Effectiveness of CCNC's Transitional Care Model for Reducing Medicare Cost and Utilization Among Dual Medicare/Medicaid Beneficiaries

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KEY POINTS FROM THIS BRIEF:

- Transitional care for high risk dual eligibles with multiple chronic or catastrophic conditions generated substantial savings to Medicare, mirroring CCNC's successful transitional care program for the non-dual Medicaid population.
- Savings impact varied according to patients' underlying clinical risk:
  - Among patients in the highest risk strata, those receiving transitional care home visits had 11% fewer readmissions and $6,108 lower Medicare spending per patient over 6 months of follow up.
  - Among patients in the moderate risk strata, those receiving transitional care home visits had 6% fewer readmissions and $1,398 lower Medicare spending per patient over 6 months of follow up.
  - No savings was observed in the lowest risk strata.
- Overall, approximately 45% of all hospital discharges for Medicare/Medicaid dual eligibles in this demonstration population clearly benefitted from transitional care with a home visit.
- This finding underscores the importance of selective deployment of transitional care management resources toward patients most likely to benefit, if assurance of near-term return on investment is a primary goal.

Background

Individuals living with multiple chronic medical conditions account for the vast majority of potentially preventable hospitalizations and hospital readmissions nationally.[1,2] Community Care of North Carolina's approach to population health management emphasizes support of beneficiaries with chronic medical conditions, by establishing a longitudinal relationship with a medical home for better management of chronic disease and prevention of complications, as well as targeted care management support of those at highest risk. Multidisciplinary care team support

of complex patients, by care managers embedded in local communities, is considered to be a key component of CCNC's success in controlling costs for high risk Medicaid beneficiaries.[3] CCNC's transitional care program for the non-dual Medicaid program, which aims to reduce readmissions after hospital discharge, has been shown to prevent one readmission for every six beneficiaries with multiple chronic conditions served, with much of the benefit realized beyond the first 30 days.[4,5]

Under the Center for Medicare and Medicaid Innovation Multi-Payer Advanced Primary Care Practice Demonstration 2011-2014, CCNC had the opportunity to examine the effectiveness of transitional care management for beneficiaries dually eligible for both Medicare and Medicaid across 7 rural NC counties, in terms of readmission rates and savings to Medicare.

Results

Table 1 presents the sample characteristics of the intervention (transitional care with home visit) and control (no transitional care) groups. All subjects were Medicaid/Medicare dual eligible with multiple chronic or catastrophic conditions. To control for group differences, we stratified according to overall clinical risk profile and performed multivariate regression analyses on primary outcomes within these three risk strata.

Table 1. Sample Characteristics (data are reported at the discharge level)

	Transitional Care w/ Home Visit	No Transitional Care	Total Sample
N (number of unique discharges)	386	951	1,337
Age at Discharge	69.3	66.4	67.3
% Female	72.8%	71.9%	72.2%
% Discharged with Home Health Services	39.6%	30.0%	32.3%
Risk Strata			
Low	214	541	755
Medium	92	264	356
High	80	146	226

