Improving Patient Knowledge of Discharge Medications in an Oncology Setting

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Discharge medications for a patient with cancer typically are numerous and complex. During the transition between inpatient stays and ambulatory follow-up visits, patients commonly misunderstand medication instructions, placing them at risk for under- or overdosing. This column discusses the results of an evidence-based practice change project at the Seattle Cancer Care Alliance to improve adult patient knowledge and use of discharge medications. Ensuring patient receipt of written discharge medication instructions and checking in with patients after discharge may be an approach to maximize the safety of self-administered medication.

Problem Identification

In the oncology setting, patient self-administered pharmacologic agents are ubiquitous, not only for addressing cancer-related symptoms and preventing or mitigating side effects, but also for treating the malignancy. The discharge medication list for a patient with cancer often is complex and contains the oncology-specific drugs in addition to drugs for management of preexisting chronic conditions.

The medications provided and/or confirmed on discharge from inpatient services are often taken incorrectly or not taken at all. Ellenbecker, Frazier, and Verney (2004) summarized that polypharmacy, lack of knowledge or understanding, cognitive status, older age, living alone, and cost of medications all contribute to failure to follow a discharge medication plan. In a study of 101 homecare nurses representing 1,467 patients, the researchers found that 21% of the patients were discharged from the hospital without understanding how to take their medications (Ellenbecker et al., 2004). Patients with cancer who return home with oral chemotherapy may not even fill the prescription (Streeter, Schwartzberg, Husain, & Johnsrd, 2011), may take more doses than prescribed, or may stop taking the medications when adverse effects worsen (National Health Service, 2008). Although no well-powered randomized trials have established efficacy for interventions in the oncology setting (Haynes, Ackloo, Sahota, McDonald, & Yao, 2008), provision of comprehensive written discharge medication instructions (Ramalho de Oliveira, Brummel, & Miller, 2010) and follow-up postdischarge telephone calls (Mistiaen & Poot, 2006) both have shown preliminary evidence of having a positive impact on patient adherence to medications in nononcology samples.

The Pan Alliance Nurse Practice Council (PANPC) of the Seattle Cancer Care Alliance (SCCA) planned an interinstitutional practice change project to address the complexities of discharge medication management. The purpose of the project was to improve patient understanding of discharge medication teaching with regard to knowledge of the medication name, dose, frequency, and route of administration, in addition to the purpose or action of the medication. The practice change included written medication instructions prior to discharge, and an ambulatory care nurse calling each patient 24–48 hours after discharge to review
### TABLE 1. Inaccuracies in Participant-Reported Drug Information Before (Phase I) and After Practice Changes (Phase II)

<table>
<thead>
<tr>
<th>Drug Inaccuracy</th>
<th>Phase I (N = 36)</th>
<th>Phase II (N = 13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration frequency</td>
<td>33*</td>
<td>1*</td>
</tr>
<tr>
<td>Dose</td>
<td>26*</td>
<td>4*</td>
</tr>
<tr>
<td>Name</td>
<td>28*</td>
<td>4*</td>
</tr>
<tr>
<td>Purpose</td>
<td>11</td>
<td>3*</td>
</tr>
<tr>
<td>Route</td>
<td>11*</td>
<td>0*</td>
</tr>
</tbody>
</table>

* p < 0.001

medication, reinforce discharge teaching, address any patient questions, and inquire about and manage any symptoms or side effects.

### Methods

#### Design and Setting

This was a pretest/post-test design intervention study conducted at SCCA and the University of Washington Medical Center (UWMC). The SCCA is the host for oncology ambulatory patient care services delivered by UWMC and the Fred Hutchinson Cancer Research Center clinicians. Adult patients at SCCA may be treated in one or both of the two facilities located on two distinct campuses: Three adult inpatient oncology/stem cell transplantation units at UWMC totaling 86 beds, or the SCCA ambulatory clinic on the Lake Union campus. Internal review board approval was granted for the entire study period.

