

By Marie Smith, David W. Bates, and Thomas S. Bodenheimer

ANALYSIS & COMMENTARY

Pharmacists Belong In Accountable Care Organizations And Integrated Care Teams

DOI: 10.1377/hlthaff.2013.0542
 HEALTH AFFAIRS 32,
 NO. 11 (2013): 1963–1970
 ©2013 Project HOPE—
 The People-to-People Health
 Foundation, Inc.

ABSTRACT Effective health care workforce development requires the adoption of team-based care delivery models, in which participating professionals practice at the full extent of their training in pursuit of care quality and cost goals. The proliferation of such new models as medical homes, accountable care organizations, and community-based care teams is creating new opportunities for pharmacists to assume roles and responsibilities commensurate with their capabilities. Some challenges to including pharmacists in team-based care delivery models, including the lack of payment mechanisms that explicitly provide for pharmacist services, have yet to be fully addressed by policy makers and others. Nevertheless, evolving models and strategies reveal a variety of ways to draw on pharmacists' expertise in such critical areas as medication management for high-risk patients. As Affordable Care Act provisions are implemented, health care workforce projections need to consider the growing number of pharmacists expected to play an increasing role in delivering primary care services.

Marie Smith (marie.smith@uconn.edu) is a professor of pharmacy practice and assistant dean of the School of Pharmacy, University of Connecticut, in Storrs.

David W. Bates is chief of the Division of General Medicine and chief quality officer at Brigham and Women's Hospital, in Boston, Massachusetts.

Thomas S. Bodenheimer is an adjunct professor of family and community medicine at the University of California, San Francisco.

Approximately thirty million newly insured people will soon gain access to medical care under provisions of the Affordable Care Act, placing increasing demands on the current primary care workforce. Most conversations about that workforce have addressed current and projected shortages of primary care physicians, nurse practitioners, and physician assistants.

Pharmacists can help meet the demand for some aspects of primary care and can contribute to the efficient and effective delivery of care. Thus, they should be included among the health professionals who are called on to mitigate the projected primary care provider shortage. A pharmacist's expertise in medication reconciliation, pharmacotherapy management and monitoring, and care coordination across multiple prescribers and care settings is complementary to the skills of other health care professionals.¹ In

addition, emerging care delivery and payment models—such as medical homes, accountable care organizations (ACOs), medical neighborhoods, and community-based care teams—will create new team-based responsibilities for pharmacists to fill.

More than 480 public and private ACOs are already in existence.² There is no consensus yet as to what structure of ACO will work best, and there is enormous variation across the organizations in terms of staff composition and roles. Few ACOs engage pharmacists to provide medication management services as a core element of the organization's work.

Perhaps this is because there are few payment models and a lack of provider status—that is, proper recognition as a provider of direct patient care services by federal, state, and private health plans—for pharmacists who provide medication management services. Another possible reason is the toleration of the status quo, including the

acceptance of preventable medication errors as mere accidents.

Nevertheless, we contend that it is a logical development to integrate pharmacists into health teams to achieve patient-specific and system-level goals across the care continuum—as evidenced by some innovative care delivery models discussed below.

Typically, pharmacist workforce projections have been based on pharmacists' traditional dispensing roles and the projected per capita consumption of pharmaceuticals. A Health Resources and Services Administration report on the pharmacist supply acknowledges that "if the role of pharmacists changes where pharmacists spend substantially more time providing patient care management services, then demand will be higher than projected."³ Indeed, with the implementation of new health care delivery models and medication management services, pharmacist workforce projections must incorporate scenarios in which pharmacists will increasingly be involved in nondispensing and direct patient care roles.

In this article we describe why current methods for determining pharmacist workforce needs are misaligned with care redesign broadly, and with the changing scenarios associated with emerging roles for pharmacists in innovative care delivery models in particular. We describe critical issues for the integration of pharmacists into interdisciplinary care teams in outpatient settings to address unmet medication management needs. We also outline elements of interdisciplinary team-based care and opportunities and challenges involved in pharmacist integration that need to be negotiated in innovative practices and health care organizations.

