

# Process Indicators of Quality Clinical Pharmacy Services During Transitions of Care

American College of Clinical Pharmacy

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The American College of Clinical Pharmacy charged the Public and Professional Relations Committee to develop a short white paper describing quality measures of clinical pharmacists' patient care services in transitional care settings. Transitional care describes patient movement from one health care setting or service to another. Care transitions are associated with an increased risk of adverse events for patients. Pharmacists play an important role in ensuring that medication errors and adverse events are minimized during these transitions, largely through the reconciliation of medications and assurance of continuity of care. Quality measures are often divided into three domains: structure, process, and outcome. Given the typical nature of the pharmacist's role, process indicators are best suited to evaluate quality clinical pharmacist services. However, process indicators relevant to pharmacists' activities are not yet fully described in the literature. The committee searched available literature describing quality measures that are directly influenced by the pharmacist during care transitions. This white paper describes these process indicators as quality measures of clinical pharmacists' services, identifies the transitional settings and activities to which they are most applicable, and provides the published sources from which indicators were derived. For process indicators that could not be found in published sources, we propose relevant measures that can be adapted for use in a given setting. As pharmacists become more involved in diverse and emerging patient care areas such as transitional care, it will be critical that they use these types of measures to document the quality of new services and reinforce the need for pharmacist participation during transitions of care.

**Key Words:** process indicators, quality measures, medication reconciliation, care transition, clinical pharmacist.

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Professionals who participate in the medical care of patients have worked to measure and thereby demonstrate the contributions they make. Pharmacists are no exception. Pharmacists are frequently encouraged to document interventions and to demonstrate the quality and effectiveness of the care they provide in both

established and innovative practice settings. One such emerging practice area is the explicit participation of the pharmacist during a care transition. A "care transition" or "transition of care" refers to when a patient leaves the care of a particular unit or health care facility (i.e., hospital, rehabilitation hospital, or primary physician

care) and moves to another facility or setting, including his or her own home.<sup>1</sup> It has been established that care transitions represent points of increased risk for patients and that inadequate transitions can result in suboptimal use of medications (including medication errors), confusion about the care plan, unintended lapses in treatment, and increased cost and use of resources.<sup>1</sup> Specifically, it has been suggested that 60% of medication errors occur during times of transition.<sup>1, 2</sup> Furthermore, Forster *et al.*<sup>3</sup> found that 19% of patients experience an adverse event within 3 weeks of hospital discharge and that 12% of these events are preventable or amenable with simple strategies. Our purpose is to describe process indicators of quality clinical pharmacist services in the setting of a care transition. For the process indicators that we could not find in a search of the Internet or published literature, we suggest indicators that may be appropriate to use on the basis of our clinical experience.

Avedis Donabedian's model, often cited in discussions of health care quality, will be used to explain the rationale for our focus on process indicators of pharmacists' patient care services during care transitions.<sup>4, 5</sup> The model offers three domains by which to assess quality of care: structure, process, and outcome.<sup>4</sup> Structural measures (or indicators) of quality are the professional and organizational resources associated with the provision of care. Process measures refer to things done to and for the patient by practitioners during the course of treatment. Outcome measures are the physical states that result from care processes, including measures of morbidity or mortality and improvement in the quality of life.

Many factors affect patient outcome measures, most of which are beyond the pharmacist's control. For example, issues of organizational resources and facility capacities are outside the pharmacist's usual sphere of influence. As such, outcome and structural measures are not typically used to assess the pharmacist's services during care transitions. Most pharmacists participate in medical care by directly providing services to patients, so we advocate that quality measures focus on these process indicators. An ideal process indicator is easily or routinely measurable and has been validated appropriately.<sup>4</sup> In addition, it must be established that the process (and associated indicator) of interest ultimately makes a difference to patient care. This latter quality is perhaps the most challenging for the profession to overcome because it has been established for relatively few pharmacist interventions.<sup>4</sup>

Given the complexity of health care and thus the vast number of possible care transitions, we have established an overall structure that organizes this paper by the general type of setting in which the transition occurs. Within each setting, we provide a brief description of pharmacist services and then describe (or propose) process indicators of quality care. Table 1 describes each type of transition we considered and highlights the sources of the associated process indicators.