Impact on Hospital Readmissions

Table 2. All Cause 30-day Readmission Rates Per 100

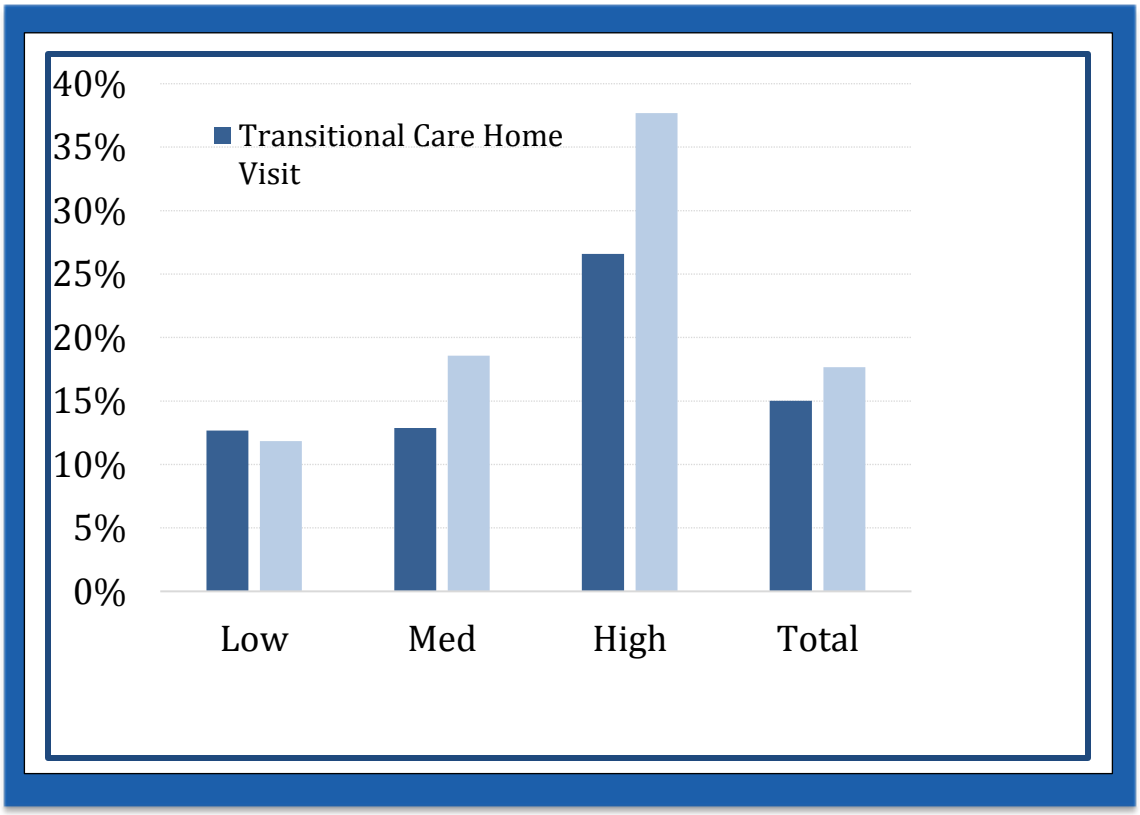
Risk Strata	Home Visit Group (Adjusted)	No Transitional Care Group	Risk-adjusted Difference[1]	Statistical Significance[2]
Low	**12.7**	**11.8**	**0.9**	**n.s.**
Medium	**12.9**	**18.6**	**-5.7**	**n.s.**
High	**26.6**	**37.7**	**-11.1**	**<.05**
Grand Total	**15.0**	**17.7**	**-2.6**	**n.s.**

[1]Group differences adjusted for Clinical Risk Group (CRG) and Hierarchical Condition Category (HCC) risk score.
[2]Multivariate regression analyses controlling for Clinical Risk Group (CRG), Hierarchical Condition Category (HCC) risk score, age, gender and whether discharged with home health services.

In the overall study population, on an unadjusted basis, readmission rates were similar among patients in the home visit group (17.6%) and the no TC group (17.7%) (see Table 2). Among high risk patients, however, 23.8% of the patients in the home visit group were readmitted, compared to 37.7% of patients without transitional care, for a net decrease of 13.9%. In the middle-risk strata, 15.2% of the home visit group were readmitted, compared to 18.6% of those without transitional care, for a net decrease of 3.3%. The rates reported in **Table 2** and Figure 1 further risk adjust the raw rates by accounting for differences in HCC score. On a risk-adjusted basis, transitional care resulted in 11% and 6% relative reductions in readmission risk for high-risk and moderate-risk patients, respectively.

The multivariate regressions, which also controlled for age, gender and home health status, found that this difference was only statistically significant in the high risk strata (Wald chi-square = 3.91, $p<.05$). Results for the lowest risk strata were non-significant in the opposite direction with 16.4% of the home visit group getting readmitted compared to only 11.8% for those without transitional care.