Unmet Medication Needs

Medications represent a cornerstone of the management of most chronic conditions. The appropriate and safe use of medications is associated with highly complex and challenging issues—medical, socioeconomic, behavioral, and organizational—that pose potential problems at the provider, clinician, and patient levels. In the primary care setting, approximately 75 percent of medication problems are related to clinician-influenced gaps in care, including inappropriate or ineffective prescribing, lack of care coordination, and inconsistent monitoring. Patient factors such as health beliefs, health illiteracy, past medication experiences, and nonadherence account for the remaining 25 percent of medication-related problems.⁴

The lack of systematic processes for medication reconciliation contribute to medication-

related care gaps. One study reported that 51 percent of primary care medication discrepancies resulted from medications that either the patient or the prescriber had discontinued, and 34 percent of discrepancies were differences between the patient's reported use of medication and the medication list in the electronic health record.⁴ Consumer surveys report that only 44 percent of Medicare beneficiaries always bring a current medication list to their doctors' appointments.⁵

Poor care coordination, especially when care transitions are involved, contributes to medication-related problems. Unintended medication discrepancies at hospital admission range from 30 percent to 70 percent.^{6,7} Poor communication at care transitions contributed to about 50 percent of all hospital-related medication errors and 20 percent of adverse drug events.⁸ Nearly 23 percent of patients discharged from hospitals have an adverse event, 72 percent of which are related to medications.^{9,10}

In a controlled trial, 51 percent of patients had at least one clinically important medication error during the first thirty days after hospital discharge. Approximately 13 percent of adverse drug events resulted in an emergency department visit or a rehospitalization.¹¹

Team-Based And Integrated Care

Kevin Grumbach and Thomas Bodenheimer¹² have recommended that primary care teams incorporate health care practitioners who have complementary skills to those of the physician, including pharmacists, to achieve quality improvement goals and improve physician productivity.

Primary care physicians are estimated to spend approximately 37 percent of their time on activities related to chronic care management, which often includes managing complex medication regimens.¹³ Typically, primary care providers do not have sufficient time to obtain, verify, or discuss extensive medication lists with a patient during a routine office visit. Derjung Tarn and coauthors reported that during an office visit, physicians spend an average of forty-nine seconds talking about a new prescription with the patient.¹⁴ The presumably up-to-date medication histories obtained in a busy primary care practice are often actually incomplete or inaccurate. These shortcomings make complete medication reconciliation unfeasible, which can contribute to inappropriate or unsafe medication decision making.⁴

When pharmacists are integrated into care teams, they develop sustained partnerships with patients and their families, as well as with other health care providers. These ongoing relation-

ships allow pharmacists to focus on patient-specific prescribing options, actual medication use at home, pharmacotherapy management and monitoring, and follow-up on the achievement of desired medication outcomes. In particular, pharmacists can work with high-risk patients, who use many health care services and therefore account for a large proportion of total health care costs.

Physicians often overrate the quality of the care they deliver and, as a result, may substantially underestimate the number of their patients who need more intense pharmacotherapy than they are receiving.¹⁵ It is plausible that clinical inertia and care delegation deficits could be minimized if the care team included pharmacists, who would concentrate on medication management and monitoring. Team-based pharmacists could focus on managing medication-related problems, preventing adverse drug events, and avoiding preventable medication-related hospitalizations and emergency department visits. In addition, pharmacists could help ensure optimal outcomes from drug therapy during care transitions.¹⁶

Sara Singer and coauthors have defined *integrated care* as “patient care that is coordinated across professionals, facilities, and support systems; continuous over time and between visits; tailored to the patients’ needs and preferences; and based on shared responsibility between patient and caregivers for optimizing health.”¹⁷ Integrated care supports person-centered and team-based care;¹⁸ its components are presented in Exhibit 1. Exhibit 2 describes the various levels of pharmacist collaboration in primary care models.