### Pharmacist Activities and Process Indicators Applicable to All Health Care Settings

Pharmacists may participate in many different care transitions, but most published information describes the pharmacist's role in transitions to and from hospital facilities. When considering services and process measures applicable to all settings, a common thread is medication reconciliation. According to the Agency for Healthcare Research and Quality (AHRQ), medication reconciliation refers to the process of avoiding "inadvertent inconsistencies" in medication regimens across care transitions.<sup>12</sup> As part of this process, an accurate list of the medications taken by the patient at a given time should be created (or updated), including medications that the patient is allergic to or intolerant of and those that are to be discontinued temporarily for some reason. The Joint Commission first identified medication reconciliation and transmission of the reconciled list as National Patient Safety Goal (NPSG) eight in 2005, though in 2009, the Joint Commission suspended the formal scoring

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**Table 1. Transition Type and Published Sources for Process Indicators of Clinical Pharmacists' Patient Care Services in Transitional Settings**

Transition Type <sup>a</sup>	Description of Characteristics	Process Indicators That Apply or Can Be Adapted	Sponsoring Organization
On admission to a hospital or facility	A patient is admitted to a health care facility from home for management of a new or worsened medical problem	National Patient Safety Goal 03.06.01	The Joint Commission <sup>6</sup>
Transitioning between levels of care within the same facility	A patient remains in the same hospital or inpatient facility, but there is a change in the service team primarily responsible for his or her care (e.g., cardiology team in ICU to internal medicine regular hospital bed)		
Discharge from one facility to another, but not to home	A patient is discharged from an acute care facility to another facility for ongoing care. The patient is not well enough to be discharged to home but no longer requires or is no longer eligible for high-intensity care		
Discharge from hospital to home	A patient's condition improves, and he or she is well enough to be discharged from the inpatient facility back to home. His or her care is managed by one or more ambulatory providers (e.g., primary care physician, home infusion, visiting nurse)	Preferred Practices for Care Coordination Three-Item Care Transitions Measure Consumer Assessment of Healthcare Providers and Systems — Hospital Physician Consortium for Performance Improvement Quality Measures Patient-Centered Primary Care Collaborative: The Patient Centered Medical Home: Integrating Comprehensive Medication Management to Optimize Patient Outcomes	National Quality Forum <sup>7</sup> Agency for Healthcare Quality and Research <sup>8</sup> American Medical Association <sup>9</sup> Patient-Centered Primary Care Collaborative Medication Management Task Force <sup>10</sup>
Transitions within the ambulatory setting	There is a change in one or more of the patient's health care providers (e.g., change in primary care provider, addition of or change in provider of specialty care)	<i>Care Coordination Measures Atlas</i>	<i>AHRQ Care Coordination Measures Atlas</i> <sup>11</sup>

AHRQ = Agency for Healthcare Research and Quality; ICU = intensive care unit.

<sup>a</sup>We intend these categories to be representative, recognizing they cannot be all-inclusive given the changing landscape of health care.

of these items because of the lack of published methods for accomplishing the reconciliation.<sup>6</sup> On July 1, 2011, a revised goal, NPSG 03.06.01—maintain and communicate accurate patient medication information—replaced NPSG 8.<sup>6</sup> The new goal, which has five “elements of performance” that can be used to create indicators of process quality, can be reviewed in further detail at [http://www.jointcommission.org/npsg\\_reconciling\\_medication](http://www.jointcommission.org/npsg_reconciling_medication).

Several publications with specific indicators can be used to assess pharmacists' services, as described in Table 1. Some of these indicators can be adapted and expanded for use beyond

their original setting; see the appropriate section in the paragraphs that follow for further description.