Figure 1. Impact of Transitional Care Home Visits on 30d Readmission Rates by Clinical Risk Group Strata (CRG & HCC Risk-Adjusted)



Impact on Total Medicare Spending

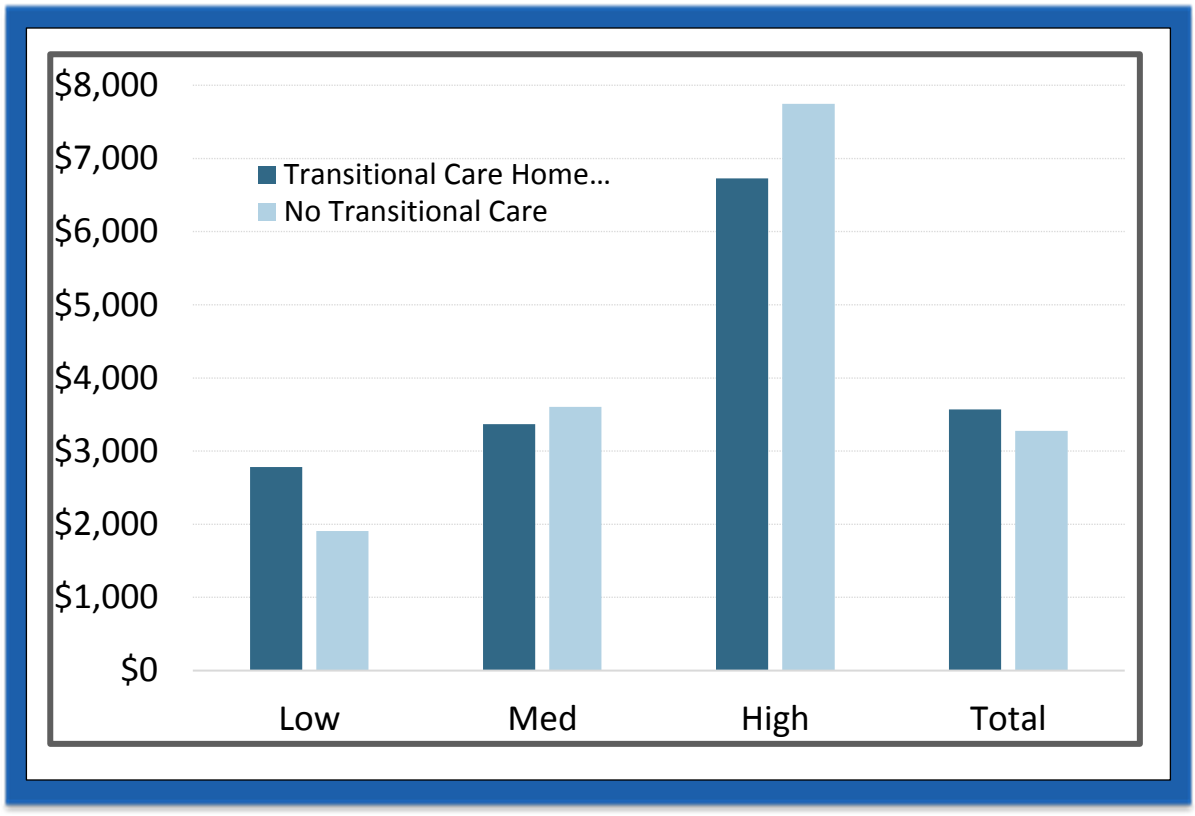
Total Medicare spending per member month (PMPM) during the 6-month follow-up period was higher among patients who received transitional care with home visit, on an unadjusted basis. Table 2 displays actual spending within each of the 3 risk strata, as well as risk-adjusted spending rates which account for differences in relative resource intensity (HCC risk score). The risk-adjusted spending difference between patients who received TC with home visit and those who did not was $1,018 PMPM in the high-risk strata, and $233PMPM in the moderate-risk strata (totaling $6,108 and $1,398 in adjusted gross savings per member, respectively, over the 6 month follow-up period). The multivariate regressions, which also controlled for age, gender and home health status, found that this difference was marginally statistically significant in the high risk strata (t=1.89, p=.06).

Table 3. Average Medicare Spend Per Member Per Month During 6 Months After Discharge

Risk Strata	Home Visit Group (Adjusted)	No Transitional Care Group	Risk-adjusted Difference[1]	Statistical Significance[2]
Low	$2,782	$1,908	$874	n.s.
Medium	$3,370	$3,603	-$233	n.s.
High	$6,727	$7,753	-$1,018	<.10
Grand Total	$3,569	$3,276	$294	n.s.

