TransitionRx: Impact of a Community Pharmacy Post-Discharge Medication Therapy Management Program on Hospital Readmission Rate

Heidi Luder, PharmD, MS, BCACP

Assistant Professor of Pharmacy Practice

University of Cincinnati James L. Winkle College of Pharmacy

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Objectives

- Describe the results of a community pharmacy and hospital partnership to reduce readmission rates.
- Discuss the role of the pharmacist during transitions of care.

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Background

- Readmissions are a known problem
- Despite numerous attempts to curb readmissions, majority of hospitals were penalized
- Medication-related problems are a common cause of readmissions

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Sabriya Rice. Most hospitals face 30-day readmissions penalty in fiscal 2016. http://www.modernhealthcare.com/article/20150803/NEWS/150809981. August 2015

Medication Therapy Management

- Comprehensive review of a patient's medication regimen
- Identify drug interactions, side effects, adherence issues, gaps in therapy, unnecessary therapy, duplication of therapy, etc.
- Mandated by Medicare Part D

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Pharmacist Involvement

- The National Transitions of Care Coalition (NTOCC) recommends the expanded use of pharmacists in transitions of care (TOC)
- Jack et. al. (Project RED)
  - RN discharge planning and inpatient pharmacist phone call/medication review
  - 30-day readmissions:
    - 20.7% control, 16.5% intervention (p=0.009)
- Royal et. al.
  - Meta-analysis of pharmacist interventions in primary care
  - OR 0.64 95% CI (0.43 - 0.96)

http://www.ntocc.org/Portals/0/PDF/Resources/PolicyPaper.pdf
Jack BW, Chetty VK, Anthony D, et al. A reengineered hospital discharge program to decrease rehospitalization: a randomized trial. *Annals of internal medicine.* Feb 3 2009;150(3):178-187
Royal S, Smeaton L, Avery AJ, Hurwitz B, Sheikh A. Interventions in primary care to reduce medication related adverse events and hospital admissions: systematic review and meta-analysis. *Quality & safety in health care.* Feb 2006;15(1):23-31.

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Previous Studies

- Holland et. al
  - Pharmacist-provided home visits to review medications
  - 6 month readmissions: 41.7% in control group, 54.5% intervention group (p=0.009)
- Scherbakova et. al
  - Retrospective review of a transition of care program for Medicare Advantage Plan patients
  - In-home pharmacist visits
  - 10.3% intervention, 6.7% control p= 0.35

Holland R, Lenaghan E, Harvey I, et al. Does home based medication review keep older people out of hospital? The HOMER randomised controlled trial. *BMJ (Clinical research ed.).* Feb 5 2005;330(7486):293.
Shcherbakova N, Tereso G, Clinical pharmacist home visits and 30-day readmissions in Medicare Advantage beneficiaries. J Eval Clin Pract. 2016 Jun;22(3):363-8

TransitionRx

- Established a partnership between a community pharmacy and hospital
- Developed, implemented, and evaluated a community pharmacy-based transition of care program, called TransitionRx.

Luder et.al. TransitionRx: Impact of community pharmacy postdischarge medication therapy management on hospital readmission rate. J Am Pharm Assoc (2003). 2015 May-Jun;55(3):246-54

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Objectives

- Primary Objective:
  - Determine the impact of TransitionRx on hospital readmission rate compared to usual care
- Secondary Objectives:
  - Determine the impact of TransitionRx on the identification and resolution of medication-related problems (MRPs)
  - Determine the impact of TransitionRx on patient satisfaction with transitions of care

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Building Collaboration

- Connection between the pharmacy and hospital established through mutual participation in healthcare improvement organization

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Methods

- Study Design: Quasi-experimental study
- Study Groups: Pharmacist intervention versus usual care
- Study Period: April 2012- June 2013
- Study Site: 9 community pharmacies in Cincinnati
- Study Subjects: Patients discharged from two hospitals

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Methods

- Inclusion Criteria:
  - Greater than 18 years of age
  - English-speaking
  - Discharged to home
  - Diagnosis of heart failure, pneumonia, or COPD
- Exclusion Criteria:
  - Cognitive impairment
  - Discharged to long term care facility

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Methods

- Patient Recruitment
  - Nurse Case Managers identified eligible patients and obtained consent
  - Determined if patients were interested in receiving MTM services from the community pharmacist
  - Faxed discharge summary to principal investigator and patient's selected pharmacy (if applicable)