Medication Management Services

Pharmacist-provided comprehensive medication management services concentrate on the following four core elements of patient-centered medication use and safety: building a “gold standard” list of current prescribed and self-care medications; assessing each medication for appropriateness, efficacy, safety, and adherence (in that order) to achieve optimal therapy goals; developing a personal medication action plan, which includes an updated and reconciled medication list and medication education related to self-management goals; and documenting and communicating actionable medication management recommendations to patients and all of their health care providers.¹⁹

A medication management plan also includes the pharmacist’s recommendations about how to avoid medication errors and resolve inappropriate medication selection, omissions, duplications, subtherapeutic or excessive dosages, drug interactions, adverse events, adherence problems, health literacy challenges, and regimens that are costly for the patient or the health system. These recommendations are shared with clinicians before or during a patient’s appointment.

These pharmacist-provided medication management services are often provided outside of any prescription dispensing responsibilities. Thus, the pharmacists needed to provide the services are not counted in current projections of the pharmacist workforce.

Initial patient visits should be face-to-face meetings as the foundation to establish a trusted patient-provider relationship. On follow-up visits, pharmacists may find it helpful to communicate with established patients through a combination of individual visits, phone calls, and

EXHIBIT 1

Components Of Integrated Care

Component	Description
Multidisciplinary care team members (including patient)	Team members are available when needed and know what is happening with patients and their care plans; specialists and consultants communicate with primary care physicians
Reciprocal interdependency	Multidisciplinary team members, including patients and family members, engage in shared decision making and task execution; they know what alternative conclusions, reflecting the different perspectives of team members, are being considered
Handovers (receipt of information)	Practitioners work independently yet are dependent on critical information from other team members
Storage and retrieval of information	Team members have access to patients’ complete medical records, current medication lists, information about allergies, lab results, notes, procedures, and discharge instructions; fail-safe systems are in place to reduce errors and duplications
Coordinated outcomes	Patients’ goals and outcomes are coordinated within and across health team members, facilities, and community resources
Continuous outcomes	Patients’ progress toward meeting treatment goals is updated between primary care visits

SOURCE Adapted from National Patient Safety Foundation, *Order from Chaos* (see Note 18 in text).

EXHIBIT 2

Pharmacist Collaboration Levels In Primary Care Models

Level	Description
COORDINATED CARE	
1. Minimal collaboration	Pharmacists work in the pharmacy and have limited communication with the primary care office; communication is usually with office staff about prescription orders
2. Basic collaboration	Primary care providers use pharmacists as a drug information resource; communication is periodic and usually by phone, fax, or e-mail
CO-LOCATED CARE	
3. Basic on-site collaboration	Pharmacists work with the primary care office to access patients' electronic health records to review diagnoses, medication lists, lab results, notes; arrangement is typically part time; pharmacists may provide e-consultations to physicians without seeing or talking to patients
4. Close on-site collaboration	Pharmacists with direct patient care experience work as team members in the primary care practice; arrangement may be part time or full time; patients with complex medication needs are referred to pharmacists for medication management services; pharmacists have face-to-face appointments with patients
INTEGRATED CARE	
5. Partial collaboration	Pharmacists are embedded in primary care practices and meet with patients to manage medications between physician visits; pharmacists participate in daily huddles to review patients' needs and make medication management recommendations; pharmacists document patient encounters in patients' electronic health records
6. Full collaboration	The pharmacist's role is well defined for medication activities within the primary care practice work flow (reconciliation, medication management, and coordination or follow-up across multiple prescribers and pharmacies); practitioners routinely refer patients to pharmacists and do "warm handoffs" to pharmacists in the office; pharmacists and primary care physicians have established collaborative drug therapy management agreements

SOURCE Authors' analysis. **NOTE** A "warm handoff" occurs when a primary care provider arranges for a patient to see a pharmacist as part of or immediately after a primary care provider visit.

electronic consultations. The frequency and duration of the pharmacist-patient visit, whether in person or not, depends on the complexity of the patient's medication regimen, the number and type of identified medication-related problems, and the patient's progress toward meeting medication self-management and therapy goals.

