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Impact of Targeted Medication Counselling during Discharge: Erie Shores HealthCare Experience

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Abstract

Addition, omission, and changes in medication dosage are common in patients during their hospital stay. One in five patients experienced an adverse event after hospital discharge, of which more than two-thirds were related to suboptimal medication counselling before their hospital discharge. Pharmacist-led targeted medication counselling could improve medication adherence, ultimately patient safety. Erie Shores HealthCare (ESHC) is a small, remote hospital serving at a 130% capacity since the pandemic era. We implemented a pharmacist-led medication counselling initiative that includes a paper-based medication list, a discussion on dosage, therapy changes (new, stopped, or changed), an explanation of indications and potential adverse drug reactions, and the importance of adherence, starting in January 2024. We aimed to evaluate the impact of such an intervention on our patient population. We conducted a series of telephone follow-ups with patients randomly after discharge (on days 7, 15, and 30) to learn about their experiences. The patient satisfaction rate with the intervention was overwhelming (92%). The hospital's readmission rate, both before and after the intervention, was also reduced, reflecting the potential success of the project. However, a more robust evaluation with a more extended implementation period may yield evidence of the project's success.

Keywords: Medication counselling; hospital readmission; medication adherence; patient safety

Background

Evidence indicates that pharmacist interventions during dispensing, such as counseling, significantly improve medication adherence and help protect individuals from drug-related problems [1]. Key aspects that need to be addressed during the dispensing process include providing appropriate medications, as well as information about the drug's name, description, indications, method of administration, dosage, dosage forms, usage instructions, length of therapy, precautions, adverse effects, and contraindications [2]. Additionally, studies show that pharmacists are less likely to provide counseling at hospital discharge (only 25%), which can contribute to increased hospital readmissions [3-6]. Patient counseling is a crucial service provided by pharmacists, playing an essential role in optimizing drug use, improving patient outcomes, preventing prescription misuse, and reducing costs in public health institutions [2]. Nonetheless, a shortage of qualified pharmacists at healthcare facilities often results in incomplete history-taking, suboptimal medication counseling, and inconsistent telephone follow-

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Dr. Sultana M, et al., J Pharm Pharmacol Res 2025
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up after discharge, which can jeopardize safe medication reconciliation [3]. Pharmacist availability varies significantly based on community urbanization and rurality. Urban areas tend to have the highest number of full-time equivalent pharmacists, while rural communities often experience the lowest availability. For instance, 24% of communities in Southern Ontario lack access to local pharmacists [7]. The pharmacist-to-population ratio decreases sharply in strong commuting zones while improving in areas with moderate and weak commuting patterns. Rural communities, particularly those with limited public transportation, are the most underserved, exhibiting the lowest ratios of pharmacists to population and lacking access to the services available in urban settings [7].

Erie Shores Health Care (ESHC) is a small rural hospital serving a capacity of 130% and limited resources [8]. We noticed a gradual rise (11%) in ESHC readmissions since 2020, the majority being with unreliable/incomplete medication histories. The shortage of qualified Pharmacists at the facility may contribute to incomplete history taking, suboptimal medication counselling, and inconsistent telephone follow-up post-discharge, risking safer medication reconciliation. Recognizing the potential negative impacts, we understand that practical medication reconciliation can mitigate the burden of avoidable hospital readmissions and enhance patient safety. We have implemented a comprehensive pharmacist-led medication counselling that includes a paper-based medication list, a discussion on the dosage, therapy changes (new, stopped, changed), an explanation of the indications and potential adverse drug reactions, and the importance of adherence since December 2023 as part of a novel care model for discharged patients[x]. The aim was to improve patient care quality through an optimal medication counselling service, evaluated using a series of post-discharge phone calls with patients.

Method

The medication counselling service, as part of the novel Admission and Discharge Unit (ADU) care model [9], provided a paper-based medication list to the patients, which included the dosage and therapy changes (new, stopped, changed), and explained the indications and potential adverse drug reactions and the importance of medication adherence to the patients. The second author (TK) trained the clinicians (physicians and nurses) in providing medication counselling and supervised the initiative. The pharmacist-led team used the teach-back method [10] during the counselling and proactive telephone follow-up to ensure adherence to counselling services. We conducted a series of post-discharge telephone calls on days 7 (±3), 15 (±3), and 30 (±3) to identify potential gaps in the counselling services (Appendix 1) since March 2025. We have also requested the patients to assess their overall satisfaction using a Likert scale within 7 (±3) days of their discharge. The project also collected pre- and post-hospital readmission rates to evaluate whether the initiative has reduced hospital readmissions. The Hospital's Decision Support Unit routinely collects readmission data to assess the performance of the healthcare system. The first author (MS) and the fifth author (DC) monitored and evaluated the telephone follow-up data of randomly selected cases to ensure data integrity, patient data safety, project effectiveness, and equitable data collection.