### Pharmacist Activities and Process Indicators in Specific Settings

#### On Admission to Hospital or Facility

##### *Pharmacist Services*

The transition from home to hospital has been described as the most common point of error in a patient's health care journey. These errors are

often caused by the lack of information about a patient's home medications or other problems with the medication history.<sup>13, 14</sup> A "gold standard" medication history process has been described wherein a pharmacist interviews a patient to document the drug name, dose, frequency, and route for all prescription and nonprescription medications. Outside resources such as family, primary physician, or community pharmacies should also be contacted as needed to acquire complete information.<sup>14</sup> Although the medication history may not always be completed by a pharmacist, pharmacists are uniquely positioned to reconcile medications because of their familiarity with drug products, patients' medication use behaviors, and common drug-related problems. Pharmacists' completion of this activity has been associated with lowered hospital mortality.<sup>15</sup>

The National Quality Forum (NQF) and the Joint Commission both evaluate steps within the medication reconciliation process. The Institute for Healthcare Improvement's (IHI) 5 Million Lives Campaign, which was also aimed at reducing adverse drug events through medication reconciliation, provides resources to help hospitals implement a process.<sup>16</sup> Recommended process indicators from this project include the number of errors from unreconciled medications per 100 admissions and the percentage of unreconciled medications.

#### *Process Indicators*

We recommend that all hospitals develop a policy and procedure for a consistent medication reconciliation process and strongly consider having pharmacy resources available to complete admission medication histories. The components of the medication history may vary from setting to setting, but we believe best practices include some type of verbal confirmation of a patient's current medications and the timing of the last dose taken. Process indicators for this activity may include the percentage of all patients (or percentage of all high-risk patients, as appropriate) who have a completed medication history within 24 hrs of admission; percentage of home medications reconciled on admission out of the total number of home medications; and frequency of pharmacist-physician communication regarding medication discrepancies on admission orders out of the total number of home medications or total number of communications.

#### Moving Between Levels of Care Within the Same Facility

##### *Pharmacist Services*

Despite the heightened risk of medication misadventures when moving between levels of care within the same facility, few items have been published that evaluate or define this process. Optimal care transitions should start with medication reconciliation on first presentation and continue with each change in location, service, or care provider. Of importance, the transition process should include all providers contributing to the care of the patient.<sup>17</sup> Once a list has been compiled, it should become a documented part of the patient's medical record and serve as a "living" document so that all health care providers have access to review and update it as needed. Ideally, a verbal "handoff" to the next pharmacist caring for the patient should occur. However, direct pharmacy involvement is not always possible, making the living list even more important (Figure 1). Another approach is to target only high-risk patient groups (e.g., those with various causes of cognitive impairment, the elderly,<sup>18</sup> patients with low literacy<sup>19</sup> or diabetes<sup>20</sup>), disease states that are difficult and expensive to manage, or disease states already receiving service provided by the department (e.g., pharmacokinetic, antimicrobial). A potential disadvantage of the latter approach is that priorities may be placed on services, not on the continuum of care that is needed for optimizing a pharmacotherapeutic plan.

##### *Process Indicators*

Although process indicators have not been formally suggested for this transition, measures such as the number of patients with a verified medication list (in the absence of seamless electronic medication orders and administration records) or rates of medication discrepancies that occur or are prevented within a given period after transfer may be used to assess pharmacist services.

#### Discharge from One Facility to Another, but Not to Home

##### *Pharmacist Services*

The transfer of patients from a hospital to a nonhospital care facility (e.g., a long-term care

