

Development and economic evaluation of a pharmacist-provided chronic care management service in an ambulatory care geriatrics clinic

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Purpose. The implementation and delivery of a pharmacist-led chronic care management (CCM) service in a geriatric primary care clinic are described.

Methods. A CCM service was provided March 1 through December 31, 2016, at the University of Colorado Hospital Seniors Clinic (“Seniors Clinic”). The electronic health record (EHR) team for the University of Colorado Health system developed a patient registry through EPIC Healthy Planet (Epic Systems Corp., Verona, WI) to identify patients at the Seniors Clinic eligible for CCM services. The EHR team constructed a note type and documentation template within the EHR to ensure documentation of all necessary components for billing and to allow individual clinical staff to document the time spent providing CCM care.

Results. Overall, 36 elderly patients enrolled in the pharmacist-provided CCM service over the 10 months. Clinical pharmacists spent a total of 156–849 minutes per month providing CCM services, with a mean outreach time of 45.4 minutes per patient. The clinical pharmacists submitted 95 claims, and all but 5 were paid. The total amount reimbursed from the health plans during the 10 months was \$2,775.02.

Conclusion. Medicare patients were successfully enrolled in a CCM service in a geriatrics primary care clinic led by clinical pharmacists and medical providers. The CCM services were more time-consuming than the allotted 20 minutes per patient per month with the CCM Current Procedural Terminology code used during this study.

Keywords: chronic care management, delivery of healthcare, healthcare financing, medication therapy management, pharmaceutical services, pharmacists

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One in 4 Americans has multiple chronic medical conditions.¹ The number with multiple chronic medical conditions increases to 3 out of 4 Americans for patients age 65 years or older.² The increased prevalence of chronic medical conditions is important to address, considering the rapidly growing older adult population and the increasing life expectancy due to advances in healthcare. The U.S. population of older adults is expected to almost double, from 43.1 mil-

lion in 2012, to 83.7 million in 2050.³ Taken together, healthcare costs are expected to continue to rise. Among Medicare fee-for-service beneficiaries, adults with multiple chronic medical conditions account for 93% of Medicare spending.⁴ In addition, adults with multiple chronic medical conditions often take more medications and have increased prescription costs than do adults without these conditions.

On January 1, 2015, Medicare initiated nonvisit-based payment for

chronic care management (CCM). This fee-for-service program is intended to encourage ambulatory care practices to utilize value-based care delivery and to compensate for coordinated healthcare provided outside of a patient visit. Patients with 2 or more chronic medical conditions and a life expectancy of at least 12 months are eligible.⁵ The Centers for Medicare and Medicaid Services (CMS) does not provide a definitive list of “chronic conditions” for CCM as it intends for these services to be broadly available. Eligible services include non-face-to-face care coordination, including medication management, receipt of recommended preventive services, monitoring conditions, and providing education.⁵ In order to be eligible for reimbursement each month, the care must include at least 20 minutes of clinical staff time directed by the physician or other qualified healthcare professional under the provision of a comprehensive care plan. Since many of the services will be provided by ancillary clinical staff, they can be billed “incident-to” the Medicare-approved provider using Current Procedural Terminology (CPT) code 99490.⁶ Although physicians and non-physician practitioners are allowed to bill for CCM services, only 1 physician or nonphysician practitioner may be paid for the CCM service in a calendar month. In addition, the CCM CPT code (99490) cannot be billed during the same service period as transitional care management (99495 or 99496), home healthcare supervision/hospice care supervision (G0181 or G0182), or certain end-stage renal disease services (90951–90970).⁵

Clinical pharmacists are eligible clinical staff who can bill “incident-to” a Medicare-approved provider for CCM services. This is an opportunity to improve care by integrating a clinical pharmacist into the ongoing team-based care process. Clinical pharmacists can play an important role in providing high-quality care in the primary care setting and can help improve healthcare metrics.^{7,8} Since

KEY POINTS

- A partnership between primary care providers and pharmacists created a successful chronic care management (CCM) enrollment within a geriatric primary care clinic.
- The most recent CCM Current Procedural Terminology codes will increase reimbursement and will help make this care delivery model feasible for ambulatory care clinics.
- CCM is a billable service that may offset a clinical pharmacist's salary in an ambulatory care clinic.