It is our observation that the medication management initiatives with the greatest value are not isolated medication adherence or hospital discharge medication programs. Instead, the initiatives that have the most impact reestablish the patient-physician-pharmacist relationship as an ongoing and continuous one. The pharmacist meets with patients or family caregivers; is an integrated member of the practice's primary care team; and has access to multiple sources of medication information, including patient reports, electronic health records, discharge summaries, care transition reports, and pharmacy claims.^{4,20}

Pharmacists As Collaborative Medication Managers

Research has already documented multiple benefits when pharmacists provide medication management services in ACOs and integrated care teams. A team-based medication therapy management system developed in an integrated health system and tested at four innovative

Minnesota clinics demonstrated 11 percent less spending growth and improved average treatment goals by approximately 22 percent in diabetes patients, compared to sites that did not employ team-based care.²¹ Another study of more than 4,800 patients who received pharmacist-provided medication management services documented a 55 percent improvement in chronic conditions over a ten-year period, with an estimated cost savings of \$86 per encounter and high patient satisfaction scores.²²

When physicians collaborated with community pharmacists, a study of ambulatory patients taking multiple medications to treat chronic conditions showed that 50 percent of the medication-related recommendations made by a pharmacist resulted in a physician's changing or stopping the use of a medication.²³ In another study, of private insurance beneficiaries, the delivery of medication therapy management services by community pharmacists saved \$12 in total annual health expenditures for every dollar invested in those services.²⁴

Another study involved the use of a network of pharmacists by twenty physicians in five primary care sites to deliver comprehensive medication management services to Medicaid patients. There was a 28 percent improvement in patients' treatment goals, along with an estimated annual savings of \$1,123 per patient on medication claims and \$472 per patient on medical, hospital,

and emergency department expenses, compared to these costs in the year prior to the use of the pharmacists' medication management services.⁴

Models Of Pharmacist Integration And Revising The Work Flow

Many arrangements exist for the integration of pharmacists into primary care practices and work flows. In one model, the pharmacist is employed by the practice as a clinician staff member and provides medication management services by reviewing patients' medical records, meeting with patients, and providing medication coordination and monitoring for patients. This employed model may be appealing to large group practices or integrated delivery systems that can afford to hire pharmacists.

Another model "embeds" the pharmacist in a practice site, usually through a partnership between the practice and a hospital pharmacy or pharmacy school. The pharmacist provides medication management services in the primary care office or outpatient clinic (usually part time), and the arrangement may involve having a pharmacist train pharmacy students and residents in team-based care and medication management. An advantage of this embedded model is its affordability: The practice shares with its partner the responsibility for the pharmacist's compensation.

In a regional model, the pharmacist usually works in a health system or physician organization that serves several practices in a geographic area, and is focused on population health. The pharmacist develops and may deliver medication management services in the practices. A regional pharmacist can also be involved in educational programs, quality improvement services, and outcomes research.

Finally, in a shared resource network model, pharmacists are contracted by a provider group, ACO, or payer to provide medication management services for specific patients. A contracted pharmacist may meet with a patient in person in the medical home, a community pharmacy, or the patient's home or via an interactive video connection, depending on the complexity of the patient's drug regimen and the intensity of pharmacist services required. Pharmacist networks are attractive to smaller physician practices, ACOs, community-based health teams, and payers because the network assumes administrative responsibilities such as credentialing and selecting pharmacists, scheduling patient-pharmacist visits, coordinating the exchange of patient information, sending pharmacists' reports to providers, and billing for pharmacist services.^{4,25}

Various work-flow patterns can be adopted to incorporate pharmacists into a practice in a direct patient care role. For example, preappointment planning allows a pharmacist to review the patient's medical chart or meet with the patient so that the pharmacist can share medication recommendations with the primary care provider before the patient's primary care appointment.

