

# Impact of a Combined Pharmacist and Social Worker Program to Reduce Hospital Readmissions

Monika Gil, PharmD, BCPS; Dana K. Mikaitis, MS; Gayle Shier, MSW; Tricia J. Johnson, PhD; and Shannon Sims, MD, PhD

## ABSTRACT

**BACKGROUND:** The Patient Protection and Affordable Care Act (2010) directed the Centers for Medicare and Medicaid Services to implement a hospital readmissions reduction program that reduces payments to hospitals for excess readmissions that began in October 2012. As such, hospitals across the country have been trying to identify and implement successful strategies for reducing hospitalizations.

**OBJECTIVE:** To evaluate the impact of a combined pharmacist and social worker program on reducing 30-day, all-cause readmission rates to the same hospital.

**METHODS:** Our study design was a retrospective, cross-sectional study that included 100 inpatients discharged from a large academic medical center. Fifty patients were enrolled in the combined pharmacist and social worker program, and 50 received usual care; all were deemed high risk for readmission due to clinical or social factors. In the program group, a pharmacist performed a thorough medication history and review of discharge medications and, in some cases, communicated with the patient after discharge. The program group was also followed by a social worker team in the hospital and after discharge; as necessary, psychosocial interventions were performed.

**RESULTS:** The 2 patient cohorts had similar demographic and clinical characteristics. Ten percent of patients enrolled in the combined pharmacist and social worker program were readmitted to the hospital for any reason within 30 days of discharge, compared with 30% of patients in the usual care group ( $P=0.012$ ).

**CONCLUSION:** The combined pharmacist and social worker program demonstrated a significant reduction in 30-day, all-cause readmission rates to the same hospital.

*J Manag Care Pharm.* 2013;19(7):558-63

Copyright©2013, Academy of Managed Care Pharmacy. All rights reserved.

## What is already known about this subject

- The period of time following hospital discharge is an especially fragile one in which patients can experience a number of adverse events that may lead to rehospitalization.
- Psychosocial issues and medication-related adverse events are well-documented sources of hospital admissions and readmissions.
- Several models of care coordination utilizing different types of clinicians, including pharmacists and social workers, have proven to reduce readmissions or improve other aspects of care following hospital discharge via various communication methods.

## What this study adds

- This study was the first to evaluate a model that combines both a social worker and pharmacist in order to reduce hospital readmissions.
- From the evidence, it is apparent that multiple types of interventions and communication modalities can be successful in improving care transitions.

The U.S. health care system often fails to meet the needs of patients discharged from hospital to home. Traditionally, interaction with the patient ends once the patient is discharged from the hospital. As a result, patients are often unprepared for their self-management role in the next care setting.<sup>1</sup> The period of time following hospital discharge is an especially fragile one in which patients can experience a number of adverse events that may lead to rehospitalization.<sup>2</sup> For this reason, in its June 2007 report to Congress, the Medicare Payment Advisory Commission stated that hospital readmissions can be indicators of poor care or missed opportunities to better coordinate care.<sup>3</sup>

In addition to adversely affecting patients' health, the failure to coordinate care at this critical juncture results in additional Medicare spending: In 2005, 17.6% of Medicare admissions resulted in hospital readmissions within 30 days of discharge, accounting for \$15 billion in spending.<sup>4</sup> These costs have garnered attention from policymakers, who view reducing readmissions as a way to improve quality and reduce costs. The Patient Protection and Affordable Care Act passed in 2010 directed the Centers for Medicare and Medicaid Services to implement a hospital readmissions reduction program to reduce payments to hospitals that have excess readmissions for selected conditions, beginning in October 2012.<sup>5</sup>

Almost one-fifth of Medicare beneficiaries discharged from the hospital are rehospitalized within 30 days.<sup>4</sup> Patients are readmitted for numerous reasons, including psychosocial issues and medications. Psychosocial issues such as limited health literacy, lack of self-management skills, unmet functional needs, lack of social support, and living alone have all been associated with adverse health outcomes including readmission and mortality.<sup>6-8</sup> Proctor et al. (2000) reported that 40%-50% of hospital readmissions for older adults are "linked to social problems and lack of community services."<sup>9</sup>