2004, pharmacists have been providing medication therapy management services, including comprehensive medication therapy reviews, disease management, and anticoagulation management in the ambulatory care setting.⁹ Currently, clinical pharmacists are not considered providers under the Social Security Act and therefore cannot be directly reimbursed through Medicare Part B for medication management services provided for Medicare patients in primary care clinics.

In addition, there is a lack of published data on the implementation and sustainability of CCM services as well as evidence to support clinical pharmacists offsetting their cost in the primary care setting.¹⁰ The process of incorporating a clinical pharmacist into a CCM service and the amount of revenue generated by the clinical pharmacist have not been published. At the University of Colorado Hospital Seniors Clinic, developing the infrastructure to seek Medicare reimbursement for a CCM program was identified as an opportunity to generate revenue through embedded clinical pharmacists actively provid-

ing CCM services. The ultimate goals of this service were to improve care quality and delivery with the potential to expand clinical pharmacist time. Therefore, the objectives of this study were to describe the development and delivery of the clinical pharmacist-provided CCM service in an academic, geriatrics ambulatory care clinic and to evaluate the financial outcomes of the CCM service.

Methods

Setting. A CCM service was provided March 1 through December 31, 2016, at the University of Colorado Hospital Seniors Clinic (“Seniors Clinic”). The Seniors Clinic is a National Committee for Quality Assurance level 3 patient-centered medical home that provides primary care services for approximately 2,700 adults age 65 years or older who are affiliated with the clinic. The average age of Seniors Clinic patients is 83 years; 63% are female and 69% are Caucasian. The clinic has had onsite clinical pharmacy services for nearly 20 years, including anticoagulation management, polypharmacy consultation, disease management, and transitions-of-care medication management. The clinic has a collaborative multidisciplinary care delivery model that includes 1 full-time social worker, 2 front-desk staff, 3 medical assistants, 2 full-time registered nurses, 2 clinical pharmacists (1 full-time equivalent), 2 full-time geriatrics certified nurse practitioners, and 11 full- and part-time geriatrics physicians. The clinical pharmacists agreed to provide CCM services part-time in addition to their previously agreed upon service commitments.

Development and billing of CCM services. The electronic health record (EHR) team for the University of Colorado Health system developed a patient registry, called “Chronic Care Management,” through EPIC Healthy Planet (Epic Systems Corp., Verona, WI) to identify patients at the Seniors Clinic eligible for CCM services. Two CCM registries were developed: 1 to identify patients

who qualified for CCM services, titled “Patients eligible for CCM,” and the other to identify patients who were enrolled in CCM, titled “Currently enrolled CCM patients.” The “Currently enrolled CCM patients” registry could be queried to identify new patients enrolled. It also identified patients who were eligible for CCM services, such as patients with uncontrolled chronic medical conditions (e.g., diabetes mellitus, hypertension). The “Currently enrolled CCM” patient registry included the patient’s name, primary care provider (PCP), monthly minutes of CCM services provided thus far, and the next PCP appointment. Furthermore, the clinical pharmacists would only use the “Patients eligible for CCM” when they were prospectively identifying patients for enrollment. The EHR team constructed a note type and documentation template within the EHR to ensure documentation of all necessary components for billing and to allow individual clinical staff to document the time spent providing CCM care. Once the documented time was entered into the CCM note, it automatically populated in the registry for the clinical pharmacist to view. The clinical pharmacists billed the CCM CPT code “incident to” the patient’s provider for patients who had reached at least 20 minutes of care on the last business day of each month. On the first day of each month, the documented time provided for each CCM patient returned to 0 in the registry. At the Seniors Clinic, clinical pharmacists were the only clinical staff providing and billing for CCM services during the study period.

