



The Discharge Companion Pilot Program

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■ **IN BRIEF** “Quality Improvement Success Stories” are published by the American Diabetes Association in collaboration with the American College of Physicians, Inc., (ACP) and the National Diabetes Education Program. This series is intended to highlight best practices and strategies from programs and clinics that have successfully improved the quality of care for people with diabetes or related conditions. Each article in the series is reviewed and follows a standard format developed by the editors of *Clinical Diabetes*. The following article describes a pilot project aimed at improving overall quality of care and reducing readmissions for patients discharged from a community hospital in Arizona.

Describe your practice setting and location.

The Discharge Companion Program (DCP) pilot involved an interprofessional partnership between Tucson Medical Center, a local, non-profit hospital, and The Medication Management Center, a university-based clinical call center. The program served patients in Tucson and the surrounding rural areas of southern Arizona.

Describe the specific quality gap addressed through the initiative.

The DCP was implemented to improve overall quality of care and reduce readmissions for patients discharged from the hospital. The Hospital Readmissions Reduction Program (HRRP), established as part of the Patient Protection and Affordable Care Act of 2010, provides financial incentives to hospitals who decrease their readmission rates for Medicare patients (1). In contrast, the Centers for Medicare & Medicaid Services (CMS) imposes penalties on hospitals with high readmission rates. The DCP addressed a need for this

hospital that was directly related to these penalties.

The Medicare Payments Advisory Commission estimates that readmissions in 2017 will account for \$15 billion of the projected \$105 billion in total hospital-related service expenditures (2). The DCP sought to develop and implement a best-practice model to help reduce readmissions that incorporated several established quality improvement (QI) initiatives, including integration of best-practice guidelines into clinical care, reconciliation of medication lists, and an improved continuum of care for patients and health care professionals.

How did you identify this quality gap? In other words, where did you get your baseline data?

The hospital team, composed of four registered nurse chronic disease coordinators (CDCs), identified the need for a transition-of-care program such as the DCP from a root-cause analysis of key condition readmission rates, along with CMS HRRP data. The intent of this unique interprofessional

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team-based model was to provide additional pharmacovigilance to assist patients during the transition-of-care period after hospital discharge to decrease readmission rates and avoid penalties.

Summarize the initial data for your practice (before the improvement initiative).

Pharmacists from the University of Arizona Medical Management Center reviewed patient-reported and electronic health record (EHR) discharge medication lists and health histories to assess alignment with the American Diabetes Association's (ADA's) best practices for diabetes management. On implementation of the program, the DCP pharmacist discovered the following issues: four patients (3%) were prescribed a statin at an inappropriate dose intensity (guideline adherence); 16 patients (10%) had barriers to appropriate medication use (adherence); 70 patients (45%) were eligible to receive one or more immunizations (preventive care deficit); and 87 patients (56%) had at least one drug utilization concern (safety).

Additionally, the medication safety evaluation, an important component of medication reconciliation, consisted of key assessment components for 1) therapeutic duplications, 2) drug-disease interactions, 3) drug-drug interactions, 4) dose appropriateness, 5) adverse drug events, and 6) high-risk medication use in the elderly. Medication adherence was also addressed. The DCP pharmacist also ensured the appropriateness of and adherence to national consensus guideline recommendations from the ADA.

What was the timeframe from initiation of your QI initiative to its completion?

This pilot program was implemented between August 2015 and July 2016. Subsequently, based on the positive findings of the pilot program, the local hospital approved full-scale implementation of the DCP.

Describe your core QI team. Who served as project leader, and why was this person selected? Who else served on the team?

The DCP was co-coordinated by two core QI team members: the pharmacist coordinator and the nurse coordinator. These members were selected to lead the DCP given their considerable individual and collective expertise, including respective unique scopes of practice and previous experience with innovative telehealth models.

Describe the structural changes you made to your practice through this initiative.