Medication-related harm is another well-documented source of hospital admission and readmission.<sup>10</sup> Approximately 20% of patients discharged from the hospital to home experience postdischarge adverse events, nearly two-thirds of which are medication-related.<sup>2</sup> Beijer and de Blaeij (2002) reported that 88% of adverse drug-related hospitalizations in the elderly are avoidable.<sup>11</sup> The Beers criteria, recently updated by The American Geriatrics Society, provides a comprehensive guide that identifies potentially inappropriate medications in older adults.<sup>12</sup> This tool includes rationale for avoidance of specific medications and recommendations to help prevent adverse drug events and potential hospitalization. Medication risks for readmission include use of high-risk medications such as anti-coagulants or opioids, difficulty obtaining medications, and inadequate medication reconciliation.<sup>13</sup>

In an effort to reduce hospital readmissions, several models of care coordination have been proven to reduce readmissions or improve other aspects of care following hospital discharge.<sup>14-16</sup> A single health care network demonstrated that pharmacist involvement decreased readmissions by up to 30%.<sup>17</sup> Bellone et al. (2012) showed a statistically significant difference in the rate of readmission for patients who had received a pharmacist visit postdischarge versus those who had not at 18% and 43.1% ( $P=0.002$ ), respectively.<sup>18</sup> Another study showed fewer returns to the emergency room after pharmacist telephonic interventions.<sup>19</sup> Successful intervention models have utilized different types of clinicians or teams of clinicians, including pharmacists and social workers. They also have used different communication methods, either communicating with the patient in person or using the telephone. From this evidence, it is apparent that multiple types of interventions and communication modalities can be successful at improving care transitions. While some models have used advanced practice nurses to facilitate discharge planning and home follow-up with patients after discharge, others have deployed advanced practice nurses as “transition coaches” to support patients and caregivers taking a more active role during care transitions.<sup>15-16</sup> To date, however, no research has tested whether a model that combines social worker and pharmacist coordination is more effective in reducing hospital readmissions, compared with models that use either social workers or pharmacists alone to coordinate care.

Rush University Medical Center (RUMC) has developed a model of care coordination, called the Enhanced Discharge Planning Program (EDPP) and is known nationally as Bridge, which utilizes masters-trained social workers as the primary intervention staff. The social workers follow the course of inpatient care and call patients within days of discharge from the hospital to assess and intervene on a wide range of psychosocial issues. Although social worker-mediated interventions

have been shown to decrease 30-day readmission rates,<sup>20</sup> the RUMC EDPP model has not shown a statistically significant decrease in 30-day readmissions. Clearly, psychosocial factors are an important aspect of care coordination, but the literature demonstrates that other clinical factors, particularly medication-related risk, are also important causes of rehospitalization.

To address both medication and psychosocial risks, and fill an important gap in current literature, we developed a multidisciplinary program model that includes both pharmacists and social workers. This study builds on the RUMC EDPP model by adding a clinical pharmacist component to the care coordination program. The goal of this study was to determine if a combined pharmacist and social worker program reduced 30-day, all-cause readmissions to the same hospital.

### Methods

This study was conducted at RUMC, a 671-bed academic medical center in Chicago and was approved by the Institutional Review Board. Our study design was a retrospective, cross-sectional study that compared same hospital readmission within 30 days of discharge for patients enrolled in the combined pharmacist and social worker program with those receiving usual care. Both the program and control groups were drawn from inpatient discharges from March 2011 to November 2011. The program cohort comprised 50 patients discharged from 1 general medical-surgical nursing unit, while the usual care group 50 patients discharged from a separate, but similar, general medical-surgical nursing unit at RUMC. Both groups received the same standard usual discharge care coordination. Additionally, the program group received an enhanced multidisciplinary care approach that also included the focused involvement of the pharmacist and social worker. Our study was limited to English-speaking patients aged greater than 18 who were discharged to home or home with home health services. Patients with solid organ transplant, end-stage renal disease, or with active chemotherapy or radiation therapy were excluded from the study. Inclusion in the program group also required patients to have 1 or more characteristics that put them at high risk of readmission. We grouped our risk factors into 3 categories: use of high-risk medications, psychosocial risk factors, and other clinical risk factors (Table 1).