Patient enrollment. This study was approved for exemption by the Colorado Multiple Institutional Review Board. At the time of this study, Medicare required a written patient consent for CCM services and recommended it be completed during a face-to-face visit with the billing practitioner at an annual wellness visit, initial preventive physical exam, or other visit. A consent form was creat-

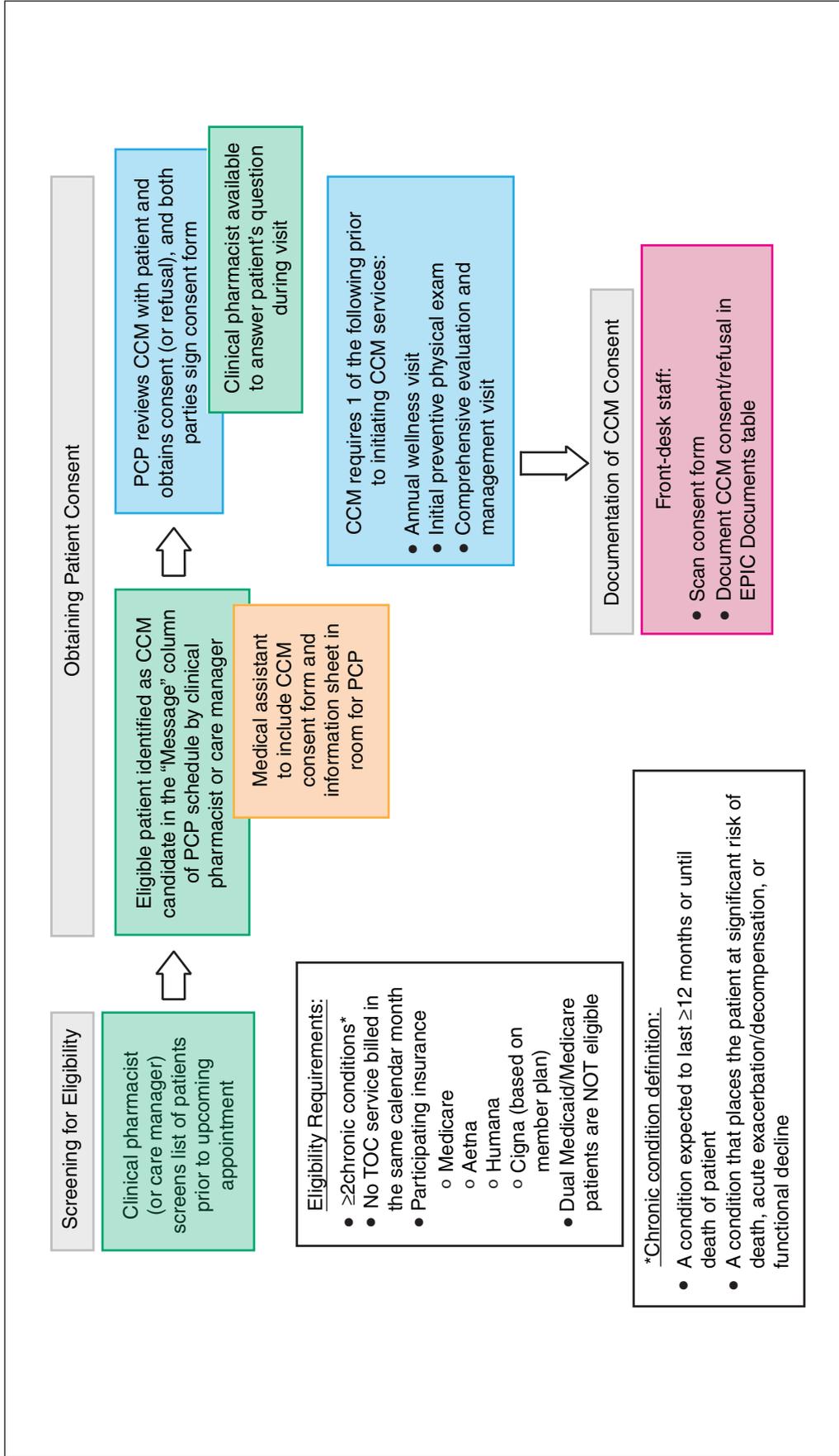
ed for the Seniors Clinic and placed in the exam rooms for providers to use during their clinic visits. Clinical pharmacists identified and worked collaboratively with 2 provider champions, a physician and nurse practitioner, within the clinic to develop a workflow for the CCM enrollment process (Figure 1). The provider champions were largely responsible for identifying and enrolling eligible patients. Patients were primarily identified during the patient appointment, particularly when the provider identified a medication need or an opportunity to optimize medication management; however, some patients were prospectively targeted by the clinical pharmacist, per provider request, based on an elevated glycosylated hemoglobin (HbA_{1c}) value, typically greater than 8.5%. For targeted patients, clinical pharmacists would identify patients with uncontrolled diabetes mellitus and send an electronic message to the provider suggesting enrolling the patient into the CCM program for diabetes mellitus management. Regardless of the reason for enrollment, once the patient agreed to be enrolled and the consent form was signed, the clinical pharmacist collaborated with the provider and eligible patient to determine appropriate follow-up for delivery of CCM care by the clinical pharmacist. When possible, the clinical pharmacist would visit the patient in person during the provider visit to further explain details of CCM. If the clinical pharmacist was unable to see the patient during the appointment, the patient was contacted via telephone to have CCM services further explained. Per Medicare rules, time spent on the day of consent could not be counted toward the monthly minimum of 20 minutes of care.