Patients at risk for hospital readmission were identified and enrolled in the DCP pilot if they met the following criteria: 1) were ≥65 years of age and 2) had a primary discharge diagnosis of diabetes or other targeted conditions, including asthma, chronic obstructive pulmonary disorder, heart failure, myocardial infarction, pneumonia, post-coronary artery bypass graft, and renal failure. High-risk medication use in the elderly (e.g., insulin) was a consideration when patients were referred to the program; however, it was not an inclusion criterion. Initially, all qualified patients were referred to the DCP nurse by the hospital's CDC team. Subsequently, the DCP nurse scheduled these patients for individual telephone consultations with the DCP pharmacist.

The initial patient consultation was performed via telephone by the DCP pharmacist within 1 week after discharge. Complete access to the hospital EHR was available to the DCP pharmacist for review, documentation, and preparation for the consultation. The consultation method used was dependent on where each patient was discharged to; for patients returning home, the DCP pharmacist spoke directly with patients or their caregivers (71%, *n* = 110), whereas for those discharged to a skilled nursing facility (SNF), the DCP pharmacist obtained the

relevant medication administration record from the SNF nurse, completed the consultation based on the information provided by the SNF staff, and communicated recommendations directly to the SNF nurse (29%, *n* = 44).

For the direct pharmacist-patient/caregiver consultation method, teach-back education was a unique feature of this transitions-of-care model. This technique is designed to provide effective clinician-patient/caregiver communication by asking the latter to "teach back" what they have learned (3). The pharmacist assessed whether patients/caregivers understood 1) how to identify signs of a worsening condition, 2) when to seek medical attention, and 3) what lifestyle modifications to implement to prevent worsening of their condition. Additionally, the pharmacist completed a comprehensive medication safety evaluation. After the initial patient consultations, the DCP nurse coordinator contacted patients' primary care provider, specialists, and/or dispensing pharmacy via telephone or facsimile to apprise them of the pharmacist's recommendations and concerns and any pertinent information related to the patients' hospitalization.

For the SNF staff consultation approach, to improve communication and avoid challenges in acquiring information by telephone (e.g., scheduling conflicts based on availability of both parties), the DCP nurse coordinator requested the medication administration record via facsimile. If this was unsuccessful, the pharmacist followed up with SNF staff within 24 hours via telephone. When the consultation was completed with SNF nursing staff, the DCP pharmacist's notes were shared with the facility via facsimile.

For follow-up consultations, the DCP pharmacist contacted patients/caregivers or SNF staff again 3 weeks after discharge. The pharmacist revisited previously identified issues to ensure sufficient resolution and

TABLE 1. Medication Safety Evaluation Concerns Identified and Interventions Made by the DCP Pharmacist for Patients With Type 2 Diabetes (n = 154)

Medication Safety Evaluation Concern	Patients With Safety Concern	Successful Safety Interventions Made
	(n [%]) ^a	(n [%]) ^b
Therapeutic duplication	30 (19)	13 (43)
Drug-disease interaction	39 (25)	27 (69)
Drug-drug interaction	87 (56)	44 (51)
Inappropriate dose	61 (40)	51 (84)
Adverse drug event	34 (22)	23 (68)
High-risk medication use in the elderly	77 (50)	24 (31)

^aNumber and percentage of all patients (n = 154) with the safety concern. ^bNumber and percentage of patients with the safety concern for whom the pharmacist made a successful intervention.

addressed any new issues regarding nonadherence, medication costs, medication changes, adverse drug events, and adherence to national consensus treatment guidelines (chronic) and Centers for Disease Control and Prevention-recommended vaccines (i.e., for influenza, pneumonia, and herpes zoster). Subsequently, the DCP nurse coordinator directly relayed any recommendations from this consultation to patients' health care team, including specialists, primary care provider, and/or dispensing pharmacy, as needed.

Describe the most important changes you made to your process of care delivery.

Standardized, proprietary call script materials, designed for each specific discharge diagnosis based on national guidelines, were created to ensure consistency of the clinical evaluation and educational message content. The call script materials addressed three major topics: 1) how to identify signs of a worsening condition, 2) when to call for emergency assistance versus following up with a patient's own physician, and 3) how to make lifestyle modifications to improve a patient's overall health and well-being. Within the EHR software system, the DCP pharmacist created templates for each type of consultation (e.g., direct to patients/caregivers or via SNF staff). Additionally, the DCP nurse coordinator used a standardized call script to communicate with providers

regarding the reasoning behind certain recommendations. For example, when the DCP nurse called a provider's office, she reviewed the cardiac benefits of adding a statin cholesterol medication for patients with diabetes between 40 and 75 years of age.