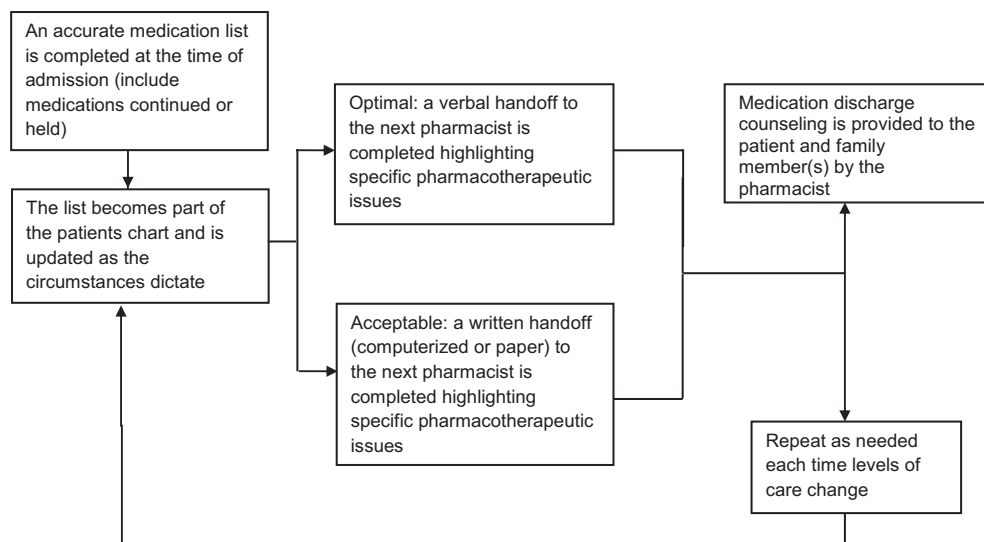


Figure 1. Proposed workflow for transitioning between levels of care within the same facility.

facility [LTCF] or skilled nursing facility [SNF]) and vice versa may have risks associated with it, including poor continuity of care, re-hospitalizations, medication errors, and poor medication management. Patients from these types of non-hospital facilities often receive several medications and are generally older, which may put them at risk of adverse events and other medication-related problems during care transitions.<sup>21</sup> A 2004 randomized controlled study suggested that the addition of a pharmacist transition coordinator improved medication appropriateness as assessed by an MAI (medication appropriateness index).<sup>22</sup>

In addition, a consulting pharmacist provides medication reconciliation services after admission to a nonhospital facility from a hospital.<sup>21</sup> The Centers for Medicare & Medicaid Services (CMS) mandates that consultant pharmacists in this setting conduct a medication regimen review (MRR) of patient charts at least monthly, report findings to the director of nursing and the physician, and prevent inappropriate medication use. The American Society of Consultant Pharmacists developed a model to guide the MRR process with the following properties: prospective MRRs, a focus on patients at high risk of adverse reactions; direct communication with the physician; and a developed care plan for the patient.<sup>23</sup> In nonhospital facilities, pharmacists may also act as a resource to the patient and family while optimizing medication regimens and providing counseling services during transitions. Collaboration between staff, physicians, and pharmacists may determine appropriate

procedures to ensure the continuity of care from a hospital to these facilities.<sup>21</sup> In SNFs receiving federal funds, quality assurance and assessment committees regulated by CMS are composed of the director of nursing, a physician, and three other facility staff members. Quality assurance and assessment committees may allow consultant pharmacists to collaborate with other health care team members in providing recommendations and evaluating appropriate medication use, including infection control and appropriate antibiotic use.<sup>24</sup> The NQF recommends telephone follow-up and discharge planning for patients at higher risk, including the elderly and patients with chronic conditions.<sup>25</sup>

For patients moving from an LTCF to a hospital, pharmacists play an important role by providing medication reconciliation and MRR during hospital admission. In a systematic review, LaMantia et al. identified and evaluated interventions to improve transitional care between LTCFs and hospitals. Results showed that a standardized patient transfer form might help with medication reconciliation on admission from long-term to acute care settings.<sup>26</sup> In addition, the information provided by these facilities should include, but not be limited to, an updated problem list, list of allergies, medication list, and the patient's goals and preferences.<sup>27</sup> However, these studies did not specifically evaluate pharmacy services in providing transitional care in this setting. Overall, standardized communication between the LTCF and hospital providers is crucial to the provision of effective and safe transitions. Pharmacists can

play an important role in providing accurate communication of this information.<sup>26, 28, 29</sup>

### Process Indicators

Process indicators in this setting may be difficult to establish because pharmacists may not routinely provide daily care to patients in a non-hospital care facility. However, process indicators may include compliance with an established policy or procedure encouraging standardized communication between facilities, the number of patients with a completed MRR, the number of patients with a complete medication list from the discharge facility within some reasonable time of admission to the next facility, or the number of proper medication discontinuations or changes during the transition.<sup>25</sup>

