

Transitional Care Management Visits to Improve Coordination of Care

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Overall Medicare spending is a contributing factor for high health care costs in the United States. The Congressional Budget Office estimates that Medicare spending will increase from \$518.5 billion in 2010 to \$929.1 billion in 2020.¹ In order to contain costs, Congress and the Obama administration identified decreasing high Medicare readmission rates as one way of reducing overall Medicare spending.¹ The Affordable Care Act was passed in 2010; among its included programs were those directed toward reducing overall Medicare spending. Two of the programs created were the Hospital Readmissions Reduction Program (HRRP) and the Medicare Shared Savings Program (MSSP).^{2,3}

Inspira Health Network includes 3 New Jersey acute care hospitals located in Vineland, Woodbury, and Elmer. With the exception of Inspira Vineland in federal fiscal year (FFY) 2014, all 3 of these hospitals received a penalty under the HRRP for having high readmission rates each year for FFYs 2013-2019.^{4,5} A strategy identified by Inspira that would help improve care coordination for Medicare beneficiaries was to join the MSSP as Inspira Care Connect, LLC (ICC).⁶ ICC consisted of Inspira's 3 acute care hospitals, the Inspira Medical Group (IMG) physician practices, and community-affiliated medical practices.

To meet the goals of the MSSP, ICC Population Health unit began utilizing transitional care management (TCM) services. These services were adopted by CMS in 2013 to encourage better coordination of care for Medicare fee-for-service (FFS) beneficiaries by allowing physicians to bill for TCM services. TCM services consist of 3 components: interactive contacts, face-to-face visits, and non-face-to-face services. An interactive contact requires a health care provider or clinical staff member representing the provider to make at least 2 attempts to contact the patient or caregiver within 2 business days of discharge from an observation or inpatient stay at a hospital or extended care facility. This contact can be telephonic, electronic (portal or email), or face-to-face and must include review of discharge information, medication reconciliation, follow-up on diagnostic tests and treatments, arrangements for community resources if needed, and scheduling a follow-up appointment with a community provider. The face-to-face visit must be conducted by a physician or health practitioner within 14 days of discharge. The

ABSTRACT

OBJECTIVES: This report aimed to determine whether transitional care management (TCM) services, provided by Inspira Care Connect, LLC (ICC), a Track 1 Medicare Shared Savings Program accountable care organization, were effective in reducing 30-day readmission rates, observation stay days, and emergency department visits, along with mortality rates, total costs, and frequency of primary care physician (PCP) visits among Medicare beneficiaries served by ICC.

STUDY DESIGN: In accordance with TCM programming, ICC contacted the majority of patients telephonically within 48 business hours after discharge from an inpatient setting and scheduled a face-to-face visit with the patient's PCP within 1 to 14 days after discharge from an inpatient setting. The patients were provided with non-face-to-face services as needed throughout the 30-day period.

METHODS: The effectiveness of the TCM model was measured using a retrospective propensity score matching design, which allowed for an accurate comparison between those who received TCM and similar ICC Medicare beneficiaries who did not. The analysis utilized Medicare parts A and B claims from January 1, 2016, to December 31, 2017.

RESULTS: Patients who received TCM had lower 30-day readmission rates than those who did not ($P < .05$).

CONCLUSIONS: The services provided to ICC Medicare patients through the TCM model may have enhanced the ability to identify problems at an earlier stage, resulting in the prevention of complications and unnecessary utilization of costly health care services.

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non–face-to-face services can be provided at any time during the 30-day period to ensure that the patient receives necessary treatment, education, and support. These services can be billed to CMS using the Current Procedural Terminology (CPT) code 99496 if the patient qualifies as high medical decision complexity and the visit occurs within the initial 7 days of discharge, or 99495 for moderate complexity and if the visit occurs within 14 days of discharge (or high-complexity patients seen 8–14 days after discharge). Practitioners can bill for TCM

30 days post discharge from an institutional stay using either CPT code if all 3 components have been provided.⁷