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Usual Care

- All patients received nurse-provided medication reconciliation at discharge
- Select patients received a home visit from a nurse after discharge
- All other patients did not receive follow-up

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Nurse Home Visit

- Eric Coleman Care Transition
  - 4 pillars:
    - Medication Self-Management
    - Dynamic Patient-Centered Medical Record
    - Follow-up
    - Red Flags
- Coleman et. al
  - Nurse-provided discharge planning, home visit, and telephone follow-up
  - 30-day readmissions: 8.3% intervention and 11.9% control (p=0.048)

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Coleman EA, Parry C, Chalmers S, Min SJ. The care transitions intervention: results of a randomized controlled trial. *Archives of internal medicine.* Sep 25 2006;166(17):1822-1828

Pharmacist Intervention

- Pharmacists scheduled appointment within 1 week of discharge
- During initial appointments:
  - Pharmacists reviewed and reconciled medications
  - Identified drug therapy problems
  - Counseled on medications, disease states, “Red Flags”

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Pharmacist Intervention

- Patients received a medication list, appointment list, and health action plan
- Pharmacists faxed a visit summary to primary care physician and home visit nurse (if applicable)
- Pharmacists provided phone call follow-up 2 weeks after discharge
- Documented interventions in Data Collection Form

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30-Day Follow-Up

- Performed by student research assistant
  - Blinded to study group
- Surveyed patients by telephone to assess for hospital visits and ED visits
- Administered a 15-question patient satisfaction survey
  - CTM-15 by Coleman et.al.

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CTM-15 Survey Questions
You and the hospital staff agreed about your health goals and how these would be reached
Your preferences were taken into account in deciding what your healthcare needs would be
Your preferences were taken into account in deciding where my healthcare needs would be met
You have all the information you needed to be able to take care of yourself
You clearly understand how to manage your health
You clearly understand the warning signs and symptoms you should watch for to monitor your health condition
You have a readable and easily understandable written plan that describes how all of your health care needs are going to be met
You have a good understanding of your health condition and what makes it better or worse
You have a good understanding of the things you are responsible for in managing your health
You are confident you know what to do to manage your health
You are confident you can actually do the things you need to do to take care of your health
You have a readable and easily understandable written list of the appointments or tests you need to complete within the next several weeks
You clearly understand the purpose for taking each of your medications
You clearly understand how to take each of your medications
You clearly understand the possible side effects of each of your medications

Statistical Analysis

- An initial sample size calculation:197 patients to demonstrate a 20% effect with 80% power
- Descriptive statistics
- Independent t-test for continuous data
- Chi-square tests, Fischer exact test for nominal data
- Logistic regression controlling for differences in baseline demographics

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Results

- Patients enrolled: 106
- 16 patients (15%) were lost to follow-up
  - 1 patient in the intervention group and 15 patients in the usual care group
- 39 (65%) patients initially expressed interest in receiving the intervention but could not be reached or no showed for the appointment

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Table 1. Baseline characteristics of study participants

Characteristics	Usual care (n = 60)	Pharmacist intervention (n = 30)	*P*
Disease			0.078
Pneumonia	13 (22%)	8 (27%)	
CHF	23 (38%)	17 (57%)	
COPD	24 (40%)	5 (17%)	
Nurse home visit	17 (28%)	9 (30%)	0.87
Gender			0.014
Women	42 (70%)	13 (43%)	
Men	18 (30%)	17 (57%)	
Race			0.93
White	38 (63%)	24 (80%)	
Black	10 (16%)	6 (20%)	
Mean (SD) age (years)	65.95 (13.56)	66.53 (11.07)	0.84
Insurance			0.011
Medicare	40 (67%)	15 (50%)	
Self-pay	9 (15%)	2 (7%)	
Private	3 (5%)	9 (30%)	
Medicaid	7 (12%)	4 (13%)	
No primary care provider	6 (10%)	1 (3%)	0.42
Employment			0.60
Unemployed	49 (82%)	26 (87%)	
Employed	8 (13%)	4 (13%)	
Education			0.191
High school or less	32 (53%)	18 (60%)	
College	13 (22%)	11 (37%)	
Mean no. (SD) chronic comorbidities	5.71 (2.18)	7.37 (3.12)	0.013
Mean no. (SD) medications	10.93 (4.57)	10.50 (4.00)	0.66
Last admission			0.57
Less than 1 year	34 (57%)	17 (57%)	
More than 1 year	15 (25%)	10 (33%)	
Mean (SD) length of stay (days)	4.87 (2.81)	4.67 (2.68)	0.75

Missing data account for all percentages that do not add up to 100%.