### Discharge from Hospital to Home and Ambulatory Care

#### *Pharmacist Services*

A large body of evidence shows that serious quality and safety concerns arise when patients experience a poorly coordinated transition from hospital to home. An important and frequently reported outcome of hospital care is subsequent hospital readmission, an event potentially preventable by quality care and coordinated discharge. The Medicare Payment Advisory Commission report to Congress in 2007 indicated that 13.3% of Medicare beneficiaries had potentially preventable hospital readmissions, resulting in expenditures of \$12 billion.<sup>30</sup> Improving patient safety and quality of care at hospital discharge, as well as reducing health care costs associated with preventable hospital readmissions, is considered a national priority. Because of the substantial health care costs associated with inadequate care during hospital discharge, there is more published literature evaluating pharmacists' services in this transition setting. Therefore, we devote a substantial portion of this paper to describing proposed process indicators for this type of transition.

Adverse drug events, medication discrepancies, and lack of patient understanding of the treatment plan occur often in the peri-discharge period.<sup>3, 31, 32</sup> Several studies have evaluated outcomes associated with pharmacist involvement at patient discharge.<sup>33-38</sup> In general, these studies have assessed the pharmacist's role in providing medication reconciliation, medication

education, and identification and resolution of medication-related problems and/or telephone follow-up. Pharmacist activities related to patient discharge have been shown to reduce overall and preventable medication-related 30-day readmission rates.<sup>33-35</sup> Other benefits associated with pharmacist involvement in patient discharge include fewer preventable adverse drug events within 30 days of discharge,<sup>34</sup> fewer medication discrepancies at discharge,<sup>36, 37</sup> and improved patient adherence and understanding of medication therapy.<sup>38</sup> Some studies have shown conflicting results, with no difference in total adverse drug events or health care use<sup>34</sup> or in 30-day readmissions or emergency department visits<sup>35, 36</sup> compared with standard discharge practices. Pharmacist activities at discharge that seem most effective are the pharmacist's provision of telephone follow-up within 72 hrs after discharge with or without medication education counseling before patient discharge.<sup>33-35</sup>

Several resources are available to aid institutions in developing and implementing an effective plan for patient transition, as well as to provide recommendations for expanding the pharmacist's role in care transition.<sup>1, 39, 40</sup> The pharmacist plays an integral role in providing pharmacotherapy expertise to ensure a safe and smooth discharge to home and should be directly involved as a member of the transitional care team during patient discharge. As outlined by the National Transitions of Care Coalition (NTOCC), the pharmacist should oversee the patient's medication care plan. This care plan should involve as many of the following elements as possible: medication reconciliation; medication management sessions (to identify and resolve medication-related problems); comprehensive medication counseling provided to the patient or care provider; assessment of patient or caregiver understanding; a written, detailed medication care plan; and telephone follow-up a few days after discharge to ensure continued patient understanding and safety.<sup>1</sup>

#### *Process Indicators*

Several process indicators have been developed that focus on safe and effective transitions from hospital to home. The Care Transitions Performance Measurement Set approved by the Physician Consortium for Performance Improvement (PCPI) in 2009 was designed to be used by any health care professional during a patient's transition from an inpatient health care facility

and can be used by an individual practitioner or on a system level for assessing quality (Table 2).<sup>9</sup> The first approved measure, endorsed by NQF, addresses whether discharged patients or their caregivers received a comprehensive reconciled medication list at discharge. This process measure is also relevant to the Joint Commission's new goal, NPSG 03.06.01: "Maintain and communicate accurate patient medication information" and the IHI recommendations. The Care Transitions Performance Measurement Set is intended to evaluate effective care coordination at discharge, increase engagement, and enhance understanding of and adherence to the treatment plan.<sup>9</sup> This process indicator is relevant when evaluating pharmacist involvement in patient discharge when the pharmacist's role encompasses medication oversight, including medication reconciliation and identification and the resolution of medication-related problems.