Result

The research team has been calling patients (N=37) randomly since March 2025. An overwhelming 95% of respondents reported receiving an updated medication list upon discharge. The respondents (29 out of 37) also mentioned that someone spoke with them and their caregiver regarding their medications upon discharge. The respondents mentioned that the ADU nurses provided medication counselling in the majority of cases (75%). Approximately 68% of patients and/or their caregivers reviewed their discharge medication list upon discharge. Most patients and/or their caregivers mentioned that their questions about their medications were answered during discharge (89%). In 60% of cases, patients did not bring their current medication to the hospital when they were admitted. However, the hospital did not return the medications brought during the admission in 80% of cases. We were also interested in learning whether patients sought medication counselling from their community/retail pharmacies after hospital discharge to gauge the comprehensiveness of our intervention. Almost 60% of patients answered positively. Overall satisfaction with medication counselling was assessed on a Likert scale, where one indicated extreme dissatisfaction and ten indicated extreme satisfaction. The majority of patients (78%) reported a satisfaction rate of nine out of ten. The majority of patients did not report any issues or concerns with the medications 15 (±3) days and 30 (±3) days after discharge (94% and 89%, respectively). The detail responses are presented in Table 1.

We asked the respondents to share their learning from the medication counselling to understand the granularity of the teach-back method. To our satisfaction, the respondents were able to explain the route, dosage, changes in therapy, and potential adverse effects of their medications. We were also interested in learning the feedback from respondents on our initiative to improve the quality of care we provide. A few respondent excerpts are presented in a tabulated form for a better understanding below (Table 2).

The hospital re-admission data before and after the intervention showed changes. For example, in January 2024, 26 out of 293 patients (8.9%) were re-admitted within 30 days of discharge, whereas, in April 2025 (the most recent

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Dr. Sultana M, et al., J Pharm Pharmacol Res 2025
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Table 1: Responses on telephone follow-up calls

Call responses within 7 (±3) days of their discharge	
Receipt of an updated medication list during discharge	Yes (35/37) 94.6%
Someone spoke with the patient or their caregiver regarding their medications upon discharge	Yes (29/37) 78.4%
The person providing medication counselling	ADU nurse (n=22), Doctor (n=7)
Patient reviewed their discharge medication list during their discharge	Yes (25/37) 67.6%
Patients and/or their caregivers having unanswered questions about their medications upon discharge	No (33/37) 89.2%
Any medications brought upon admission to the hospital	No (22/37) 59.5%
If yes, the medications were returned upon discharge	Yes (12/15), 80.0%
Medication counselling from the community/retail pharmacies after the hospital discharge	Yes (22/37) 59.5%
Overall satisfaction on medication counselling in Likert scale (1 being extremely dissatisfied and 10 being extremely satisfied)	9 (29/37; 78.4%), 8 (5/37; 13.5%), 7 (3/37; 8.1%)
Call responses within 15 (±3) days of their discharge	
Any issues or concerns with the medications since they have been discharged	No (35/37) 94.6%
Call responses within 30 (±3) days of their discharge	
Any issues or concerns with the medications since they have been discharged	No (33/37) 89.1%

Table 2: Respondent excerpts on the medication counselling at the hospital during discharge

Learning about the current medications	Feedback on the medication counselling during discharge
2 medications at different times, and they weren't in a blister pack	They did really good.
If I had any problems, I should go back to see the doctor or go to a clinic right away. If I start to run a fever, to go to emergency if I can't get to a clinic	I struggled with how most of the medication was discontinued and then I put them back on at home. Went from 0 to 100 the day I was discharged. Having a lot of medication all at once, and I had low BP. Emergency doctor told me these medications are causing these. Maybe a slower reintroduction would have helped.
I had 2 antibiotics, and I know now what they were for	There was no real issue with it. It probably wasn't necessary because I knew from the pharmacist what was needed to be done.
I know now how important it was that I take the medications at the same time everyday. Because this was a previous concern	The whole process was very efficient and pretty smooth. He did not take the medication, but he refused because he didn't think he needed any. He should've said yes. After a day or 2 he was sore. Pharmacy prescribed some Tylenol and took them for 3 days and good now.

available data time point), 14 out of 312 patients (4.5%) were re-admitted within 30 days of discharge, indicating a reduction in re-admission. However, the change is not significant.