Results

Table 2. Readmission rates of study participants (unadjusted)

Postdischarge patient experience	Usual care (n = 60)	Pharmacist intervention (n = 30)
30-day readmissions	12 (20%)	2 (7%)
30-day emergency department visits	12 (20%)	3 (10%)
Composite	18 (30%)	5 (17%)

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Results

Table 3. Readmission rates of study participants (adjusted)[a]

Characteristics and interventions	30-day readmissions (odds ratio [95% CI], *P*)	30-day emergency department visits (odds ratio [95% CI], *P*)	Composite (odds ratio [95% CI], *P*)
Pharmacist intervention	0.072 (0.008–0.628), *P* = 0.017	0.418 (0.092–1.905), *P* = 0.26	0.292 (0.075–1.128), *P* = 0.074
Nurse visit	0.675 (0.165–2.758), *P* = 0.58	0.752 (0.200–2.823), *P* = 0.67	0.621 (0.192–2.010), *P* = 0.43
Gender (men)	1.684 (0.433–6.542), *P* = 0.45	0.779 (0.224–2.703), *P* = 0.694	1.430 (0.486–4.211), *P* = 0.52
Insurance	0.730 (0.367–1.450), *P* = 0.37	0.711 (0.380–1.330), *P* = 0.29	0.649 (0.372–1.132), *P* = 0.128
Number of comorbidities	1.582 (1.164–2.149), *P* = 0.003	1.135 (0.888–1.450), *P* = 0.31	1.269 (1.021–1.579), *P* = 0.032

[a]Bold-face results indicate statistically significant differences.

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Table 4. Pharmacist recommendations and resulting actions (n = 210)

Recommendations and actions	No. patients (%)
Reasons for intervention	
Needs self-care	47 (22.4)
Needs therapy	42 (20.0)
Administration/technique	22 (10.5)
Overuse/underuse	17 (8.1)
Suboptimal drug selection	16 (7.6)
Inappropriate dose/duration	15 (7.1)
Needs follow-up appointment/labs	14 (6.7)
Nonprescription therapy recommended	10 (4.7)
Medication reconciliation	8 (3.8)
Unnecessary therapy	7 (3.3)
Drug interaction	4 (1.9)
Excessive cost	4 (1.9)
Adverse drug reaction	4 (1.9)
Action	
Patient counseling	114 (54.3)
Consultation with prescriber	87 (41.4)
Referral to Council on Aging	5 (2.4)
Referral to another provider	4 (1.9)
Result	
Improvement in self-care	39 (18.6)
Prescriber refusal	29 (13.8)
Patient refusal	28 (13.3)
Altered administration/technique	22 (10.5)
Initiated therapy	18 (8.6)
No response from physician	18 (8.6)
Altered adherence	14 (6.7)
Discontinued therapy	10 (4.8)
Changed drug	9 (4.3)
Changed dose/duration	8 (3.8)
Attended appointment/lab	8 (3.8)
Unknown patient response	4 (1.9)
Changed to cost-effective drug	3 (1.4)

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Patient Satisfaction Results

- No significant differences between intervention and control (4.02 vs. 3.93; p = 0.48)

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Discussion

- Community pharmacists successfully collaborated with hospitals
- Patients who received MTM from community pharmacists after discharge had significantly fewer readmissions than patients who did not
  - Face to face visits tend to be more successful
- Pharmacists provided several medication-related interventions after discharge
  - Medication reconciliation needs to happen often

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Study Limitations

- No randomization
- Patient recall bias on 30-day survey
- More patients were lost to follow-up in the usual care group

Lessons Learned

- Difficulty scheduling appointments
- Need to coordinate existing transition of care services to avoid duplicate efforts
- No reliable reimbursement for pharmacy services
  - Potential options:
    - Shared savings

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Benefits of Collaboration

- Patients need reiteration of information upon discharge
- Patients frequently visit the pharmacy and have established relationships with community pharmacists
- Collaborative care improves outcomes

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Questions?

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