Care delivery by the clinical pharmacist. Initial patient outreach was made at least 1 day after the physician visit. Generally, the initial encounter included a complete medication review. During this review, the clinical pharmacist would assess medication appropriateness,

drug–drug and drug–disease interactions, medication cost, and medication adherence. After completion of the review, recommendations were discussed with the provider in person or through the EHR. After the initial review, the clinical pharmacist typically focused on comanaging 1 or 2 chronic conditions each month (e.g., diabetes mellitus, hypertension, insomnia, neuropathy, chronic pain). The clinical pharmacist would review the patient’s EHR and call the patient to discuss the specific condition and associated medications. During these phone calls, subjective and objective information was obtained in order for the pharmacist to make therapeutic recommendations. The clinical pharmacist would also discuss potential therapeutic changes with the patient to see if he or she had a preference based on monitoring, cost, and adverse effects. Follow-up was determined based on the recommendation and changes in medication therapy. Patients who were enrolled for medication management, such as those with diabetes mellitus and hypertension, would receive a phone call at least monthly or until their disease was controlled. For patients with diabetes mellitus, most patients were followed for at least 3 months, with at least 1 encounter per month, to ensure their HbA_{1c} value and blood glucose levels were controlled before signing off of diabetes management; however, there were some patients that requested a 1-time medication review, and they were not contacted again.

When documenting CCM services, the clinical pharmacist tracked the time spent during the patient’s EHR review, during the phone call, and the time required for clinical documentation. Once entered into the clinical note, the time populated the registry. If additional patient outreach attempts were made during the calendar month, the documented time from each clinical note would accumulate. The clinical pharmacist also documented the care plan with recommendations and routed

Figure 1. Chronic care management (CCM) enrollment workflow. PCP = primary care provider, TOC = transitions of care.



the clinical notes via the EHR to the provider for review. The provider communicated back to the pharmacist approval of the care plan/recommendations or provided an alternative care plan. Furthermore, some patients preferred direct contact through My Health Connection, an electronic email portal that allows patients and/or caregivers to communicate with their providers. If this was the patient's preference, the clinical pharmacist would ask the provider to send a message via My Health Connection in the routing comment.

Results

The CCM service at the Seniors Clinic was initiated on March 1, 2016, and completed on December 31, 2016, when the health system commenced a different Medicare payment model (Comprehensive Primary Care Plus) that prevented reimbursement through CCM payment models. Overall, 36 elderly patients enrolled in the pharmacist-provided CCM service over the 10 months. Of the 36 patients, 1 patient died after 2 months from a stroke, 1 patient transitioned to a nursing home, and 1 patient unenrolled. The patients took a mean of 14 medications and had a mean of 5.8 chronic

medical conditions (Table 1). CCM services provided during this time included diabetes management, hypertension management, pain management, medication-related issues, and follow-up related to insomnia.

