Improving Transitions of Care With an Advanced Practice Nurse: A Pilot Study

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Gaps in complex oncology care coordination between inpatient and outpatient settings can result in treatment and monitoring delays and omissions, which can negatively affect patient outcomes. Gaps also exist for patients facing complex treatment modalities and collaborations between multiple care teams working at geographically distant sites. A pilot advanced practice nurse care coordinator (APNCC) role to coordinate these complex care transitions and implement processes for safer and more efficient care has shown promise.

At a Glance
• Treatment and monitoring delays can negatively affect patient outcomes.
• The APNCC can minimize transition gaps, improve patient safety, and increase the quality of care delivery through effectiveness and efficiency.
• The APNCC pilot program reduced patient length of stay and infection rates.

Methods

The aim of the pilot study was to reduce length of stay (LOS), lower readmission rates, and decrease delays and misses in treatment during transitions from inpatient to outpatient care. The pilot was initiated with three resident physician teams who care for about 50% of all inpatients with cancer in the hospital.

The advanced practice nurse care coordinator (APNCC) is a non-rotating member of the interprofessional team. When a patient is admitted to the hospital, the APNCC performs a comprehensive clinical, functional, social, and insurance assessment via chart audit to propose the best disposition plan. Throughout the stay, the APNCC coordinates and collaborates with other interprofessional staff to promote the most efficient transitions. The APNCC reassesses needs on a daily basis, adjusts the care plan accordingly, and communicates with team members to prepare the patient for the target discharge date and disposition.

During the pilot study, standardized communication mechanisms were developed between inpatient and outpatient teams to promote timely dialogue concerning patients’ evolving needs. Standardized practice guides, computer-generated orders, and extensive referral lists also were developed. Standardized practice guides, developed by the APNCC, included a central line management guide, male/female fertility preservation guides, and a home infusion order guide to ensure efficient and effective care transitions. A computerized physician order entry (CPOE) system...
was initiated during the pilot to enable custom and detailed orders to improve patient safety. With the CPOE system, the home infusion order guide was transformed into a home infusion power order, which prompts providers during order entry to include specifics and ensures that line care protocol is followed uniformly. The APNCC also monitored process alignment and adjustment needs to propose transitional improvements whenever gaps arose. Timely communication among care team members is essential to orchestrate care coordination from admission to discharge (Blough & Walrath, 2007; Dingley, Daugherty, Derieg, & Persing, 2008). The inpatient team members include, but are not limited to, physicians, pharmacists, physical and occupational therapists, social workers, nurses, and medical specialty consultants. Additional oversight for safe patient transitions extends to the management of fluids and drug infusions, blood product needs, patient-specific transfusion precautions, supplemental nutrition, home oxygen, central line care, drains and wound care, medical equipment readiness, and transfers between hospitals. The APNCC uses daily team rounds to assess and realign transitional plans, addressing institutional quality measures and transitional gaps. Clerical support is provided by a part-time team assistant. Table 1 provides the association