A coincident referral—sometimes called a "warm handoff"—occurs when a pharmacist meets with the patient during or at the conclusion of a primary care appointment and makes care plan recommendations to the referring provider. A follow-up referral occurs when a provider refers the patient to the pharmacist for a separate, follow-up visit subsequent to the patient's primary care appointment. In that case, care plan recommendations are sent to the referring primary care provider between the patient's primary care appointments.

Targeted consultations can be initiated by the provider or pharmacist for selected patients who are identified as needing focused medication management services when care transitions occur or based on the patient's failure to achieve therapeutic goals, use of high-risk medications, adverse events, complex medication regimens, or poor adherence.

Challenges To The Integration Of Pharmacists

PRACTICE-LEVEL CONSIDERATIONS Practice-level factors that should be considered when adding a pharmacist to the patient care team are identified in Exhibit 3. A practice should reexamine its existing work flow carefully when determining the best ways to use qualified pharmacists to improve practice efficiencies, complement the skills of other health care practitioners, and improve the practice's ability to meet care quality or performance measures.

MEDICATION MANAGEMENT MEASURES Some Healthcare Effectiveness Data and Information Set, medical home, and ACO measures are associated with medication use or adherence. However, there is a critical need for care quality measures to identify and track gaps in medication use and safety.

Medication management measures could track pharmacist-provided comprehensive medication reviews and medication action plans, drug therapy problems that were identified and resolved, medication recommendation acceptance rates, achievement of individual or population medication treatment goals, or impact on total health care cost savings. Such measures gain importance in shared-savings arrangements that will be aligned with the impact of

EXHIBIT 3

Practice-Level Considerations For Pharmacist Integration

Practice element	Pharmacist integration consideration
Pharmacist selection	Pharmacists need clinical training and experience in a direct patient care role; valid credentials; interdisciplinary teamwork skills
Patient eligibility criteria	Integration has greatest value for patients with multiple chronic conditions, medication regimen complexity, failure to achieve treatment goals, at high risk for adverse events, propensity for high use (hospital admissions and readmissions, emergency department visits), and multiple care transitions
Patient identification	Patients may be identified on the basis of provider-patient relationships or predetermined criteria according to disease registries and population health databases, quality improvement initiatives, or performance target programs
Medication management needs assessment	Practice leaders and pharmacists review accreditation reports; meeting minutes of standing committees such as those on pharmacy and therapeutics, quality improvement, and patient education; ongoing or planned quality improvement or meaningful-use initiatives; performance improvement programs; and practice work flows for new or renewed prescriptions, medication reconciliation, medication monitoring, and communications with pharmacies
Work-flow redesign	Practice leaders and pharmacists evaluate clinical work flow and processes to integrate pharmacists into them to perform medication reconciliation, medication therapy management, medication coordination and monitoring, prescription renewal determinations, and prior authorizations
Pharmacist orientation and workspace	Administrative managers conduct personnel orientation, review practice policies and procedures, and set up a workspace for pharmacists and private area for patient visits
Pharmacist-patient scheduling	Practice staff make pharmacist appointments, reminder calls, and no-show follow-up calls
Health information technology	Practice staff conduct training in the use of EHRs, assure that pharmacists' notes and recommendations appear in EHRs, and generate practice population reports
Billing	Practice leaders and administrative staff determine coding requirements to ensure accurate billing for medication management services with Medicare, Medicaid, commercial health plans, and employer programs

SOURCE Authors' analysis. NOTE EHR is electronic health record.

pharmacist-provided medication management services on quality improvement or cost savings.