Clinical pharmacists spent a total of 156–849 minutes per month providing CCM services, with a mean outreach time of 45.4 minutes per patient (Table 2). The clinical pharmacists submitted 95 claims using the CCM CPT code 99490; 90 claims

were reimbursed, and 5 claims went unpaid, 1 due to the patient having an active transitional care management episode during the same month. It is unclear why the remaining 4 claims were not reimbursed. Each claim submitted averaged \$30.83 per patient (range, \$21.15–\$107.90), depending on the patient's plan. Reimbursement was received from the following health plans/Medicare supplements: Aetna, Anthem, Colorado Medicaid, Rocky Mountain HMO, Tricare, United

Table 1. Characteristics of Enrolled Patients (*n* = 36)

Characteristic	Value
Female, no. (%)	22 (61.1)
Mean ± S.D. age, yr	80 ± 6
Mean no. medications per patient (range)	14 (7–24)
Mean no. chronic conditions per patient (range)	5.8 (3–9)
Targeted conditions, no. (%)	
Diabetes mellitus	14 (38.9)
Hypertension	4 (11.1)
Insomnia	2 (5.6)
Medication review	9 (25.0)
Pain	2 (5.6)
Other	5 (13.9)

Table 2. Chronic Care Management Billing and Reimbursement, by Month

Month	No. Patients Evaluated	Total Care Time, min	Mean Time Spent per Patient, min	No. Patients Reimbursed	Mean Amount Reimbursed per Patient, \$
March	6	169	28	6	28.05
April	6	242	40	4	26.88
May	5	156	31	4	46.88
June	11	517	47	11	26.03
July	7	321	46	7	26.20
August	9	409	45	8	36.21
September	12	629	52	12	26.33
October	12	567	47	12	32.66
November	15	849	57	15	31.51
December	12 ^a	727	61	11	25.99
Mean over 10 mo	9.2	458.6	45.4	9	30.83

^aOne patient was not billed/reimbursed due to an active transitional care management episode.

Healthcare, and other commercial plans. In addition, no patients were required by their health plan to pay a copayment for the services, though it was allowed under Medicare rules. The total amount reimbursed from the health plans during the 10 months was \$2,775.02.

Discussion

Clinical pharmacists, in a partnership with a physician and nurse practitioner, successfully established a CCM service within a geriatrics primary care clinic. CCM services have the potential to generate fee-for-service revenue to help pay for clinical pharmacy services or other ancillary staff within an ambulatory care clinic. Thus, resources were invested in establishing and creating the CCM service: a documentation system, a billing system, clinical note templates, and a consent form.

Using the CCM process, clinical pharmacists generated revenue by submitting electronic claims for enrolled patients each month. However, the time spent for each patient was over double that of the 20 required minutes. The clinical pharmacists were residency trained, had been a part of the clinic for at least 1 year, and were efficient in their positions. However, they did not typically know each patient individually, which may have caused some visits to be extended while explaining the new services and treatment relationship. In addition, the patients approached for enrollment by the clinic providers were ones who needed consistent follow-up and may have been more complex than the average Medicare patient. This is supported by the patients' characteristics: average age of 80 years, multiple medications, and multiple chronic diseases. By definition, the Seniors Clinic provides care to older, complicated adult patients.

One limitation of the study is that the clinical pharmacists had other daily tasks to complete, such as transitions-of-care comprehensive medication reviews, diabetes man-

agement, provider drug information questions, and patient education visits. If the clinical pharmacists focused exclusively on delivering CCM services, they would be able to outreach an estimated 53 patients each 40-hour workweek, or 212 patients per month. The estimated reimbursement from this care delivery would be \$6,535.96 each month ($\30.83×212 patients) or \$78,431.52 each year ($\$6,535.96 \times 12$ months). In 2015, the average hourly rate for a clinical pharmacist was \$61, making an estimated \$126,000 per year.¹¹

The maximum estimated annual reimbursement for the CCM services outlined here is not enough to support the salary of a pharmacist. In January 2017, CMS added 2 additional CCM CPT codes (99487 and 99489) for claims involving complex patients. The CPT code 99487 requires the same elements as the CPT code 99490 but is specifically intended for a combined clinical staff time of 60 minutes per month, resulting in an estimated reimbursement of \$93. The CPT code 99489 can be submitted for each additional 30 minutes spent by the clinical staff after billing CPT code 99487 each month, with an estimated reimbursement of \$47 for each additional 30 minutes. With these new codes, expected reimbursement should be greater than what we observed during our study. This increased reimbursement might make this care delivery model feasible. Future studies with the new codes are needed to assess reimbursement opportunities.