Discussion

Key findings revealed that 95% received updated medication lists, and 78% expressed high satisfaction with medication counseling. The study also noted a decrease in 30-day hospital re-admissions from 8.9% in January 2024 to 4.5% in April 2025, though this change was not statistically significant. Medication counselling is crucial when patients are discharged, as they need to manage their medications effectively at home. Unfortunately, research indicates that communication issues between healthcare providers and patients often arise at discharge due to several factors: 1) overwhelming patients with too much information at once, 2) using complex medical terminology that patients may find difficult to understand, 3) healthcare providers mistakenly assuming patients can grasp the information easily, and 4) lacking a system to verify whether patients can manage their medications post-discharge [11-14]. Suboptimal communication can result in poor medication management and increase the likelihood of harmful side effects [15]. Studies estimate that between 19% and 23% of patients experience adverse drug events after discharge, which can lead to harm and subsequent hospital readmissions [16]. Our findings on patients' medication counselling-seeking behaviour from their community/retail pharmacies after hospital discharge reflect the literature, motivating us to adopt follow-up phone calls after discharge.

Research revealed that educational interventions alone have little or no effect on hospital admissions (risk ratio

Dr. Sultana M, et al., J Pharm Pharmacol Res 2025
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[RR] = 1.02 (95% Confidence Interval [CI] = 0.71 to 1.48), indicating no change in the number of patients admitted to the hospital) [17]. However, a paper-based medication list, education on medication dosage, and post-discharge follow-up provide evidence (RR =0.67 (95% CI 0.50 to 0.90), indicating a reduction of the number of patients admitted to the hospital by 12.3%), reducing the number of hospital admissions [17]. The insignificant change in hospital 30-day re-admission data echoes Cross and colleagues' [17] work. However, a more extended implementation period and robust data collection are needed to validate our findings. The hospital serves a diverse population, including Migrant Agricultural Workers, undocumented or documented refugee populations, the Mennonite community, and the Caldwell First Nation, often presented with suboptimal medication history [8]. Comprehensive medication reconciliation, especially for those patients experiencing chronic illness and using an increasing number of medications, patients with cognitive decline, and patients having language and cultural barriers, could ensure patient safety in terms of medication adherence. However, the intensity of the medication reconciliation process includes composing a discharge medication status, providing adequate patient discharge counselling, and informing primary care providers of the medication changes. The process is even more complicated when hospitals struggle with staffing shortages or administrative burdens. Despite these challenges, the patients and their caregivers provided an overwhelmingly positive response to this initiative, reinforcing the value of pharmacist-led medication counselling in improving the quality of care we provide. Our analysis revealed that 80% of patients who brought their medications during their admission did not receive them back at the time of discharge. This finding emerged incidentally. We acknowledge that excluding chart review from the study protocol to investigate the underlying reasons for these observations represents a limitation of our project.

Ethics approval and consent to participate

The Office of Research's (https://www.erieshoreshealthcare.ca/research) internal ethics committee approved the ethical conduct of care initiative and data collection as part of hospital patient care improvement initiative, exempt from formal ethics review by the University of Windsor Research Ethics Board (https://www.uwindsor.ca/research-ethics-board/) in accordance with the ethical standards on Human Experimentation of the institution in which the experiments were done or in accord with the Helsinki Declaration of 1975.

Consent for publication: All authors consented for the publication. No identifying images or other personal or clinical details of participants are presented that compromise anonymity. No patient was involved in the study. Therefore, patient consent is not applicable.

Availability of data and materials: Primary data and materials are available upon request.

Competing Interests: The authors declare no competing interests.

Funding: HIROC Safety grant was obtained to publish the work as a quality improvement project. The study is not a clinical trial. Therefore, no clinical trial registration number exists.

Authors' contributions: The first author (MS) conceptualized, designed, collected and analyzed data and contributed significantly to writing the manuscript. TK and AP conceptualized and designed the project. AC, JW, DC, MAA, and MB significantly contributed to data collection, and analysis. AC, DC, and MB contributed significantly to writing the manuscript.

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Dr. Sultana M, et al., J Pharm Pharmacol Res 2025
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