The AHRQ maintains the Consumer Assessment of Healthcare Providers and Systems (CAHPS) database, a national benchmarking database of discharged patient survey responses.<sup>8</sup> The CAHPS Hospital Survey database specifically reports results from hospitalized patients and includes a measure of "patients who reported that staff 'always' explained about medicines

before giving it to them." An aggregate of national responses from a 2009 hospital discharge report suggests that 60% of patients describe staff as always explaining medications before administration. This leaves a great deal of room for improvement.<sup>41</sup>

The NQF has described "Preferred Practices" for care coordination related to a patient's "Healthcare Home" as well as a three-item Care Transitions Measure (CTM-3) for transitions between hospital and home.<sup>25, 42</sup> The CTM-3 is a reliable and validated tool to measure patients' perspectives on the coordination of hospital discharge care that asks the patient to rate the following items. (i) The hospital staff took my preferences and those of my family or caregiver into account in deciding what my health care needs would be when I left the hospital. (ii) When I left the hospital, I had a good understanding of the things I was responsible for in managing my health. (iii) When I left the hospital, I clearly understood the purpose for taking each of my medications.<sup>7</sup> Pharmacists can participate in improving care directed toward item 3 of this performance measure by assisting with the provision of comprehensive medication counseling to the patient or caregiver and assessing patient or caregiver understanding. The results of these surveys are available to the institution for use as quality improvement data to augment patient discharge preparedness. Specific process indicators could be the percentage of patients educated on the medication plan by discharge time and/or the primary adherence rate, defined as the rate at which patients first fill prescriptions for new medications prescribed at hospital discharge.

A recent review of randomized controlled trials of integrated medication therapy management in the primary care medical home found that two specific services were most commonly associated with improved patient outcomes<sup>43</sup>: (i) identifying patients not achieving their health outcomes or at high risk of poor outcomes and (ii) facilitating communication among providers. These services are also supported in "The 10 Steps to Achieve Comprehensive Medication Management," provided by the Medication Management Task Force of the Patient-Centered Primary Care Collaborative (PCPCC) (Table 3).<sup>10</sup> This publication describes the patient-centered medical home model and justifies comprehensive medication management as an integral service provided directly to the patient. Several of the statements from the "10 Steps" document

**Table 2. PCPI-Approved Care Transitions Performance Measurement Set<sup>9</sup>**

<p>Measure 1: Reconciled medication list received by discharged patients</p> <p>Continued and discontinued medications before inpatient stay identified as well as dose changes and changes in directions. If continued medication (dose, instructions, and intended duration)</p> <p>New medications (dose, instructions, and intended duration)</p> <p>Anticipated drug interactions</p> <p>Allergies (and reaction) that developed during the hospitalization documented</p> <p>Adverse reactions that developed during hospitalization and led to medication discontinuation are documented</p> <p>Measure 2: Transition record with specified elements received by discharged patients inpatient discharges)</p> <p>All transitions must include a transition record that details current medications to be taken by the patient after discharge</p> <p>Measure 3: Timely transmission of transition record</p> <p>The transition record should be transmitted to the facility or primary physician or other health care professional designated for follow-up care within 24 hrs of discharge</p> <p>Measure 4: Transition record with specified elements received by discharged patients emergency department discharges)</p> <p>Patients and/or caregivers who received a transition record at discharge</p>
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PCPI = Physician Consortium for Performance Improvement.

**Table 3. Ten Steps to Achieve Comprehensive Medication Management<sup>10</sup>**


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Identify patients who have not achieved optimal goals of therapy
Understand the patient's personal medication experience/history and preferences/beliefs.
Identify actual use patterns of all medications, including OTCs, bioactive supplements, and prescribed medications
Assess each medication for appropriateness, effectiveness, safety (including drug interactions), and adherences, focused on achievement of the clinical goals of each therapy
Identify all drug therapy problems (i.e., the gap between current therapy and that needed to achieve optimal outcomes)
Develop a care plan addressing recommended steps needed to achieve optimal outcomes.
Patient agrees with and understands care plan, which is communicated to the prescriber/provider for his/her consent and support
Document all steps and current clinical status versus goals of therapy
Follow-up evaluations with the patient are critical to determine the effects of changes, reassess actual outcomes, and recommend further therapeutic changes to achieve desired clinical goals/outcomes
Comprehensive medical management is a reiterative process; care is coordinated with other team members, and personalized goals of therapy are understood by all team members

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OTC = over-the-counter (drugs).

can be measured to assess the pharmacist's services as applied to patients' medication needs during care transitions.

