Clinical Interventions in Aging

Dovepress
open access to scientific and medical research

Open Access Full Text Article

SHORT REPORT

Exploring the Roles of Nurses in Medication Reconciliation for Older Adults at Hospital Discharge: A Narrative Approach

Ling-Ling Zhu[1], Yan-Hong Wang[2], Mei-Juan Lan[3], Quan Zhou[2]

[1]VIP Geriatric Ward, Division of Nursing, The Second Affiliated Hospital, School of Medicine, Zhejiang University, Hangzhou, Zhejiang Province, People's Republic of China; [2]Department of Pharmacy, The Second Affiliated Hospital, School of Medicine, Zhejiang University, Hangzhou, Zhejiang Province, People's Republic of China; [3]Division of Nursing, The Second Affiliated Hospital, School of Medicine, Zhejiang University, Hangzhou, Zhejiang Province, People's Republic of China

Correspondence: Quan Zhou, Department of Pharmacy, The Second Affiliated Hospital, School of Medicine, Zhejiang University, Jiefang Road No. 88, Hangzhou, 310009, People's Republic of China, Email zhouquan142602@zju.edu.cn; Mei-Juan Lan, Division of Nursing, The Second Affiliated Hospital, School of Medicine, Zhejiang University, Jiefang Road No. 88, Hangzhou, 310009, People's Republic of China, Email lanmj@zju.edu.cn

Abstract: Medication reconciliation (MR) is the process of comparing a patient's medication orders to all of the medications that the patient has been taking in order to identify and resolve medication discrepancies. It is an effective means of risk management to avoid medication errors (eg, omissions, duplication, dosage errors, or drug interactions). Some guidelines explicitly state that MR is a pharmacist-led transition of care; however, there is a shortage of qualified pharmacists to meet the increasing clinical needs, and clinical nurses' roles have not been clearly described. This paper aimed to enable nurses to gain confidence in contributing to MR at discharge and to make the industry aware of the potential risks if nurses do not actively intervene in this area. A narrative approach was used to introduce experiences in identifying discrepancies and medication errors through MR at discharge in a geriatric ward of an academic medical center hospital in China. The nurses' main roles in MR involve chasing, checking, and education. Clinical nurses, an untapped hospital resource, can actively engage in MR at discharge if they receive effective training and motivation. Multidisciplinary collaboration at discharge allowed many discrepancies to be reconciled before harming older patients. It is worth conducting further research in MR when discharging older adults, such as the cost-effectiveness of nurses' efforts, the value of electronic tools and the impact of MR-targeted education and training for nursing students and nursing staff.

Keywords: hospital discharge, medication reconciliation, multidisciplinary collaboration, older adults, patient safety

Introduction

Medication reconciliation (MR) is the process of comparing a patient's medication orders to all the medications that the patient has been taking. This process consists of five steps: (1) develop a list of currently used medications; (2) develop a list of medications that have been prescribed; (3) compare the medications on the two lists; (4) make clinical decisions based on the comparison; and (5) communicate the new list to appropriate caregivers and to the patient.[1]

MR at hospital discharge is an important patient safety issue. As an effective means of clinical risk management, MR can avoid medication errors such as omissions, duplication, dosing errors, and drug interactions. Prescribing omissions and inappropriate medications were common in older inpatients. Upon discharge, 45% of inpatients had at least one potentially inappropriate medications (PIMs) and 40% had at least one potential prescribing omissions.[2] Caleres et al reported that medication discrepancies were noted for 38% of older adults at hospital discharge.[3] Abukhalil et al showed that the prevalence of potentially inappropriate prescribing at discharge was 64.39%.[4] The prevalence of PIMs use was 38% among older patients with chronic coronary syndrome at hospital discharge in China.[5]

Clinicians need to understand the requirements on MR and actively collaborate to support the process as the right task for their patients. In 2005, The Joint Commission (TJC) added MR to the National Patient Safety Goal (NPSG). In 2021, the

Received: 17 November 2023
Accepted: 27 February 2024
Published: 5 March 2024

National Health Commission of the People's Republic of China published a guideline on MR, which defined MR as a pharmacist-led intervention during transitions of care. However, clinical nurses' roles have not been clearly described.[6] There is a shortage of qualified pharmacists to meet the increasing clinical needs for MR. The use of pharmacy technicians may be a viable strategy for developing and expanding MR processes with appropriate supervision.[7] However, the concept and mode of pharmacy technicians have not been established in China. There are also wide differences in supervision requirements, education systems, and supportive legislation for the pharmacy support workforce globally.[8] Registered nurses constitute the largest proportion of healthcare professionals in hospitals, and they are an untapped resource in acute care hospitals if they receive effective training and motivation. Enhanced efficiency in this MR service can be achieved by targeting high-risk patients and spreading portions of the work to other disciplines.[9] In China, nurses seem theoretically prepared to play important roles in MR for older adults because they acquire such knowledge in the field of pharmacology during their education at the bachelor's and master's level.