Summarize your final outcome data (at the end of the improvement initiative) and how it compared to your baseline data.

A total of 482 patients from the local hospital were referred for participation in this pilot DCP during the 12-month study period. Of these, 225 patients (47%) had type two diabetes. Among patients with type 2 diabetes, 154 (68%) participated and received services within 30 days after discharge, including an initial telephone consultation within 1 week after discharge and follow-up telephone consultation 3 weeks after discharge. Based on the initial safety concerns identified on program implementation, respective successful interventions were made. Details are listed in Table 1.

The DCP pharmacist made a total of 166 vaccine recommendations for influenza (n = 33, 20%), shingles (n = 70, 42%), and pneumonia (n = 63, 38%). Of the 63 patients who received a recommendation for a pneumococcal vaccine, 57 (90%) accepted the recommendation, whereas 6 (10%) stated that they did not want to receive the immunization. Similarly,

a majority of patients accepted the immunization recommendations for influenza (n = 26, 79%) and shingles (n = 62, 89%) vaccines.

The DCP pharmacist addressed medication adherence concerns for all patients with medication-use difficulties related to patient-reported problems (n = 16), including access barriers due to cost (n = 7, 44%) and transportation (n = 1, 6%), self-reported medication use inconsistent with prescription directions (n = 4, 25%), and recommended strategies to improve medication adherence (n = 4, 25%) for patients who had difficulty remembering to take their medications. The DCP pharmacist also contacted prescribers to recommend adding statin therapy for all patients not currently following a dose regimen, based on the current ADA guidelines. For patients with type 1 or type 2 diabetes who were 40–75 years of age and had an estimated 10-year atherosclerotic cardiovascular disease (ASCVD) risk $\geq 7.5\%$, high-intensity statin therapy was recommended. Patients with a 10-year estimated ASCVD risk $< 7.5\%$ were advised to receive moderate-intensity statin therapy.

Although participation in the DCP resulted in a reduction in 30-day hospital readmissions among patients with type 2 diabetes, that decrease was not statistically significant (Table 2). The trends in readmission rates are promising, and

TABLE 2. Thirty-Day Readmission Rates for the DCP and Control Groups by Discharge Location

	Control Group		DCP Group		P
	n	Readmissions (n [%])	n	Readmissions (n [%])	
All discharges (n = 225)	71	12 (17)	154	16 (10)	0.1671
Home discharges (n = 154)	44	7 (16)	110	13 (12)	0.4951
SNF discharges (n = 71)	27	5 (19)	44	3 (7)	0.2446

the nonsignificance of the findings may be attributed to a limited sample size and insufficient statistical power. The QI analysis showed positive patient perceptions regarding the DCP services. Furthermore, results from a survey of providers practicing in close proximity to the hospital showed that this type of interprofessional model may positively influence their future referral practices.

What are your next steps?

Future goals for the DCP are to expand services and collaborate with accountable care organizations and other hospital entities. Telephone consultations and remote access to the EHR enable and facilitate DCP implementation regardless of patients’ proximity to hospitals, allowing for expansion of services into

under-served and rural areas. Future plans include publishing other articles reporting more in-depth results, including 30-, 60-, and 90-day post-hospitalization readmission rates, return-on-investment, and Medicare beneficiary expenditures, as well as to re-examine the data to assess all hospital readmissions (i.e., not solely readmission to the same facility).

What lessons did you learn through your QI process that you would like to share with others?

An interprofessional team collaboration with the local hospital’s nurse CDCs was crucial to the success of the pilot DCP. Additionally, the QI process provided opportunities to develop creative solutions to address

issues based on receiving medication lists from the staff at the SNFs.

Duality of Interest

No potential conflicts of interest relevant to this article were reported.

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