacist is the most appropriate person to provide the service. Furthermore, it is not an efficient and effective use of hospital pharmacy department resources.

The evidence to support participation of hospital-based clinical pharmacists in postdischarge follow-up care is not consistent. The provision of postdischarge follow-up care by pharmacists reduces the number of preventable adverse drug events and medication discrepancies 30 days after discharge, but may not affect the total number of adverse drug events or total health care utilization and does not appear to have a sustained effect on medication discrepancies.^{3,7} Some studies have indicated that postdischarge medication reviews by a pharmacist may improve outcomes in specific patient populations,^{8,9} but other studies have shown no improvement in clinically important outcomes, health care utilization, adverse events, or adverse drug events among those who received enhanced care, including postdischarge follow-up by a pharmacist, relative to those who received standard seamless care at discharge.^{10,11} Also, it is currently unclear what this follow-up care should encompass. Study interventions have often included patient education and communication to primary care providers at discharge, in addition to a telephone call by a pharmacist after discharge. It is unclear whether this telephone call generates any additional value for the patient's care, beyond what is received from hospital-based professionals at discharge and from primary care providers after discharge. A bundled, multi-model approach consisting of several types of interventions may be more likely to improve patient outcomes and prevent adverse drug events in high-risk patients.^{12,13} Before implementation of such a service, it is also important to understand which patients are considered "high risk" and therefore most likely to benefit. Some evidence suggests that among older patients, those with a greater total number of medications, as well as those with particular disease states, may be at higher risk of experiencing a medication discrepancy following discharge.¹⁴

There is strong evidence supporting the positive impact that clinical pharmacists have on inpatient care and care at discharge. When providing proactive, hospital-based care, including patient education and seamless care at discharge, clinical pharmacists improve the overall quality of medication use and reduce preventable adverse drug events and hospital readmissions.¹⁵⁻¹⁷ Clinical pharmacist-delivered medication education at discharge improves patients' medication knowledge and adherence and reduces

readmissions to hospital and unplanned visits to the primary health care provider.¹⁸ However, providing postdischarge follow-up care is resource-intensive; would likely come at the expense of the clinical pharmacist providing other proven, important, and impactful services; and may not be a value-added service for patients.

Adverse drug events are common among patients discharged from hospital, and they are a significant cause of patient morbidity and health care utilization. Hospital-based clinical pharmacists play an important role in preventing these adverse drug events. Such preventive efforts should focus on medication review and patient education at discharge, as well as effective and thorough communication with the primary care physician and community pharmacist about medication changes and monitoring plans after discharge. As a result of these activities, patients may become more empowered about their own care, and primary care providers may become more fully informed about their patients' hospital stay and their needs thereafter. Postdischarge follow-up pharmaceutical care should be left to our community colleagues.

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