In this study, a narrative approach was used to introduce lessons and experiences in identifying discrepancies and medication errors through MR at discharge in a geriatric ward of a tertiary academic medical center hospital in China. Through face-to-face interviews with geriatric nurses who work with geriatric patients, the described stories were collected in a geriatric ward with 25 beds for various diseases under the supervision of head nurse Ling-ling Zhu during the period of 2022 to September 2023. By describing the three roles that nurses play in MR, we would like to enable nurses to gain confidence in contributing to reconciliation at discharge and make the industry aware of the potential risks of nurses not taking the initiative in this area.

The study was approved by the Human Research Ethics Committee of the Second Affiliated Hospital, School of Medicine, Zhejiang University, and it was in compliance with the Helsinki Declaration. The study was exempt from the necessity of obtaining informed consent from patients because the relevant information was anonymously and retrospectively collected, and no special interventions were given to the involved patients.

The Importance of Checking Role in MR

Nurses can help identify discrepancies between physician orders at discharge and during hospitalization. We present two stories related to nurses' checking roles in MR.

First Story

The first story reminds us of the integrity of physician orders. An older patient with type 2 diabetes was prescribed with 3 medications (sustained-release potassium chloride, dapagliflozin, and the fixed-dose combination of sitagliptin and metformin). A geriatric nurse was surprised to find that the patient had been receiving 8 medications (ie, amlodipine, atorvastatin, clopidogrel, sertraline, mecobalamin, and the above 3 medications) during hospitalization. Why did the other five medications miss from the discharge orders? The nurse immediately reported the medication discrepancy to the physician. This event turned out to be a false alarm. The doctor had told the patient to buy the other five drugs from outside the hospital, and had recorded this information in the discharge summary. Since this event, our pharmacy has required that all medications for a discharge patient be ordered via computerized physician order entry. Physicians must prescribe medications that would be purchased by patients from outside the hospital and clearly describe the dosages according to a standard operating procedure.

Perspective of the Geriatric Nurses

It is very easy to cause adverse events due to loss of treatment continuity after hospital discharge if the doctor does not prescribe all medications at the time of discharge, or the doctor forgets to document the list of medications in the discharge summary, or the patient forgets to purchase medications from other sources after discharge. Therefore, the checking role of geriatric nurses during MR process would help to warrant medication safety. Furthermore, geriatric nurses have the obligation to remind patients or family members to buy the medicines that need to be purchased by themselves.

Second Story

The second story reminds us of avoiding look-like and sound-like (LASA)-related medication errors in the care transition. Rapid-acting NovoLog® (insulin aspart) and intermediate-acting NovoLog® Mix 70/30 (insulin aspart protamine and insulin

aspart) are LASA medications. NovoLog® Mix 70/30 and long-acting insulin glargine were incautiously prescribed for an older type 2 diabetic patient at discharge. It is well known that intermediate-acting insulin analogs should not be used in combination with long-acting insulin analogs to avoid hypoglycemic adverse events. Very luckily, the discrepancy in insulin analogue formulations at discharge was identified by a geriatric nurse who remembered that the patient had been receiving rapid-acting NovoLog® in combination with insulin glargine during hospitalization. The nurse immediately contacted the physician who deeply acknowledged her reconciliation and revised the orders timely.

Perspective of the Geriatric Nurses

Institute for Safe Medication Practices (ISMP) has long advocated for increased awareness of LASA medication name mix-ups and the implementation of safeguards to prevent them.[10] Geriatric nurses should draw special attention to the LASA medication discrepancies arising at hospital discharge.