At ICC, registered nurses (RNs) who work in population health conduct the interactive contact component of TCM on behalf of the IMG primary care providers (PCPs) within 2 business days of discharge from a hospitalization or other institutional stay. Some of the community-affiliated practices also utilize RNs; others utilize licensed practical nurses or medical assistants to complete the interactive contact component of TCM. The population health nurses providing TCM services for IMG have full access to the IMG PCPs' schedules, allowing them to schedule the face-to-face visit with the patient's PCP without having to contact the practice. Community-affiliated practices performing TCM services also have RNs with full access to provider schedules. These community-affiliated practices utilizing the population health program for TCM services will have varied access to the schedule; some appointments need to be scheduled via 3-way call with the RN, patient, and practice. ICC provides non–face-to-face services as needed. On a limited basis, patients receive assistance with transportation to appointments via scheduling with the New Jersey Medicaid program's medical transportation system and county transportation services.

Roper and colleagues⁸ conducted a systematic review of transitional care services in an ambulatory setting aiming to reduce readmissions and adverse outcomes and found only 3 studies in which all components of TCM had been implemented. Their review showed that there was a reduction in readmission rates,⁸ but none of these studies examined programs that had implemented CMS' TCM service. In a similar review, Bindman and Cox conducted a retrospective analysis of all Medicare fee-for-service claims from January 1, 2013, to December 31, 2015, in which they found that patients who received TCM services had lower total Medicare costs and lower mortality 31 to 60 days post discharge compared with the patients who did not receive TCM services.⁹ This review also found that billing for TCM services occurred after only 3.1% of eligible discharges in 2013, 5.5% in 2014, and 7.0% in 2015. Findings from these studies suggest that if implemented correctly, TCM services have the potential to lead to better coordinated care and reduce overall readmission rates and mortality in the Medicare FFS population.

To measure the effectiveness of TCM services, ICC partnered with Healthcare Quality Strategies, Inc (HQS), a subcontractor to Quality

TAKEAWAY POINTS

Transitional care management (TCM) services have been beneficial in improving coordination of care and reducing costs at Inspira Care Connect, LLC (ICC), an accountable care organization.

- ▶ Findings from this analysis suggest that TCM services were effective in reducing 30-day readmission rates in the Medicare fee-for-service beneficiaries served by ICC.
- ▶ Services provided through this intervention at ICC have made it possible to identify complications at an earlier stage, resulting in better and more coordinated postdischarge care for Medicare beneficiaries.
- ▶ ICC found TCM services to be valuable; however, more research should be conducted to measure the effectiveness of this model.

Insights, the Quality Innovation Network–Quality Improvement Organization (QIO) for New Jersey. HQSI performed an analysis of Medicare FFS claims utilizing a retrospective propensity score matching design. The aim for ICC was to better coordinate care and reduce costs using the TCM model offered by CMS. The purpose of this study was to determine if the TCM model was effective in reducing readmission rates, observation stays, and emergency department (ED) visits in the 30 days after hospital discharge for Medicare patients attributed to ICC. This study also analyzed if the TCM model had an impact on 30-, 60-, and 180-day mortality rates; total Medicare parts A and B costs; and frequency of PCP visits after hospital discharge.

EVALUATION METHODS

HQSI conducted a Medicare claims-based analysis of ICC's TCM intervention utilizing Medicare FFS Part A and Part B claims and Medicare eligibility data. To accurately compare beneficiaries who received TCM visits with those who did not, a retrospective propensity score matching design was utilized. The hospital discharge time period for this analysis was January 1, 2016, to December 31, 2017.

Propensity score matching is an analytic technique that enables an observational study to mimic certain characteristics of a randomized controlled trial.^{10,11} The propensity score is the probability that a study participant would be assigned to a treatment group based on observed baseline characteristics. For this analysis, propensity score matching was utilized to match ICC patients who received TCM with ICC patients who did not receive TCM. As previously noted, a key factor of the TCM intervention is the practitioner visit (usually with a PCP) following the patient's initial discharge. For this reason, rather than only matching ICC patients who received TCM to ICC patients who did not, patients who did not receive TCM were separated into 2 subgroups: those who received a follow-up PCP appointment and those who did not. The ICC patients who received TCM were then matched separately with those who did not receive TCM but did receive a follow-up PCP visit, and with those who did not receive TCM or a follow-up PCP visit. This created the ability to determine the effectiveness of the TCM in comparison with a PCP visit. Baseline characteristics for all 3 groups were gathered using data from the year prior to the index health care event for which cases received TCM and controls who were eligible for TCM.