PAYMENT REFORM Payment reform at the policy and practice levels, ranging from minor tinkering to major restructuring, could support a sustainable role for pharmacists in ACOs and integrated care teams. Payment reform models—such as global payments, care management fees, performance incentives, and shared savings—should incorporate medication management services as part of team-based care models. Some of the federal- and state-level policy reforms for new payment models in ACOs, integrated networks, or primary care medical homes can be a catalyst for the inclusion of medication management services provided by pharmacists.

Navigating Current Challenges

Several elements of payment reform remain to be worked out at the health plan or practice level. One important element to be negotiated is how to include payment models for medication management services. Moreover, the inclusion of medication management services in payment reform models may initiate meaningful discussions that link appropriate and safe medication use to overall total health care costs. We offer four strategies to navigate current challenges.

FEE-FOR-SERVICE Medical payment models are shifting away from fee-for-service. Nonetheless, it is still a viable model for pharmacist-provided medication management services when there are no historical data to use in constructing risk-based payment models.

In 2008 the Pharmacist Services Technical Advisory Coalition established three *Current Procedural Terminology* (CPT) codes—99605, 99606, and 99607—and guidelines for pharmacist-provided medication therapy management services.²⁶ These services can be initiated at the request of the patient, caregiver, payer, pharmacist, or other health care provider. Greater use of these pharmacist CPT codes could facilitate payment for pharmacist-provided medication management services.

GLOBAL PAYMENTS AND CARE COORDINATION

FEES A basic capitation or global budgeting method is payment per patient in the practice per month. This approach gives the practice incentives to delegate care from physicians to other, less expensive health care professional team members whenever appropriate for selected patients.

Medical homes, ACOs, and integrated networks should be motivated to refer patients with complex drug regimens, high-cost health care, failure to achieve desired clinical outcomes, high

When pharmacists manage medication-related care for time-intensive patients, physicians have time for additional patient visits.

risk of adverse events, poor adherence, or drug-related health literacy issues to a pharmacist for comprehensive medication management services. The pharmacist would be compensated from the practice's per member per month payments.

PERFORMANCE TARGETS AND INCENTIVES

Today many practices receive sizable performance-target incentive payments, which could be a funding source for pharmacist services. In particular, practices that have financial incentives to care for patients with chronic conditions may employ or contract with pharmacists for medication management services. Pharmacists can also perform medication-related care coordination and quality improvement functions that physicians lack the time to accomplish.

In addition, pharmacists can help the practice reach performance targets or shared-savings goals offered by health plans or employer groups to reduce unnecessary emergency department visits, specialty consultations, and hospitalizations and to improve patient care experience scores.

ADDITIONAL PATIENT VISITS In ACOs and integrated care networks, a pharmacist may be able to manage chronic medication therapies for selected patients in a more cost-effective manner than is the current norm. Some considerations for patient selection, enrollment processes, and intervention methods have been previously described.⁴

When pharmacists manage medication-related care for time-intensive patients, physicians have time for additional patient visits. Pharmacists may focus on patients who require more time because they have complex drug regimens; use therapies for anticoagulation, pain management, or behavioral health that need to be closely monitored; or need medication regimen coordination with community or hospital

pharmacists, medical specialists, or home health nurses.

Creators of new models could develop a business case for any of the payment reform options discussed here, or a combination of those options, to reimburse pharmacist services from pay-for-performance revenues, care coordination fees, shared savings, or fees for additional physician visits made possible by the use of a pharmacist.

Policy And Workforce Considerations

Policy makers need to consider establishing provider status for pharmacists in Medicare Part B, as well as in some Medicaid programs and commercial health plans. Without such status, some physicians who want pharmacists as partners in managing medication use are challenged by the lack of an explicit mechanism to pay for these pharmacists' services under evolving care models.

An increasing number of health plans cover medications under a pharmacy benefit with a focus on drug coverage and utilization. As a result, there is a corresponding need to cover medication management services under a medical benefit (that is, services to address drug therapy gaps; clinical inertia; medication safety problems; and improved patient outcomes).