The Importance of Chasing Role in MR

The chasing role of nurses should be maintained, including chasing pharmacies about the efficiency and consistency of drug distribution, chasing physicians to appropriately issue orders in time, and chasing patients/families to participate in medical and nursing care. Since 2021, generic products have been encouraged for clinical use by our institution, whereas brand-name products have been restricted according to China's national drug use policy. Our inpatient pharmacy routinely obeys a unit dose dispensing mode; however, it would dispense brand-name products to wards in the form of whole boxes with unopened outer packaging if a temporary application is submitted by the doctor and approved by the pharmacy. Nurses kept the intact medicines in the treatment room of nursing unit. The logic behind this approach is to prevent other doctors from prescribing the branded medicine, but such practice carries potential risks of medication errors at discharge. Here, we would illustrate the importance of chasing role through the following two stories.

Third Story

An older patient needed antimicrobial therapy with orally moxifloxacin (MOX), but he insisted on using brand name product despite that our hospital had a generic product of MOX. The branded MOX was temporarily prescribed for patient use after obtaining approval from the pharmacy. Pharmacists distributed four boxes of branded MOX (three tablets each box) to the ward. The attending nurse did not chase the pharmacy to package this medication into a ready-to-use single dose. The doctor discontinued the MOX order three days later due to disease status changes, which meant that there were still three boxes of MOX left. On the discharge day, the nurse inadvertently handed over MOX to the patient together with other prescribed discharge medications; however, she did not tell the patient that MOX was no longer needed. The patient was confused about whether to ingest MOX when he was discharged and returned home.

Perspective of the Geriatric Nurses

Geriatric nurses should carefully compare the real drugs with the patients' medical orders. Nurses should properly dispose of medications that no longer need to be taken; otherwise, they may cause misuse, anxiety, and confusion. Also, nurses should chase both physicians and pharmacies to refund the fee to patients on the premise of returning intact tablets of unnecessary medications.

Fourth Story

An older patient took five medications during hospitalization. Three medications (aspirin, atorvastatin, and sacubitril-valsartan) were obtained from inpatient pharmacies in the form of unit-dose dispensing, whereas two branded products (amlodipine and ticagrelor) were distributed by the pharmacy in a complete outer packaging after temporary permission and they were stored in the treatment room of geriatric nursing unit. On the day of discharge, the physician issued discharge orders for aspirin, atorvastatin, and sacubitril-valsartan for a month; however, he forgot to prescribe amlodipine and ticagrelor. The inpatient pharmacy delivered aspirin, atorvastatin, and sacubitril-valsartan in designated quantities to the ward. The nurse handed over these medications to the patient after checking the discharge medication order; however, she forgot taking out amlodipine and ticagrelor from the treatment room, and did not gather them with other discharge

medications before handing them over to the patient. Ticagrelor should be administered twice daily; however, the patient did not receive the evening dose of this antiplatelet drug on the day of discharge. Fortunately, the patient's daughter identified the error on the next morning, and immediately contacted the nursing team.

Perspective of the Geriatric Nurses

This story reminds nurses that the entire list of all currently used medications must be compared to the discharge orders. When the reconciliation process identified such discrepancies, the attending nurse must chase the attending physician to confirm and properly order all necessary medications; otherwise, it will cause omissions and potential severe adverse events. Nurses must check the patient's medications left in the treatment room at hospital discharge. In addition, communication among physicians, nurses, and pharmacists should be strengthened. The unit-dose drug dispensing mode should be implemented consistently in any circumstance, and nurses are obliged to monitor the homogenization of the quality of service in pharmacies.

The Importance of Educating Role in MR

It is important to strengthen the partnerships among physicians, pharmacists, nurses, and patients/family caregivers regarding patient education at discharge. In 2011, our inpatient pharmacy initiated a process improvement program. Each discharge patient can receive medications together with a printed medication education sheet that contains three parts: (1) general information (eg, "please contact the ward or pharmacy timely if you experience adverse drug reactions or symptoms that have not appeared before or you may not know how to take medications"); (2) a list of all medications and their dosage; and (3) the most important tips for each medication use. Nurses can conveniently provide patients with medication instructions according to this sheet at discharge. This creative process have greatly reduced the workload of nurses, enriched their knowledge of medicine, and enhanced discharge efficiency. We present the following stories to illustrate the importance of educating role in MR.

Fifth Story

A 68-year-old discharge patient who underwent mitral valve replacement was provided with education from a geriatric nurse who carefully read the content on the written medication instruction sheet. A sentence stated that warfarin dosage should be adjusted based on the international normalized ratio (INR) value; therefore, the nurse checked the patient's INR value on the previous day. The INR was 1.45, below the therapeutic target value (range: 2.5–3.5). In addition, the nurse identified a discrepancy in warfarin dose (ie, it was 3 mg once daily at discharge, different from 1.5 mg once daily during hospitalization), and she judged that this was the doctor's intentional and right dose adjustment. She did not think it was necessary to consult a doctor in this situation, so she gave the patient a careful explanation of why the warfarin dose had been increased. Other instructions were also delivered, such as how to plan a diet when taking warfarin (eg, limit intake of food enriched in vitamin K and avoid using ginseng products).