TABLE 1. Comparison of 30-Day Readmission Rates of TCM Medicare Beneficiaries vs Those Without TCM and Those With No Follow-up Visit^a

Group	No. of live discharges	No. of readmissions within 30 days	% of readmissions within 30 days	P
TCM	1099	128	11.65%	–
Non-TCM PCP	1099	167	15.20%	.0073
No visit	1098	241	21.95%	<.0001

PCP, primary care provider; TCM, transitional care management.

^aIndex discharge period: January 1, 2016, to December 31, 2017.

Propensity scores were calculated using a logistic regression model where age, gender, race, comorbidities, health care utilization, dual-eligible status, and socioeconomic disadvantage were utilized as the independent variables. All variables were calculated using data from the year prior to the index event for which eligible patients were included in this analysis. These variables were chosen due to their availability, as well as based on clinical expertise within Quality Insights. Age was used as a continuous variable. Gender was used as a binary variable. Race was utilized as a categorical variable where beneficiaries were represented as being unknown, White, Black, Asian, Hispanic, North American Native, or other. The severity of an individual’s comorbidities was represented using the Charlson Comorbidity Index.¹²⁻¹⁴ Several measures were utilized to measure an individual’s health care utilization in the year prior to the index event for which they were included in this analysis. These measures included the sum of all days spent in a hospital as an inpatient, the total number of ED visits, the total number of observation stays, and the total number of admissions. Dual-eligible status was utilized as a binary variable. Socioeconomic disadvantage was measured using the Singh Validated Area Deprivation Index.¹⁵⁻¹⁸ Individuals missing any variables of interest were excluded from the analysis.

One-to-one matching was performed, where each case was matched with the control with the closest propensity score. It was required that the index discharge type was the same for each matched case and control (ie, those who received TCM after an inpatient hospital discharge could only be matched with those who did not receive TCM after an inpatient hospital discharge). To ensure appropriate matching, mean standardized differences were calculated for each matching variable, before and after matching. This revealed that each matching variable had a smaller (close to zero) mean standardized difference after matching compared with before matching. The 1:1 matching process was performed twice: once for matching patients who received the TCM intervention with eligible patients who did not receive TCM but did receive a PCP follow-up, and once for matching patients who received the TCM intervention with eligible patients who received neither TCM nor PCP follow-up.

Upon completion of the propensity score matching process, the following outcome variables were utilized to determine the effectiveness of the TCM among ICC patients: 30-day acute care hospital readmissions, observation stays, ED visits, cost for 6 months

after discharge (Medicare FFS Part A and Part B), PCP visits within 180 days after index discharge, and mortality 30, 60, and 180 days after index discharge.

TCM services were incorporated into postdischarge planning and were available to all ICC patients discharged from Inspira Health Network hospitals and the hospitals of 2 other health systems from which ICC receives notification of hospital discharges. Patients discharged from a postacute care facility were also offered TCM services. The patient had the right to refuse TCM services.

Medicare claims data that contained personal health information and provider identifiers were used to measure improvement. To protect confidentiality, all patient-specific and provider-specific information transmitted was sent via secure means. It was protected using national and QIO-specific policies and procedures to ensure that the data remained secure, confidential, and protected.

This program did not require or undergo review by an institutional review board, and its use did not need to obtain patient or provider consent. This program is a quality improvement activity operating in ordinary operations and, as such, did not satisfy the definition of “research” under HHS 45 CFR 46.102(d).