Medicare Part D covers medication therapy management for certain patients. However, the program is limited and encompasses only a small set of the services that pharmacists are capable of providing. Furthermore, most of these services are provided by health plans (payers) rather than by pharmacists who have trusted relationships with patients and physicians. The Centers for Medicare and Medicaid Services and private health plans should reevaluate medication management services as a medical benefit, instead of viewing those services only as part of a pharmacy benefit.

Policy makers need to implement quality improvement metrics that include medication reconciliation processes, medication management and monitoring, and medication coordination across multiple prescribers and pharmacies. The unique and complementary skills of pharmacists in team-based care models still need to be defined and incorporated into metrics, as well as valued in performance incentives and shared-savings arrangements. As pharmacists are integrated more broadly into ACOs and integrated care teams, such metrics will also be essential to the ongoing evaluations of their contributions to care quality improvement and cost savings.

Conclusion

With the implementation of new health care delivery models and medication management services, future pharmacist workforce projections must incorporate scenarios in which pharmacists would increasingly be involved in non-dispensing and direct patient care roles. These projections should include the number of phar-

macists who would practice in clinical sites without any traditional prescription dispensing responsibilities. Calculations of pharmacist demand must consider evolving care delivery models, team-based care opportunities, trends in rates of chronic diseases, and the breadth of medication management services provided. ■