#### Sample

During a four-month period in phase I, every consecutive SCCA patient who met the following eligibility criteria was offered participation: (a) designated SCCA patient aged 18 years or older, (b) had received nurse-administered chemotherapy or biotherapy as an inpatient, (c) had a plan for follow-up at a clinic within the SCCA, and (d) able to speak and read English or have a reliable interpreter or caregiver available who spoke or read English. The same criteria were used for phase II enrollment.

### Procedures

One of the nurses involved in each potential participant’s inpatient care informed the patient about the study prior to discharge and, if permitted, either that nurse or one of the PANPC members continued with consent procedures.

If the patient was enrolled, the study team member arranged for a telephone call three days after the date of discharge for all general oncology participants. Because stem cell transplantation recipients were seen in the clinic the day after discharge, the study team member arranged to see the participant in the clinic prior to the next Monday–Friday provider visit. Prior to the telephone call (or appointment), the study team member reviewed the medical record to ascertain discharge medication orders. During the telephone call, the study team member inquired as to what the participant understood about the discharge medication with regard to drug name, dose, route of administration, and purpose. Participants were encouraged to use any discharge medication bottles, instructions, or notes available at that time.

After four months of phase I data collection, the practice change was implemented. All discharged patients were provided a written instruction sheet containing comprehensive instructions for all medications to be taken at home. The inpatient oncology nurse created a practice change medication, reinforcing discharge teaching, addressing any patient questions, and inquiring about and managing any symptoms or side effects.

Phase I participants included 30 men and 23 women with a mean age of 47.8 years (SD = 14.4). After practice changes were made, a total of six men and nine women with a mean age of 50.6 years (SD = 16.9) were enrolled for phase II. Complete data were available for 36 participants in phase I and 13 in phase II.

During phase I (before practice change), 22 of 36 participants (61%) remembered receiving written material regarding discharge medication instructions. All 13 phase II (after practice change) participants not only remembered the materials, but were able to locate the list during the outcome measure telephone call.

The percent of inaccuracies was significantly lower after implementation of the practice change for drug name, dose, route of administration, and purpose. Participants not only remembered the materials, but were able to locate the list during the outcome measure telephone call.

### Results

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### Discussion

A teaching telephone call after hospital discharge resulted in improved accuracy of patient reports regarding when and how medications were to be taken at home. Why knowledge of the purpose of the medication did not improve is unclear. The findings are relevant to current issues of adherence. The phase I findings are similar to another investigation that documented low patient knowledge of drug name and dose (Holloway, 1996). Holloway (1996) conducted a small study of 20 patients to determine what they understood about their discharge medications, and found that only 10 patients knew the name of at least one drug, and only five knew the prescribed dose. In the psychiatric setting, McIntosh and Worley...
reported a telephone follow-up and aftercare program that resulted in a low readmission rate (12%) to the psychiatric unit and identified patients with problems postdischarge. The authors reported that in 175 follow-up telephone calls to patients in an eight-month period, 22% of patients reported difficulty taking discharge medications as prescribed (McIntosh & Worley, 1994).

Limitations

The current study was limited by the pretest/post-test design and lack of randomization between an intervention and control group. The sample was one of convenience, and data collection truncated earlier than planned because of staff resources. Given a larger sample size, a different result may have occurred in the purpose variable. Finally, the findings may not be applicable to populations outside of adult comprehensive cancer centers.

Implications for Nursing

This practice change project was conducted in a group of both general oncology patients and stem cell transplantation recipients, two groups for which postdischarge medication regimens and care teams are complex. The interventions in the practice change, written discharge medication instructions and a 24–48 hour follow-up telephone call, may seem to be simple solutions. However, clinicians may find that distinctions of responsibility for who actually completes the interventions are not so simple. Oncology nurses must work in concert with pharmacists to achieve consistent delivery of discharge medications. The nurse clinicians in inpatient and ambulatory settings often are not employees of the same nursing service, and a coordinated solution will require interinstitutional collaboration.

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References