Due to the location of the clinic within a health system, the reimbursement was lower. Recent national reimbursement information shows the average payment rates for CPT code 99490 are \$42.71 for nonfacility sites and \$32.66 for facility sites, which are comparable to what we found.⁵ Therefore, reimbursement generated would be approximately 30% higher at a nonfacility site. Clarification of place of service is essential in designating whether the services are being billed under the Medicare Physician

Fee Schedule facility or nonfacility payment rate. Examples for the use of a facility rate include the inpatient and outpatient hospital, skilled nursing facility, and community mental health center, whereas nonfacility rates include pharmacy, office, home, assisted living facility, and school. In our case, the Seniors Clinic is located within an outpatient hospital setting; thus we billed under a facility fee.¹²

Finally, the consent process for CCM changed in 2017. Previously, providers needed to obtain written consent from patients before enrolling them and submitting claims for CCM services, which was a limitation as it decreased enrollment in this CCM service. Currently, the provider can obtain written or oral consent from the patient. This will likely help increase enrollment into CCM as some providers and patients found the written consent process to be too time intensive and occasionally led to a complex discussion.

Conclusion

Medicare patients were successfully enrolled in a CCM service in a geriatrics primary care clinic led by clinical pharmacists and medical providers. The CCM services were more time-consuming than the allotted 20 minutes per patient per month with the CCM CPT code used during this study.

Disclosures

The authors have declared no potential conflicts of interest.

References

1. U.S. Department of Health and Human Services. Multiple chronic conditions—a strategic framework: optimum health and quality of life for individuals with multiple chronic conditions (2010). www.hhs.gov/sites/default/files/ash/initiatives/mcc/mcc_framework.pdf (accessed 2018 Jun 18).
2. Gerteis J, Izrael D, Deitz D et al. Multiple chronic conditions chartbook: 2010 Medical Expenditure Panel survey data. AHRQ publications no. Q14-0038. www.ahrq.gov/sites/default/files/wysiwyg/professionals/

- prevention-chronic-care/decision/mcc/mccchartbook.pdf (accessed 2018 Jun 18).
3. Federal Interagency Forum on Aging-Related Statistics. Older Americans 2012: key indicators of well-being. <https://agingstats.gov/docs/PastReports/2012/OA2012.pdf> (accessed 2017 Mar 6).
 4. Centers for Medicare and Medicaid Services. Chronic conditions among Medicare beneficiaries, chart book 2012 (April 2013). www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Downloads/2012Chartbook.pdf (accessed 2017 Mar 6).
 5. Pershing Yoakley and Associates, PC. Providing and billing Medicare for chronic care management services. <http://info.pyapc.com/hubfs/White-Papers/Chronic-Care-Management-White-Paper-PYA.pdf> (accessed 2017 Mar 6).
 6. Basu S, Phillips R, Bitton A et al. Medicare chronic care management payments and financial returns to primary care practices: a modeling study. *Ann Intern Med.* 2015; 163:580-8.
 7. Shao H, Chen G, Zhu C et al. Effect of pharmaceutical care on clinical outcomes of outpatients with type 2 diabetes mellitus. *Patient Prefer Adherence.* 2017; 11:897-903.
 8. American Pharmacists Association, National Association of Chain Drug Stores Foundation. Medication therapy management in pharmacy practice: core elements of an MTM service model. *J Am Pharm Assoc.* 2008; 48:341-53.
 9. Greer N, Bolduc J, Geurkink E et al. Pharmacist-led chronic disease management: a systematic review of effectiveness and harms compared to usual care. *Ann Intern Med.* Epub ahead of print. 2016 Apr 26.
 10. Zingone MM, Malcolm KE, McCormick SW et al. Analysis of pharmacist charges for medication therapy management services in an outpatient setting. *Am J Health-Syst Pharm.* 2007; 64:1827-31.
 11. Barker A. 2016 pharmacist salary guide (April 12, 2016). www.pharmacytimes.com/contributor/alex-barker-pharmd/2016/04/2016-pharmacist-salary-guide (accessed 2017 Jul 5).
 12. Centers for Medicare and Medicaid Services. Medicare learning network (MLN) guided pathways provider specific Medicare resources (July 2016). www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNedWebGuide/Downloads/Guided_Pathways_Provider_Specific_Booklet.pdf (accessed 2017 Jul 5).

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