### TABLE 1. Gaps in Care Identified per NPSGs

<table>
<thead>
<tr>
<th>Issues or Gaps</th>
<th>APNCC Intervention</th>
<th>Goal</th>
<th>Outcomes</th>
<th>JC Standard</th>
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<tbody>
<tr>
<td>Inadequate care planning and coordination</td>
<td>Update outpatient providers of unplanned admissions, inpatient care progressions, and tentative discharge plans.</td>
<td>Outpatient settings ready for discharged patients and for patients to have smooth transitions.</td>
<td>Better patient and provider experience; less misses and delays; shortened LOS</td>
<td>Improve staff communication. (NPSG 02.03.01)</td>
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<tr>
<td>Missed laboratory work, unprepared transfusions, missed or delayed referrals and follow-ups</td>
<td>Inform clinic to schedule follow-ups (frequencies, trends, precautions, and premedications). Inform patients of follow-up appointments in writing.</td>
<td>Inform patients of appointments scheduled, write discharge instructions on who and when to call, and have all referrals made.</td>
<td>Better patient experience and less anxiety after discharge; better provider experiences from unnecessary calls</td>
<td>Improve staff communication. (NPSG 02.03.01)</td>
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<tr>
<td>Ancillary care items not ready for discharge, causing delays</td>
<td>Coordinated care supplies (e.g., home infusions, outpatient infusions, home oxygen, durable medical equipment, central line care supplies)</td>
<td>Avoid misses and delays.</td>
<td>Reduce delay in care supplies and equipment readiness; smoother transitions to outpatient settings</td>
<td>Improve staff communication. (NPSG 02.03.01)</td>
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<td>Growth factor, anticoagulation, and antibiotics arrangement per insurance coverage eligibility</td>
<td>Review discharge plans, prescriptions, and insurance coverage to coordinate with physicians, pharmacists, social workers, and outpatient clinics to fulfill and avoid a delay in discharge.</td>
<td>Coordinate injections, infusions, laboratory work, and visits.</td>
<td>Reduce misses; better patient and provider experience</td>
<td>Use medications safely. (NPSG.03.05.01)</td>
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<tr>
<td>Discharge medications dispensation barriers</td>
<td>Collaborate with pharmacy, social work, nursing, finance, patient and family, and insurances to avoid medication noncompliance or misses</td>
<td>Resolution of high-cost medications so patients receive appropriate treatment</td>
<td>Better patient and provider experience, better treatment resolution, and reduced delays</td>
<td>Use medications safely. (NPSG.03.05.01)</td>
</tr>
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<td>Inadequate central line post-discharge care</td>
<td>Coordinate teach and line care supplies dispensed monthly following discharge. Ensure proper orders are in place for reimbursement. Keep practice guide up to date. Provide consultation to providers and subsequent institutions on care protocols.</td>
<td>Central line care practice guide developed. Patient and family are comfortable caring for central line at home. Outpatient clinic is aware of who is to provide line care supplies and when to schedule weekly dressing changes.</td>
<td>Better patient and provider experience. Reduced CLABSI rate; therefore, reduced potential for readmission</td>
<td>Prevent infection. (NPSG.07.04.01)</td>
</tr>
<tr>
<td>Difficult to progress care because of behavior or social issues</td>
<td>Evaluate and bring all associated disciplines together to discuss and formulate best care plans to progress care. Draft care plans. Once a care plan is in place, encourage team members to follow the plan.</td>
<td>Promote care progression toward discharge and transitions; monitor such progress per formulated plans.</td>
<td>Better provider experience and reduced LOS</td>
<td>Improve staff communication. (NPSG 02.03.01)</td>
</tr>
<tr>
<td>Serious event or care delay reviews</td>
<td>Review and suggest best process adjustment.</td>
<td>Improve process to prevent future delays or events.</td>
<td>–</td>
<td>Improve staff communication. (NPSG 02.03.01)</td>
</tr>
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</table>

APNCC—advanced practice nurse care coordinator; CLABSI—central line–associated bloodstream infection; JC—Joint Commission; LOS—length of stay; NPSG—National Patient Safety Goal

Note. Based on information from JC, 2015.
between transitional gaps addressed by the APNCC and the Joint Commission’s (2015) patient safety goals.

**Findings**

The APNCC who led the care transitions pilot program was effective in reducing inpatient LOS by well-planned dispositions starting at the time of admission and ensuring that necessary equipment, teaching, referrals, and follow-ups were in place when patients were medically ready for discharge. Readmission rates were not reduced but did remain the same. Although not part of the authors’ aim, central line–associated bloodstream infection (CLABSI) rates lowered after implementation of the central line care guide, following coordinated central line care teaching and flushing supplies referral together with scheduled weekly dressing changes after discharge.