NOTES

- 1** Smith MA. Pharmacists and the primary care workforce. *Ann Pharmacother.* 2012;46(11):1568–71.
- 2** Petersen M, Muhlestein D, Gardner P. Growth and dispersion of accountable care organizations: August 2013 update [Internet]. Salt Lake City (UT): Leavitt Partners; [cited 2013 Sep 27]. Available from <http://leavittpartners.com/wp-content/uploads/2013/08/Growth-and-Dispersion-of-ACOs-August-2013.pdf>
- 3** Health Resources and Services Administration. The adequacy of pharmacist supply: 2004 to 2030 [Internet]. Rockville (MD): HRSA; 2008 Dec [cited 2013 Sep 27]. Available from: <http://bhpr.hrsa.gov/healthworkforce/reports/pharmsupply20042030.pdf>
- 4** Smith M, Giuliano MR, Starkowski MP. In Connecticut: improving patient medication management in primary care. *Health Aff (Millwood).* 2011;30(4):646–54.
- 5** Center for Advancing Health. Snapshot of people's engagement in their health care [Internet]. Washington (DC): CFAH; 2010 [cited 2013 Sep 27]. Available from http://www.cfah.org/file/CFAH_Snapshot_2010_Full.pdf
- 6** Cornish PL, Knowles SR, Marchesano R, Tam V, Shadowitz S, Juurlink DN, et al. Unintended medication discrepancies at the time of hospital admission. *Arch Intern Med.* 2005;165(4):424–9.
- 7** Gleason KM, Groszelski JM, Sullivan C, Rooney D, Barnard C, Noskin G. Reconciliation of discrepancies in medication histories and admission orders of newly hospitalized patients. *Am J Health Syst Pharm.* 2004;61(16):1689–95.
- 8** Rozich JD, Howard RJ, Justeson JM, Macken PD, Lindsay ME, Resar RK. Standardization as a mechanism to improve safety in health care. *Jt Comm J Qual Saf.* 2004;30(1):5–14.
- 9** Forster AJ, Murff HJ, Peterson JF, Gandhi TK, Bates DW. The incidence and severity of adverse events affecting patients after discharge from the hospital. *Ann Intern Med.* 2003;138(3):161–7.
- 10** Forster AJ, Clark HD, Menard A, Dupuis N, Chernish R, Chandok N, et al. Adverse events among medical patients after discharge from hospital. *CMAJ.* 2004;170:345–9.
- 11** Kripalani S, Roumie CL, Dalal AK, Cawthon C, Businger A, Eden SK, et al. Effect of a pharmacist intervention on clinically important medication errors after hospital discharge: a randomized trial. *Ann Intern Med.* 2012;157(1):1–10.
- 12** Grumbach K, Bodenheimer T. Can health care teams improve primary care practice? *JAMA* 2004;291(10):1246–51.
- 13** Ghorob A, Bodenheimer T. Sharing the care to improve access to primary care. *N Engl J Med.* 2012;366(21):1955–7.
- 14** Tarn DM, Paterniti DA, Kravitz RL, Heritage J, Liu H, Kim S, et al. How much time does it take to prescribe a new medication? *Patient Educ Couns.* 2008;72(2):311–9.
- 15** Phillips LS, Branch WT, Cook CB, Doyle JP, El-Kebbi IM, Gallina DL, et al. Clinical inertia. *Ann Intern Med.* 2001;135(9):825–34.
- 16** American College of Clinical PharmacyHume AL, Kirwin J, Bieber HL, Couchenour RL, Hall DL, et al. Improving care transitions: current practice and future opportunities for pharmacists. *Pharmacootherapy.* 2012;32(11):e326–37.
- 17** Singer SJ, Burgers J, Friedberg M, Rosenthal MB, Leape L, Schneider E. Defining and measuring integrated patient care: promoting the next frontier in health care delivery. *Med Care Res Rev.* 2011;68(1):113.
- 18** National Patient Safety Foundation. Order from chaos: accelerating care integration. Report of the Lucian Leape Institute Roundtable on Care Integration [Internet]. Boston (MA): NPSF; 2012 [cited 2013 Sep 27]. Available from: http://www.npsf.org/wp-content/uploads/2012/10/Order_from_Chaos_final_web.pdf
- 19** American Pharmacists Association, National Association of Chain Drug Stores Foundation. Medication therapy management in pharmacy practice: core elements of an MTM service model (version 2.0). *J Am Pharm Assoc.* 2008;48(3):344.
- 20** Smith M, Bates DW, Bodenheimer T, Cleary PD. Why pharmacists belong in the medical home. *Health Aff (Millwood).* 2010;29(5):906–13.
- 21** Isets BJ, Brummel AR, de Oliveira DR, Moen DW. Managing drug-related morbidity and mortality in the patient-centered medical home. *Med Care.* 2012;50(11):997–1001.
- 22** Ramalho de Oliveira D, Brummel AR, Miller DB. Medication therapy management: 10 years of experience in a large integrated health care system. *J Manag Care Pharm.* 2010;16(3):185–95.
- 23** Doucette WR, McDonough RP, Klepser D, McCarthy R. Comprehensive medication therapy management: identifying and resolving drug-related issues in a community pharmacy. *Clin Ther.* 2005;27(7):1104–11.
- 24** Isets BJ, Schondelmeyer SW, Artz MB, Lenarz LA, Heaton AH, Wadd WB, et al. Clinical and economic outcomes of medication therapy management services: the Minnesota experience. *J Am Pharm Assoc (2003).* 2008;48(2):203–11, 3 p following 211.
- 25** Highsmith N, Berenson J (Center for Health Care Strategies, Hamilton, NJ). Driving value in Medicaid primary care: the role of shared support networks for physician practices [Internet]. New York (NY): Commonwealth Fund; 2011 Mar [cited 2013 Sep 27]. (Commonwealth Fund Pub. No. 1484). Available from: http://www.commonwealthfund.org/~media/Files/Publications/Fund%20Report/2011/Mar/1484_Highsmith_driving_value_Medicaid_primary_care.pdf
- 26** Pharmacist Services Technical Advisory Coalition. PSTAC: professional services, medication therapy management services, CPT billing codes [Internet]. Alexandria (VA): PSTAC; 2010 [cited 2013 May 13]. Available from: <http://www.pstac.org/aboutus/profsvc.html>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.