Our usual care group was drawn from a different medical-surgical patient care unit. A one-to-one matching algorithm was used to match each patient enrolled in the combined pharmacist and social worker program with 1 patient on the control group medical-surgical unit based upon age, gender, length of stay, primary payer, and the presence of at least 1 of the same risk factors for readmission. Patients were matched on the following characteristics: age  $\pm 2$  years; length of hospital stay  $\pm 2$  days; primary payer (Medicare, Medicaid, self-pay, charity care, commercial); and the presence of at least 1 risk

**TABLE 1** Inclusion Criteria for the Program Group (At Least 1 of the Following)

Risk Factor Categories
1. Use of high-risk medications <ul style="list-style-type: none"> <li>• Anticoagulation therapy</li> <li>• Concurrent aspirin and clopidogrel therapy</li> <li>• Anticholinergic agent</li> <li>• Digoxin</li> <li>• Opioids</li> <li>• Psychotropic medications</li> <li>• Erythrocyte stimulating factor</li> </ul>
2. Other clinical risk factors <ul style="list-style-type: none"> <li>• Depression</li> <li>• Fall risk</li> <li>• Limited functional capacity</li> <li>• Substance abuse</li> <li>• Dementia</li> </ul>
3. Psychosocial risk factors <ul style="list-style-type: none"> <li>• High caregiver burden</li> <li>• Family conflict</li> <li>• Limited health literacy</li> <li>• Lives alone</li> <li>• Significant patient stress</li> <li>• Transportation concerns</li> <li>• Health care scheduling concerns</li> <li>• Inadequate emotional support</li> </ul>

**TABLE 2** Questions Employed by EDPP Social Workers to Determine Psychosocial Risk Factors for Hospital Readmission

1. What are the patient's and caregiver's experiences at home? <ul style="list-style-type: none"> <li>• How do the patient and/or caregiver perceive the situation?</li> <li>• Is the situation stable?</li> </ul>
2. Are the patient and caregiver able to follow-up with medical care? <ul style="list-style-type: none"> <li>• Do they have a copy of the discharge instructions?</li> <li>• Have they filled their prescriptions? Do they have any questions about their medications?</li> </ul>
3. Are the patient and caregiver receiving appropriate formal and informal support? <ul style="list-style-type: none"> <li>• Do they have a family member or friend who can help?</li> <li>• Do they belong to a faith community or social group that can help?</li> </ul>
4. Are there any other issues? <ul style="list-style-type: none"> <li>• What is the status of any outstanding issues identified during the pre-assessment?</li> <li>• Did any of their contact information change?</li> </ul>

EDPP = Enhanced Discharge Planning Program.

factor (high-risk medications, such as anticoagulation therapy, digoxin, or opioids; a clinical risk factor, such as depression, fall risk, limited functional capacity, substance abuse; or a psychosocial risk factor, such as limited health literacy, cost, or insurance issue).

Both groups received the RUMC standard care discharge procedure, which included the admission medication history reconciliation generally completed by the physician or the nurse, the discharge plan developed by the primary clinical team (includes the attending and resident physicians), discharge instructions, and the discharge education most often provided by the physician or nurse. A multidisciplinary team that includes a pharmacist and a social worker as well as a post-discharge follow-up telephone call is not the standard practice at RUMC; consequently, the usual care group did not receive these components.

Patients enrolled in the program group received 4 additional care components that were not offered to the patients in the usual care group. First, an inpatient interdisciplinary care coordination team performed daily rounds on the patient during each hospitalization. The goal of these rounds was to ensure that the patient was prepared for discharge; however, the care coordination team was not the primary care team for the patient. Care coordination team members included an attending physician, clinical pharmacist, bedside nurse, case manager, and an EDPP social worker. The pharmacist and social worker were primary clinicians responsible for care transition interventions and were the only members of the

team to follow-up with the patient in the outpatient setting. Second, a pharmacist completed a detailed medication history of home medications, assessed medication-related risks, and provided relevant education during the hospitalization. Third, shortly after discharge, the pharmacist completed a discharge medication profile review to ensure that the discharge medications were appropriate for the care plan. The pharmacist was also available via telephone to answer any medication-related questions that the patient had after discharge. Fourth, after the patient was discharged from RUMC, an EDPP social worker, who was an outpatient-based licensed clinical social worker unaffiliated with inpatient case management, contacted the patient within 2 business days and conducted a telephonic assessment to identify any potential psychosocial risks for readmission. When issues were identified, the appropriate medical providers and community-based agencies were engaged to address the issue.

The primary data sources were the electronic medical record and an affiliated clinical data warehouse, which were used to derive all study data and variables of interest. Our primary outcome variable was readmission back to RUMC within 30 days of discharge for any reason. A number of patient characteristics were included in the analysis, including age at discharge; gender; race; primary payer (i.e., commercial, Medicare, Medicaid or self pay/charity); and length of stay. The electronic medical record and patient interviews were used to determine whether patients presented with 1 or more of the risk factors described in Table 1. The program pharmacist used a structured data instrument to collect information about interventions performed and time spent. Additional data were collected by the social workers postdischarge that categorized psychosocial problems identified and interventions performed (Table 2).