Perspective of the Geriatric Nurses

This story reminds geriatric nurses that their educating role can better understanding of dosage adjustment at discharge. When identifying intentional and reasonable discrepancy during MR, the nurse has an obligation to explain to the patient why this discrepancy exists. This can also address patient concerns and improve medication compliance.

Sixth Story

A 77-year-old patient was discharged with a diagnosis of coronary heart disease, cerebral infarction, hypertension, type 2 diabetes mellitus, hyperlipidemia, and atherosclerosis. Discharge medications included metformin, sustained-release gliclazide, bisoprolol, clopidogrel, aspirin, atorvastatin, and felodipine. A nurse was alerted by the warning on the printed medication instruction sheet [ie, aspirin had better to be taken at bedtime. Please be cautious of black stool because the medicine has a potential to cause gastrointestinal (GI) bleeding, especially in patients with high risk of GI injury). The nurse assessed the patient's condition, and the patient was categorized as a high-risk population for GI injury owing to three risk factors (ie, older adult, receiving dual antiplatelet therapy, and suffering from cardiovascular

diseases). A strong recommendation for such patients is the combination use of GI protective agents [eg, proton pump inhibitors (PPIs) and mucoprotective drugs]. However, the list of discharge medications did not include GI protective agents. Furthermore, the nurse identified a discrepancy (ie, pantoprazole intravenous therapy was provided during hospitalization, but it did not switch to oral PPI at discharge). The nurse immediately contacted the physician and then confirmed that this is an omission of oral PPI to the discharge patient.

Perspective of the Geriatric Nurses

This story reminds geriatric nurses that their educating role can not only help to identify drug safety risk, but also promote the awareness of MR at discharge, especially for patients who has been receiving intravenous therapy during hospitalization but still require sequential oral therapy after discharge.

Discussion

Unintended medication discrepancies occur frequently in hospitals. Studies have shown that medication discrepancies at discharge are most likely to occur with cardiovascular agents,[11] and the prevalence of medication errors in type 1 and type 2 diabetes was 9.0% and 12.2% at discharge.[12]

Prescribing errors are common in older adults with multimorbid illness and polypharmacy, leading to adverse drug reactions and events that in turn result in higher levels of morbidity, rehospitalization, and mortality. Causes of prescribing errors in this special population are multifaceted and complex. From the perspective of MR, over prescribing and inappropriate drug omission are main types of errors.[13] A comparison of medication records for residents aged 65 and older revealed that older adults were at risk for medication discrepancies and 86.2% of records had at least one discrepancy during the transition from hospital to assisted living.[14] In the acute care setting, potentially inappropriate medication prescribing can be even more problematic due to multiple physicians and specialists who may be prescribing for a single patient and inadequate MR at transitions.[15] The transition of care at discharge is very important to patient safety. Therefore, MR should be conducted at discharge, especially for older adults and patients with cardiovascular disease and/or diabetes mellitus.

Kreckman et al reported that a transition care team composed of registered nurses could reduce the percentage of medication errors from 22.9% to 5.0% at discharge after the implementation of MR.[16] A cost-benefit analysis of transitional care in neurosurgery led by a nurse educator has been shown to decrease the costs of initial admissions, 30-day readmissions, and total costs of hospitalization.[17] Nurses can play a crucial role in the safety of medication management during transitional care.[18] Our narrative story sharing also indicates that the roles of nurses in MR at discharge are worthy of recognition.