RESULTS

As shown in **Table 1**, the Medicare population served by ICC who received TCM services had a lower 30-day readmission rate. Those who received TCM services were less likely to be readmitted to the hospital within 30 days compared with beneficiaries who had a non-TCM PCP visit and with those who had no visits. Both of these findings were statistically significant at the 0.05 level ($P = .0073$ and $P < .0001$, respectively). A statistically significant difference in observation stays was found between those who had a TCM visit compared with those who did not have any visits (**Table 2**). However, no statistically significant difference was observed among the 3 groups for ED visits (**Table 2**). Overall, the TCM services provided by ICC did have an impact on 30-day readmission and observation stay rates.

No statistically significant difference was observed between the groups when comparing the TCM and non-TCM PCP groups and the TCM and no-visit groups for costs within 180 days after discharge from an institutional setting. Although the total costs for patients who received TCM were lower than for both control groups, the reduction in costs did not reach statistical significance for the patient population served by ICC (**Table 3**).

When comparing the TCM group with the control groups for PCP visits within 180 days after discharge, it was observed that patients who had no visits within 14 days after discharge had fewer PCP visits. It was also observed that patients who were a part of the non-TCM PCP group had similar numbers of PCP visits per index discharge compared with the TCM group if the TCM visit was counted as a PCP visit (**Table 4**).

Patients receiving TCM services did have a lower 30-day mortality rate when compared with the control groups; however, the difference was statistically significant only for the no-visit group (**Table 5**). This

TABLE 2. Comparison of 30-Day Observation Stay Days and ED Visit Rates of TCM Medicare Beneficiaries vs Those Without TCM and Those With No Follow-up Visit^a

Group	No. of live discharges	No. of observation stays within 30 days	% of observation stays within 30 days	P (observation stays)	No. of ED visits within 30 days	% of ED visits within 30 days	P (ED visits)
TCM	1099	30	2.73%	–	122	11.10%	–
Non-TCM PCP	1099	20	1.82%	.9237	143	13.01%	.0845
No visit	1098	45	4.10%	.0387	119	10.84%	.5782

ED, emergency department; PCP, primary care provider; TCM, transitional care management.
^aIndex discharge period: January 1, 2016, to December 31, 2017.

TABLE 3. Comparison of Health Care Cost Within 180 Days After an Index Acute Care Discharge From an Eligible Stay for Medicare Beneficiaries With TCM vs Those With No TCM PCP Visit and Those With No Physician Follow-up^a

Group	Index count	Part A costs	Part B costs	Total costs	Costs per index discharge	P
TCM	904	\$11,803,206	\$3,883,470	\$15,686,677	\$17,353	–
Non-TCM PCP	904	\$13,128,828	\$4,589,532	\$17,718,361	\$19,600	.0607
TCM	861	\$10,584,409	\$3,715,062	\$14,299,471	\$16,608	–
No visit	861	\$13,204,657	\$2,982,622	\$16,187,279	\$18,801	.0628

PCP, primary care provider; TCM, transitional care management.
^aIndex discharge period: January 1, 2016, to December 31, 2017.

was also observed for the 60- and 180-day mortality rates. No significant differences were seen between the TCM and non-TCM PCP groups.

DISCUSSION

ICC has reduced Medicare 30-day readmissions among patients receiving TCM services by incorporating these services into the postdischarge process. The staff within ICC who conduct the TCM outreach have been able to assist patients with questions that they have and ensure that they are properly following discharge instructions. Medication reconciliations have also helped in preventing complications. The 30-day readmission rate for patients who received TCM services was 11.65% vs 15.20% for the non-TCM PCP group ($P = .0073$) and 21.95% for the no-visit group ($P < .0001$) (Table 1). A possible reason for the lower rate of readmission in the TCM group is that these services identified problems at an earlier stage through the interactive component that occurs within 48 business hours of discharge and the face-to-face visit within 14 calendar days of discharge. Patients also received non-face-to-face services as needed throughout the 30-day period. The effectiveness of TCM in reducing readmission rates is consistent with the findings from the systematic review conducted by Roper and colleagues.⁸

TCM was not effective in reducing observation stay visits compared with the non-TCM PCP group. However, compared with the no-visit group, patients who received TCM had a statistically significantly lower rate of observation stays ($P = .0387$) (Table 2). No statistically significant difference was observed between the TCM groups and the 2 control groups for ED visits; TCM visits might prevent serious complications in the postacute period that require an observation stay but not prevent events that lead to ED visits.