**TABLE 3** Identified Patient Risk Factors During Patient Admission

	Usual Care Group N (%)	Program Group N (%)	P Value
Anticoagulant	25 (50)	27 (54)	0.689
Cost/insurance	9 (18)	10 (20)	0.799
Mental health issue	6 (12)	5 (10)	0.749
Opioids	5 (10)	4 (8)	0.727
Fall risk	4 (8)	4 (8)	1.00
Digoxin	0 (0)	3 (6)	0.079
Substance abuse	0 (0)	1 (2)	0.315

Data were analyzed using SPSS Version 18.0 (SPSS Inc., Chicago, IL). Means and standard deviations were used to describe continuous variables, and frequencies were used to describe discrete variables. A chi-square test was performed to test for a difference in the proportion of patients readmitted within 30 days, between the program and usual care group. A binary logistic regression model was fit to test the association between readmission and the intervention group, controlling for patient characteristics. A *P* value of 0.05 was used for all tests of statistical significance.

### Results

Of the 100 patients included in this analysis, the mean age of the sample was 56.5+16.6 years. Fifty-eight percent of the patients were African American; 29% were White; and 13% were “Other race/ethnicity.” The mean length of stay was 3.3+4.3 days. In total, 20% of patients in this study were readmitted to RUMC within 30 days of discharge.

All patients enrolled in the program group received a medication history, which took the pharmacist an average of 22 minutes to complete. Eighty percent of patients in the program group also had a medication reconciliation completed by the pharmacist while hospitalized, which took an average of 15 minutes to complete. All patients enrolled in the program had their lists of discharge medications reviewed by the pharmacist after discharge. Thirty percent of patients in the program group were called by the pharmacist after discharge to address a post-discharge medication issue. Postdischarge communication was initiated in response to issues identified during the discharge medication profile review or at the request of an EDPP social worker who identified a concern during the telephonic assessment. Table 3 presents a list of risk factors identified by the pharmacist during admission.

EDPP social workers contacted 98% of the patients enrolled in the program within 2 business days of hospital discharge to identify and intervene in any potential risk factors for readmission. The average duration of the intervention was 3 days (i.e., the difference between the first call and the last communication). During this time period, the EDPP social worker placed

**TABLE 4** Risk Factors Identified in Program Group After Discharge Through Social Worker Telephonic Intervention

Risk Factors	N (%)
Self-management issue	16 (32)
Barriers to obtaining or taking medication	14 (28)
External psychosocial issue	10 (20)
Lack of timely home health services	10 (20)
Internal psychosocial issue	9 (18)
Cognitive or functional impairment	5 (10)

an average of 4.6 calls to stakeholders in the care plan, including the patient, the informal caregiver, home health, community service providers, and the patient’s physicians. Table 4 describes the types of issues most commonly identified by the EDPP social worker.

Enrollment in the program was associated with a lower rate of 30-day, all-cause readmission compared with the control group. Out of the 50 patients enrolled in the combined pharmacist and social worker program, 10% were readmitted back to RUMC within 30 days of discharge, compared with 30% of the 50 patients in the usual care group (Table 5); this finding was statistically significant (*P*=0.012).

After controlling for age, gender, length of stay, payer, and race, program enrollment decreased the odds of readmission. Patients in the control group had an odds ratio (OR) of 4.615 (*P*=0.014) for 30-day, all-cause readmission to RUMC.

### Discussion

Readmission rates were significantly lower for patients enrolled in the combined pharmacist and social worker program. We found that 10% of the patients enrolled in the program were readmitted back to RUMC within 30 days of discharge for any reason, compared with 30% of the patients in the usual care group (*P*=0.012). Further, after controlling for a number of variables, including age, gender, length of stay, payer, and race, patients receiving usual care were almost 5 times as likely to be readmitted to RUMC within 30 days of discharge, compared with patients enrolled in the program group (*P*=0.014, OR=4.615).