### Transitions within the Ambulatory Setting

#### *Pharmacist Services*

Patients commonly move from one health care practitioner to another during the medical management of chronic disease states. These frequent transitions increase the opportunity for adverse drug events and medication errors. In ambulatory care, several studies have shown improved clinical and economic outcomes for many chronic disease states (including diabetes, asthma, hypertension, heart failure, and hyperlipidemia) associated with ambulatory pharmacist services.<sup>44-47</sup> The process of care transitions in the ambulatory setting, including the involvement of ambulatory pharmacists, has not been evaluated for quality or safety outcomes. As the patient-centered medical home model evolves and research in this area becomes available, the pharmacist's role in care

transitions across the ambulatory care setting will likely become more clearly defined. In general, successful ambulatory pharmacy models provide medication access services, patient counseling, medication reconciliation, medication therapy management, and/or disease state management.

#### *Process Indicators*

Because of a lack of published studies evaluating the process and outcomes associated with ambulatory care transitions, few process measures are endorsed or recommended by regulatory bodies or other organizations. Recently, the AHRQ published the *Care Coordination Measures Atlas*,<sup>11</sup> a comprehensive list of care coordination measures with a focus on ambulatory care. This document is intended for use by practitioners and researchers involved in quality improvement, demonstration projects, or research in the area of care coordination. The measures are organized by domain and perspective to facilitate the most appropriate measurement strategy. The document provides step-by-step guidance in identifying relevant measures. One measure that could be used to evaluate programs engaging a pharmacist in medication management during care transitions and care coordination is the resources and support for self-management (RSSM) measure. The RSSM evaluates the receipt of self-management support for chronic illness (modeled for diabetes) from the patient's or caregiver's perspective. This 17-item patient assessment includes questions related to facilitating patient transition across settings, medication access, and medication-related problems.<sup>11, 48</sup>

Another measurement of care coordination from the patient's or caregiver's perspective that could be used is the Primary Care Morbidity Hassles for Veterans with Chronic Illnesses. This measure evaluates the primary care physicians and health care system for veterans with chronic illnesses. The measure is a 16-item questionnaire about problems the patient has had with health care, several of which address the lack of information surrounding medication therapy and poor coordination between providers. If care coordination is improved in the ambulatory setting, hassles encountered by patients should be reduced. This measure has been validated in veterans with one or more chronic illnesses who are cared for in a single Veterans Affairs (VA) system.<sup>11, 49</sup>



## Role of the Patient in Transitions of Care

Although process indicators focusing on the patient's role in care transitions do not currently exist, the AHRQ provides excellent patient education resources aimed at preventing medication errors and encouraging safer medical care by promoting the patient's active participation in his or her own health care.<sup>50</sup> The patient, if able, should be actively involved in medication reconciliation, communication among care providers, therapeutic decision-making (pharmacologic or otherwise), and evaluation of the risk-benefit ratio of all tests and procedures. This participation can be enhanced by pharmacist-delivered education about medications and important questions to ask patients regarding their treatments, expectations, and follow-up. Patient advocates should be identified if the patient is unable to communicate because of language barriers or a medical condition. Further research may ultimately derive process indicators from data on primary medication adherence or assess the percentage of patients with a current medication list on admission.

## Conclusion and Future Directions

The results of several high-quality projects and clinical trials have shown that pharmacists can favorably affect care transitions, yet much remains to be examined. The primary pharmacist function that has been evaluated to date has been in the role of medication histories and medication reconciliation, ensuring, to some extent, the continuity of care. Future studies should further evaluate the pharmacist's role in transitions and either define areas especially suited to pharmacist services or identify patients who would benefit the most. Also important is the need to study the link between the quality of inpatient and outpatient documentation and its impact on the quality of ambulatory care, including factors and interventions that affect long-term ambulatory outcomes, such as the patient's ability to meet specific health goals. The main process indicator of pharmacist effectiveness has been the completion of chart-based medication reconciliation forms, but several additional process indicators may be used to measure the quality of pharmacist services, especially in transitions to and from acute care hospitals. Further studies should also propose and test process indicators for transitions within a single facility, between facilities, and among

ambulatory providers, perhaps as they pertain to the developing medical home model.

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