However, Latimer et al reported that nurses had a minor role in MR at hospital discharge due to a lack of organizational clinical guidance and specialized training.[19] Krivanek et al assessed the nursing student's education and role in the MR process from the perspective of academic and practice leadership. The results showed that students did not receive adequate education or opportunities to engage in MR during clinical practice; thus, it is necessary to promote the integration of academic and practical work in this area.[20]

Standardizing interprofessional MR processes and enhancing nurses' involvement will help to streamline this task and improve patient safety. Ruggiero et al developed an innovative time-out method for MR at discharge to ensure safe transition of care and improve patient outcomes. The operating room time-out process was adapted to the hospital discharge. A checklist with the patient identification label was used to ensure the completion of each time out. Two nurses were required to review the discharge document. The primary nurse caring for the patient compared the discharge list to the electronic medical record to identify differences between the discharge medications and medications taken at admission. A second nurse compared the discharge document against the admission MR. Together, the nurses reconciled discrepancies (eg, medication omission, duplication, change in frequency, change in dose, failure to provide a prescription for new prescriptions, and omission of any core measures). When discrepancies were found, the physician was notified and a nurse-to-physician reconciliation was conducted, followed by corrections as necessary. This process has empowered nurses to take a more active role in discharging their patients and fostered a more collaborative relationship between nurses and physicians.[21] van Sluisveld et al identified a wide range of barriers influencing the

implementation of MR (eg, a lack of awareness and insufficient knowledge about the healthcare problem and bundle measures of MR, a lack of communication, understanding and collaboration between hospital and community caregivers).[22] Therefore, nurses should develop communication skills and effectively collaborate with the multidisciplinary team to improve the continuity and coordination of care.[18]

A qualitative study by Glans et al investigated experiences and perceptions of hospital physicians regarding information transfer of medications at discharge, and the results indicated that it would help reduce medication errors and improve information transfer at discharge under the premise of providing and prioritizing education in information technology systems used, and ensuring physicians understand the consequences of non-compliant behavior and take responsibility for the accuracy of medications list.[23] It is important for nurses to pay attention to the consistency of medication information among patient discharge summaries, discharge orders, standing orders and temporary orders from the day before discharge. It is necessary to establish a sufficiently intelligent information system that can alert doctors the changes of orders and drug list inconsistencies in the discharge process, and facilitate the work of clinical nurses, doctors and pharmacists who check the appropriateness of drug therapy.

Conclusions

Older adults are susceptible to potentially inappropriate medication. A multidisciplinary collaboration allowed many discrepancies to be reconciled before causing harm to discharged patients. Nurses, an untapped hospital resource, can actively engage in MR at discharge if they receive effective training and sufficient motivation. The three keywords (checking, chasing, and educating) may represent nurses' main roles in MR. Stories sharing would enable nurses to gain confidence and support in contributing to MR. It is worth conducting further research in this area, such as the cost-effectiveness of nurses' efforts in MR when discharging older adults, the value of electronic tools to support MR, and the impact of MR-targeted education and training for nursing students and nursing staff at different levels on medication safety among older adults.

Acknowledgment

This study was supported by the Department of Education of Zhejiang Province (grant number: Y202249568). We also would like to thank Professor Tian-lang Li and Jin Liu for their excellent geriatric care.

Disclosure

The authors report no conflicts of interest in this work.

References

1. Barnsteiner JH. Medication reconciliation. In: Hughes RG, editor. *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*. Rockville (MD): Agency for Healthcare Research and Quality (US); 2008:Chapter 38. Available from: https://www.ncbi.nlm.nih.gov/books/NBK2648/. Accessed April 13, 2022.
2. Mohammed MA, Chan AHY, Chan S, et al. Potentially inappropriate medications and potential prescribing omissions in hospitalised older adults in New Zealand: a retrospective study. *Australas J Ageing*. 2023;42:668–674. doi:10.1111/ajag.13210
3. Caleres G, Modig S, Midlöv P, Chalmers J, Bondesson Å. Medication discrepancies in discharge summaries and associated risk factors for elderly patients with many drugs. *Drugs Real World Outcomes*. 2020;7:53–62. doi:10.1007/s40801-019-00176-5
4. Abukhalil AD, Al-Imam S, Yaghmour M, et al. Evaluating inappropriate medication prescribing among elderly patients in Palestine using the STOPP/ START criteria. *Clin Interv Aging*. 2022;17:1433–1444. doi:10.2147/CIA.S382221
5. Zhao M, Song JX, Zheng FF, Huang L, Feng YF. Potentially inappropriate medication and associated factors among older patients with chronic coronary syndrome at hospital discharge in Beijing, China. *Clin Interv Aging*. 2021;16:1047–1056. doi:10.2147/CIA.S305006
6. National Health Commission of the People's Republic of China. Service specifications on medication reconciliation. Available from: http://www.nhc.gov.cn/yzygj/s7659/202110/f76fc77acd87458f950c86d7bc468f22.shtml. Accessed April 13, 2022.
7. Irwin AN, Ham Y, Gerrity TM. Expanded roles for pharmacy technicians in the medication reconciliation process: a qualitative review. *Hosp Pharm*. 2017;52:44–53. doi:10.1310/hpj5201-44
8. Koehler T, Brown A. A global picture of pharmacy technician and other pharmacy support workforce cadres. *Res Social Adm Pharm*. 2017;13:271–279. doi:10.1016/j.sapharm.2016.12.004
9. Bruce Bayley K, Savitz LA, Maddalone T, Stoner SE, Hunt JS, Wells R. Evaluation of patient care interventions and recommendations by a transitional care pharmacist. *Ther Clin Risk Manag*. 2007;3:695–703.
10. Institute for Safe Medication Practices (ISMP). Adopt strategies to manage look-alike and/or sound-alike medication name mix-ups. ISMP Medication Safety Alert! *Acute Care*. 2022;27(11):1–4.