The total costs through 180 days after discharge for patients who received TCM services were lower than for the patients in

TABLE 4. Excluding the Initial TCM Visit, Number of PCP Visits Within 180 Days After Discharge for Medicare Beneficiaries With TCM vs Those Without TCM and Those With No Visit

Group	Index count	PCP visit count	PCP visits per index discharge	P
TCM	904	5485	6.07	–
Non-TCM PCP	904	6166	6.82	.9996
TCM	861	5321	6.18	–
No visit	861	2650	3.08	<.0001

PCP, primary care provider; TCM, transitional care management.

TABLE 5. Mortality Within 30 Days After Index Discharge for Medicare Beneficiaries With TCM vs Those Without TCM and Those With No Visit

Group	Index count	Mortality at 30 days, count	Mortality at 30 days, rate	P
TCM	1540	7	0.45%	–
Non-TCM PCP	1540	12	0.78%	.1301
TCM	1474	6	0.41%	–
No visit	1474	34	2.31%	<.0001

PCP, primary care provider; TCM, transitional care management.

the 2 control groups; however, the difference was not statistically significant. ICC patients who did not receive TCM services but had a PCP visit may have received a similar level of care as the TCM patients, which might explain why the difference between the 2 groups was not significant (Table 3).

ICC patients in the no-visit group had a lower number of PCP visits per index discharge (3.08) than those in the TCM group (6.18). Patients who did not have any visits may not have received the postdischarge follow-up needed, which possibly resulted in fewer PCP visits. PCP visits per index discharge were similar in the

non-TCM PCP group (6.82) and the TCM group (6.07) if the TCM visit is considered to be a PCP visit (Table 4).

The mortality rates at 30, 60, and 180 days indicated that there were statistically significant differences observed between the TCM and no-visit groups. This is consistent with the findings from the Bindman and Cox study, which stated that mortality 31 to 60 days after discharge was higher in the group that did not receive TCM services.⁹ TCM requires an in-person PCP follow-up visit within 7 or 14 days of discharge, allowing for complications to be identified and treated at an earlier time. The no-visit group did not have any visits with their provider within the 14 days after discharge, which may have contributed to higher mortality rates. No statistically significant difference was observed between the TCM and non-TCM PCP groups for the mortality rates at 30, 60, and 180 days. Because the non-TCM PCP group had an in-person visit with their provider similar to the TCM visit, this may have allowed for complications to be addressed sooner.

Limitations

This study utilized the propensity score matching technique, which allowed the TCM, non-TCM PCP, and no-visit groups to have similar characteristics in order to prevent bias when comparing outcomes; however, the results are not generalizable.

Any patients with a readmission prior to a physician office visit were excluded from the analysis. This could have decreased the calculated readmission rate for the TCM and non-TCM PCP groups. However, the readmission rate in the TCM group was significantly lower than the rate in the non-TCM PCP group. Information regarding which patients had the TCM interactive contact after discharge was not available for this study; if it had been, those patients who were readmitted before a scheduled TCM visit occurred could have been included in the denominator for the TCM group as an additional analysis.

More research should be conducted to measure the effectiveness of the TCM services, because this study mainly included Medicare FFS beneficiaries who were living in the Inspira Health Network catchment area.

CONCLUSIONS

ICC continues to provide TCM services to its Medicare beneficiaries, which are effective in reducing avoidable health care utilization. The additional reimbursement provided by CMS for these visits if all 3 components have been conducted provides additional financial incentive. ICC's next steps include using the population health department to scale TCM services to the remaining community-affiliated practices not performing the service themselves. Additionally, the population health department has begun working with the IMG specialty offices to provide TCM services for patients whose postdischarge priority visit is not with their PCP. This will help provide better-coordinated care to patients seeking services from ICC providers. ■

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