[1]Group differences adjusted for Clinical Risk Group (CRG) and Hierarchical Condition Category (HCC) risk score.
[2]Multivariate regression analyses controlling for Clinical Risk Group (CRG), Hierarchical Condition Category (HCC) risk score, age, gender and whether discharged with home health services.

Figure 2. Impact of Transitional Care Home Visits on Total Medicare Spend PMPM in the 6-Month Follow-up Period by Clinical Risk Group Strata (CRG & HCC Risk-Adjusted



Conclusions

CCNC's transitional care success with the non-dual Medicaid population appears to translate well to the dual Medicare/Medicaid population, suggesting substantial return-on-investment for Medicare from transitional care for the highest risk patients with multiple chronic or catastrophic conditions. While there was limited benefit observed overall, results varied greatly when considering patients' underlying clinical risk.

Among patients in the highest risk strata, those receiving transitional care home visits had 11% fewer readmissions resulting in a risk-adjusted savings to Medicare of $6,108 per person receiving transitional care. Among patients in the moderate risk strata, those receiving transitional care home visits had 6% fewer readmissions resulting in a risk-adjusted savings to Medicare of $1,398 in gross savings per member receiving transitional care. Results were markedly different for the lowest risk strata where patients receiving a home visit had a trend toward more readmissions and greater spend in the 6-month follow-up period (though not statistically significant).

These findings underscore the critical importance of patient selection for transitional care intervention, to assure that care management resources are optimally allocated toward patients who are most likely to benefit. Transitional care programs that do not carefully discriminate based on predicted impact may fail to demonstrate an overall savings effect, thereby threatening their own sustainability, if the negligible impact observed among lower risk patients 'washes out' the beneficial effects among those at higher risk. CCNC's experience suggests that intensive transitional care management support is well worth the investment if targeted appropriately. The moderate- and highest-risk patient groups who proved to benefit the most accounted for approximately 45% of all hospital discharges for dual eligibles during this demonstration period. Moving forward, full focus on assuring intensive transitional care support for that relatively small proportion of patients--including local, multidisciplinary team-based care with linkage back to the primary care medical home – will have the greatest impact on Medicare readmission rates and cost savings.

Data Sources and Methodology

Data sources included Medicare and NC Medicaid administrative data to determine dual eligibility for both insurance programs, and Medicare claims for identification of index admissions, readmissions and total spend during the 6-month follow-up period. We examined all hospital discharges during the 3-year period from October 2011 – September 2014 among Dual Medicare/Medicaid recipients with multiple chronic or catastrophic (MCC) conditions participating in the MAPCP demonstration. MCC was identified utilizing 3M Health Information Systems' Clinical Risk Grouper, which assigns all beneficiaries to one

of over 1,000 mutually-exclusive clinical risk groups. We excluded any index discharges that were not a discharge to the home (e.g., transfers to other hospitals or skilled nursing facilities). Note that a limitation of this analysis is that it was conducted using data from CMS which excluded SAMHSA claims, hence admissions and readmissions that were related to substance abuse treatment were excluded. However, this exclusion was true for both the intervention and control groups, and so likely had minimal impact on the findings reported here.

Each Clinical Risk Group has an associated baseline readmission risk, and patients were further stratified into one of 3 groups based on this known risk: 1) 0-30%, 2) 31-50%, and 3) 51-80% risk of a 90-day readmission. Although the primary outcome for the evaluation was 30-day readmission, risk strata are defined by 90-day readmission rates. This means that in the lowest-risk strata, fewer than 30% of the recipients are expected to return to the hospital within 90 days, compared to the highest risk patients where as many as 80% are expected to return to the hospital within 90 days. Risk-stratified analysis allows us to make more accurate comparisons between patients whose clinical burden comes with a similar underlying risk of returning to the hospital. To further control for additional confounders, we also constructed regression models which controlled for HCC score, age, gender and whether the patient was discharged to home with home health services.

We limited our comparisons to patients who either received the highest intensity transitional care intervention (which includes a home visit) or who received no transitional care at all. Because of issues of statistical power, and the extreme heterogeneity of patients in between, for this analyses, we focused on the extremes – full transitional care, or none at all. Hence, patients who received some transitional care, but not the full intervention (which includes a home visit), were excluded from these analyses. Primary outcomes were all-cause 30-day readmissions and total Medicare spend in the 6 months following discharge.

Suggested Citation

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