The authors compared observed LOS against diagnosis-related group (DRG)-expected LOS per patient diagnosis. DRG-expected LOS was expressed as 1 in this comparison. Observed versus expected LOS ratio was reduced from 1.05 to 0.95 in the first year. The observed versus expected LOS ratio was further reduced to 0.86 in the second year (see Figure 1). These reductions in LOS ratio represent decreases in the actual number of inpatient days. Readmission rates did not diminish; a majority of readmissions were from neutropenic fevers related to chemotherapy-induced neutropenia). However, not having an increase in readmissions is considered a success. The hospital had seen an increase in readmissions in prior, unsuccessful, quality improvement projects. The CLABSI rate dropped in the first year, from eight cases in 2013 to three and two cases in 2014 and 2015, respectively.

Scheduled follow-up appointments, completed referrals, and written instructions at discharge all helped to lessen confusion and anxiety for both patients and families, clarified their expectations, and increased satisfaction. A survey on patient and family satisfaction with discharge information in the oncology units was reported at 94% compared to the institutional goal of 84%. Patient satisfaction with care transitions was 60% compared to the institutional goal of 53%.

The LOS reduction had financial savings implications for the institution and afforded patients more time at home with families. Oncologists reported feeling more supported in managing transitions one year after the integration of the APNCC role.

The oncology APNCC pilot project grew out of other APNCC pilots in medical, surgical, and neurologic units at UWMC. Based on the success of the current pilot program, an APNCC role has been replicated in cardiology. The APNCC connects and updates the interprofessional care team so that care progression and changing goals are monitored and communicated for smoother transitions for patients and families.

**FIGURE 1. LOS of Inpatients With Cancer (N = 359)**
Discussion

The average patient census managed by the APNCC is about 25–30 patients per day. Although the APNCC works across the institutional services spectrum to arrange the safe discharge transitions, the clinical team caring for the patient is still responsible for a safe discharge. The APNCC brings the comprehensive plan together through his or her leadership and oversight.

Specialty referrals and the provision of discharge medications can be a significant problem during transitions based on patients’ insurance coverage and eligibility, particularly for new medications and new diagnoses. Working closely with social workers, pharmacists, and ordering physicians, the APNCC ensures medications are accessible and available, and appropriate referrals are made by the time of discharge.

Limitations

Challenges existed related to the unwillingness of some team members to collaborate, and a sense by others of insufficient time and resources to meet the reduced LOS targets. Some patients were uneasy about being discharged earlier than expected, and their anxiety had to be addressed with sensitivity. In addition, some patients did not have adequate resources for optimal dispositions. Increasing resources in the areas of housing, home care, and support for caregivers is the next goal toward improving cancer care transitions.

Conclusion

The APNCC model was effective by initiating disposition planning at the time of hospital admission to prepare patients for discharge to the outpatient setting. The APNCC is the leader in assessing and coordinating care transitions while patients progress through their inpatient stay. The APNCC monitors the anticipated discharge needs of the patient in the context of payer requirements and coverage to ensure safe discharge. To date, barriers to further reductions in LOS relate to inadequate services provided through payer home or skilled nursing coverage and a lack of housing coverage for patients seeking care outside of their home geographic area. Payer coverage for telemedicine or telenursing monitoring should be considered to ensure symptom management to reduce readmissions and improve patient satisfaction. Payer coverage for housing and caregiver support may further reduce LOS because patients with neutropenia can have better outcomes at home than in skilled nursing facilities (Juthani-Mehta & Quagliarello, 2010). Finally, the APNCC model warrants additional testing in other complex patient populations.

Joint Commission (2015) guidelines provided an excellent benchmark to improve healthcare efficiency, reduce risks, sustain or improve healthcare outcomes, and improve patient and provider satisfaction. The current pilot project demonstrated the importance of the APNCC having a strong understanding of national and institutional quality standards. Identifying opportunities to improve patient care transitions and develop interventions using evidence-based outcomes can guide progress in improving care.

Knowledge to improve healthcare quality should be built into all undergraduate and graduate nursing curriculums, particularly within graduate programs. To achieve ongoing quality improvement, all staff will need continued education on patient safety and quality goals. Nurses play an essential role in the improvement process.

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References


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