Our program expanded the scope of the existing RUMC EDPP, a social worker-mediated intervention, to include a medication management program led by a clinical pharmacist. By developing this multidisciplinary approach, we sought to address a wider range of clinical and psychosocial issues that can arise at discharge. A key aspect of our program was targeting high-risk patients, including those taking high-risk medications. We believe that our program was successful because we identified risk factors that our intervention team was equipped to address. For example, the pharmacist was able

**TABLE 5** Patient Characteristics

	Usual Care Group (n = 50)	Program Group (n = 50)	P Value
30-day readmission	15 (30%)	5 (10%)	0.012
Age	56.7 ± 16.4	56.4 ± 16.9	0.943
Female	31 (62%)	31 (62%)	1.00
Race			
Black/African American	30 (60%)	28 (56%)	0.796
White	13 (26%)	16 (32%)	
Other race/ethnicity	7 (14%)	6 (12%)	
Payer			
Commercial	9 (18%)	12 (24%)	0.650
Medicare	28 (56%)	26 (52%)	
Medicaid	11 (22%)	8 (16%)	
Self-pay/charity care	2 (4%)	4 (8%)	
Length of stay	3.3 ± 3.4	3.3 ± 5.1	0.963

to identify and address issues such as unintended duplicate opioid therapy, and the EDPP social worker helped address issues such as difficulty obtaining prescribed medicines. Our results suggest that targeting high-risk patients and designing a program to ameliorate those risks can be a successful model for reducing readmissions. It may also be a more financially sustainable model, since expending resources on low-risk patients may not be clinically or economically efficient.

Our findings underscore the importance of medication management as a strategy for reducing 30-day hospital readmissions. Clinical pharmacists are key members of care teams to both identify and address medication-related issues that can lead to rehospitalization. While at least 1 social worker-led intervention reduced readmission rates,<sup>20</sup> RUMC's EDPP did not demonstrate this effect. Our results, therefore, suggest that using both a pharmacist and social worker together to evaluate and address postdischarge needs is an effective strategy to reduce hospital readmissions.

The results of our study are consistent with the findings of other transition programs that evaluated the impact of a care coordination program on reducing 30-day readmissions. The Project RED program, which deploys nurse discharge advocates and clinical pharmacists, decreased hospital utilization (combined emergency department visits and readmissions) within 30 days of discharge by about 30%.<sup>13</sup> Coleman's Care Transitions program significantly reduces 30-day readmissions by pairing patients with a transition coach to educate patients.<sup>14</sup> Our program model represents another approach to improving transitions and reducing 30-day readmissions.

**Limitations**

Some limitations of this study included sample size and study design. Our sample size was relatively small, and our study

was not a randomized trial. Our control group was created by retrospectively matching a cohort of patients from a similar nursing care unit as the program group rather than prospective enrollment in the control group. Our study was also limited to readmissions to our own institution, which may underestimate the true rate of readmission to any hospital. Finally, the results from our urban academic medical center may not be applicable to other care settings. Despite this study's limitations, our results are promising.

A randomized controlled trial (RCT) involving a larger cohort size would be beneficial to confirm our findings. Conducting a multisite RCT would be ideal to ensure generalizability of this program to different types of hospitals and geographic settings. In addition, future analysis could examine the economic efficiency of the program compared with usual care at discharge. Successful programs interventions must not only achieve reduced readmissions, but must also be financially sustainable to the sponsoring institution.

**Conclusion**

A multidisciplinary approach consisting of a pharmacist-led medication management program and a social worker-led program to address psychosocial factors demonstrated a significant reduction in 30-day, all-cause readmission rates to the same hospital. The multidisciplinary program had a high face validity among clinicians, since it addressed medication issues, a common source of hospital admission, and psychosocial issues, which patients face after discharge. Our targeted approach to identifying high-risk patients may offer a sustainable, potentially cost-effective approach to reducing 30-day readmissions.

**Authors**

MONIKA GIL, PharmD, BCPS, is Clinical Pharmacist, Department of Pharmacy; GAYLE SHIER, MSW, is Program Coordinator, Health and Aging; TRICIA J. JOHNSON, PhD, is Associate Professor, Department of Health Systems Management, Rush University, and Director, Center for the Advancement of Healthcare Value; and SHANNON SIMS, MD, PhD, is Associate Chief Medical Information Officer, Rush University Medical Center, Chicago, Illinois. DANA K. MIKAITIS, MS, was an MS Candidate at the time of this study, Department of Health Systems Management, College of Health Sciences, Rush University, and is now Breakthrough Improvement Facilitator, Presence Saint Joseph Hospital, Chicago, Illinois.

AUTHOR CORRESPONDENCE: Monika Gil, PharmD, BCPS, Department of Pharmacy, Rush University Medical Center, 1653 W. Congress Pkwy., Atrium 0036, Chicago, IL 60612. Tel.: 312.942.3191; Fax: 312.942.2218; E-mail: Monika\_Gil@rush.edu.

### DISCLOSURES

This study received support through a grant from the Cardinal Health Foundation.