11. Unroe KT, Pfeiffenberger T, Riegelhaupt S, Jastrzembski J, Lokhnygina Y, Colón-Emeric C. Inpatient medication reconciliation at admission and discharge: a retrospective cohort study of age and other risk factors for medication discrepancies. *Am J Geriatr Pharmacother*. 2010;8(2):115–126. doi:10.1016/j.amjopharm.2010.04.002
12. Breuker C, Macioce V, Mura T, et al. Medication errors at hospital admission and discharge in type 1 and 2 diabetes. *Diabet Med*. 2017;34 (12):1742–1746. doi:10.1111/dme.13531
13. Lavan AH, Gallagher PF, O'Mahony D. Methods to reduce prescribing errors in elderly patients with multimorbidity. *Clin Interv Aging*. 2016;11:857–866. doi:10.2147/CIA.S80280
14. Fitzgibbon M, Lorenz R, Lach H. Medication reconciliation: reducing risk for medication misadventure during transition from hospital to assisted living. *J Gerontol Nurs*. 2013;39:22–29; quiz 30–1. doi:10.3928/00989134-20130930-02
15. Page RL 2nd, Linnebur SA, Bryant LL, Ruscin JM. Inappropriate prescribing in the hospitalized elderly patient: defining the problem, evaluation tools, and possible solutions. *Clin Interv Aging*. 2010;5:75–87. doi:10.2147/cia.s9564
16. Kreckman J, Wasey W, Wise S, Stevens T, Millburg L, Jaeger C. Improving medication reconciliation at hospital admission, discharge and ambulatory care through a transition of care team. *BMJ Open Qual*. 2018;7:e000281. doi:10.1136/bmjoq-2017-000281
17. Liu J, Gormley N, Dasenbrock HH, et al. Cost-benefit analysis of transitional care in neurosurgery. *Neurosurgery*. 2019;85(5):672–679. doi:10.1093/neuros/nyy424
18. Mardani A, Griffiths P, Vaismoradi M. The role of the nurse in the management of medicines during transitional care: a systematic review. *J Multidiscip Healthc*. 2020;13:1347–1361. doi:10.2147/JMDH.S276061
19. Latimer S, Hewitt J, de Wet C, Teasdale T, Gillespie BM. Medication reconciliation at hospital discharge: a qualitative exploration of acute care nurses' perceptions of their roles and responsibilities. *J Clin Nurs*. 2023;32(7–8):1276–1285. doi:10.1111/jocn.16275
20. Krivanek MJ, Dolansky MA, Kukla A, et al. Perspectives from academic and practice leaders on nursing student's education and role in medication reconciliation. *J Prof Nurs*. 2019;35:75–80. doi:10.1016/j.profnurs.2018.07.005
21. Ruggiero J, Smith J, Copeland J, Boxer B. Discharge time out: an innovative nurse-driven protocol for medication reconciliation. *Medsurg Nurs*. 2015;24:165–172.
22. van Sluisveld N, Zegers M, Natsch S, Wollersheim H. Medication reconciliation at hospital admission and discharge: insufficient knowledge, unclear task reallocation and lack of collaboration as major barriers to medication safety. *BMC Health Serv Res*. 2012;12:170. doi:10.1186/1472-6963-12-170
23. Glans M, Midlöv P, Kragh Ekstam A, Bondesson Å, Brorsson A. Obstacles and opportunities in information transfer regarding medications at discharge - a focus group study with hospital physicians. *Drug Healthc Patient Saf*. 2022;14:61–73. doi:10.2147/DHPS.S362189