Study concept and design were contributed by Sims, Shier, and Gil. Data were collected by Gil, Shier, Mikaitis, and Sims and interpreted by all the authors. The manuscript was written primarily by Mikaitis with assistance from Gil, Shier, Johnson, and Sims and was revised by Shier, Johnson, Sims, and Gil, with assistance from Mikaitis.

### REFERENCES

1. Coleman EA. Falling through the cracks: challenges and opportunities for improving transitional care for persons with continuous complex care needs. *J Am Geriatr Soc.* 2003;51(4):549-55.
2. Forster AJ, Murff HJ, Peterson JF, Gandhi TK, Bates DW. The incidence and severity of adverse events affecting patients after discharge from the hospital. *Ann Intern Med.* 2003;138(3):161-67.
3. Medicare Payment Advisory Commission. Report to the Congress: promoting greater efficiency in Medicare. June 2007. Available at: [http://www.medpac.gov/documents/jun07\\_entirereport.pdf](http://www.medpac.gov/documents/jun07_entirereport.pdf). Accessed May 19, 2013.
4. Jencks SF, Williams MV, Coleman EA. Rehospitalizations among patients in the Medicare fee-for-service program. *N Engl J Med.* 2009;360(14):1418-28.
5. Centers for Medicare and Medicaid Services. Readmissions reduction program overview. April 26, 2013. Available at: <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Readmissions-Reduction-Program.html>. Accessed May 19, 2013.
6. Arbaje AI, Wolff JL, Yu Q, Powe NR, Anderson GF, Boulton C. Postdischarge environmental and socioeconomic factors and the likelihood of early hospital readmission among community-dwelling Medicare beneficiaries. *Gerontologist.* 2008;48(4):495-504.
7. Peek CJ, Baird MA, Coleman E. Primary care for patient complexity, not only disease. *Fam Syst Health.* 2009;27(4):287-302.
8. Coventry PA, Gemmell I, Todd CJ. Psychosocial risk factors for hospital readmission in COPD patients on early discharge services: a cohort study. *BMC Pulm Med.* 2011;11:49.
9. Proctor EK, Morrow-Howell N, Li H, et al. Adequacy of home care and hospital readmission for elderly congestive heart failure patients. *Health Soc Work.* 2000;25(2):87-96.
10. Thomsen LA, Winterstein AG, Søndergaard B, Haugbølle LS, Melander A. Systematic review of the incidence and characteristics of preventable adverse drug events in ambulatory care. *Ann Pharmacother.* 2007;41(9):1411-26.
11. Beijer HJ, de Blaeij CJ. Hospitalisations caused by adverse drug reactions (ADR): a meta-analysis of observational studies. *Pharm World Sci.* 2002;24(2):46-54.
12. American Geriatrics Society 2012 Beers Criteria Update Expert Panel. American Geriatrics Society updated Beers Criteria for potential inappropriate medication use in older adults. *J Am Geriatr Soc.* 2012;60(4):616-31.
13. Forster AJ, Murff HJ, Peterson JF, Gandhi TK, Bates DW. Adverse drug events occurring following hospital discharge. *J Gen Intern Med.* 2005;20(4):317-23.
14. Jack BW, Chetty VK, Anthony D, et al. A reengineered hospital discharge program to decrease rehospitalization: a randomized trial. *Ann Intern Med.* 2009;150(3):178-87.
15. Coleman EA, Parry C, Chalmers S, Min SJ. The care transitions intervention: results of a randomized controlled trial. *Arch Intern Med.* 2006;166(17):1822-28.
16. Naylor MD, Broton D, Campbell R, et al. Comprehensive discharge planning and home follow-up of hospitalized elders. *JAMA.* 1999;281(7):613-20.
17. Novak CJ, Hastanan S, Moradi M, Terry DF. Reducing unnecessary hospital readmissions: the pharmacist's role in care transitions. *Consult Pharm.* 2012;27(3):174-79.
18. Bellone JM, Barner JC, Lopez DA. Postdischarge interventions by pharmacists and impact on hospital readmission rates. *J Am Pharm Assoc (2003).* 2012;52(3):358-62.
19. Dudas V, Bookwalter T, Kerr KM, Pantilat SZ. The impact of follow-up telephone calls to patients after hospitalization. *Am J Med.* 2001;111(9B):S26-S30.
20. Watkins L, Hall C, Kring D. Hospital to home: a transition program for frail older adults. *Prof Case Manag.* 2012;17(3):117-23.