12-month Outcomes of Community Care Teams for Primary Care Practices Transforming towards PCMH

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Background

The transformation of primary care to PCMH is one of the fundamental strategies for achieving higher quality care at lower cost.

Multidisciplinary team-based care is also considered a crucial tactic for meeting our society's healthcare needs.

The Lehigh Valley Health Network enhanced support to primary care practices by deploying multi-disciplinary teams called Community Care Teams (CCT) to practices to help manage their high-risk patients. The premise was that CCTs should help at the:

Practice level: CCTs should increase overall practice effectiveness/ efficiency by offsetting some of the workload from high-risk patients.

Patient level: CCTs should improve outcomes of patients directly managed by the CCT team.

Purpose

Evaluate the effectiveness of CCTs within the PCMH model, both at the practice level (patients not engaged CCT but belonging to practices with CCTs) and patient level (patients receiving CCT services).

Intervention

Modeled after Vermont Blueprint for Health, each CCT was designed to support 3 to 4 primary care practices in the short-term management of high-risk patients with chronic disease.

Each team consisted of a RN Care Manager, who functioned as the team lead, a behavioral health specialist, a social worker, and a clinical pharmacist.

Management: CCT provided support for disease self-management and goal setting skills, addressed behavioral health, social, and economic problems, and connected the patient to Network and community resources.

DC Reconciliation: hospital discharge reconciliation phone calls to patients by the CCT Care Manager to support PCMH transition care program: within 48 business hours of hospital discharge to reconcile medications, assess/identify issues for follow-up, answer questions and coordinate appointments.

High Risk Registry

Patients were identified for CCT services either (A) through a high-risk registry developed internally by a lead physician specialized in informatics; or (B) on-site clinician referrals to the CCT team.

Methods

Practice Selection:

Wave 1 (July 2012): 3-year experience with practice transformation in South Central PA Chronic Care Initiative; achieved NCQA Level 3 PCMH recognition, and results of a network-wide comprehensive practice assessment.

Wave 2 (July 2013): population with perceived greatest need, more urban practices with transitory patient panels.

Setting:

Lehigh Valley Health Network, a large health care delivery system in southeastern PA, serving 5 counties and moving towards ACO but still operating in a fee-for-service environment.

Design and Participants: A nonrandomized longitudinal study design contrasting the CCT practices/patients with non-CCT comparison groups.

Practice level (Wave 1) analyses compared 29,881 patients (5% high risk) from the 6 CCT practices not receiving team services to 22,350 patients (5% high risk) from 3 non-CCT practices which were also transforming towards PCMH.

Patient level (Wave 1) analyses: 406 patients received CCT services (68% high-risk): 176 care management and 230 hospital discharge reconciliation calls. These patients were compared to 406 patients from the same CCT practice who did not receive CCT services.

Wave 2: 36,012 patients (4% high risk) from 4 practices who did not receive team services (practice level) and 317 patients who received CCT services (patient level): 218 care management and 99 discharge reconciliation calls.

Practice Level 12-Month Outcomes by Presence of CCT and High Risk Status: Wave 1

	Non-CCT Practice			CCT Practice		
Non-High Risk Patients	Pre	Post	Effect Size †	Pre	Post	Effect Size †
Probability any ED visit	0.12	0.115	.01	0.10	0.09	.01
Probability any admission	0.04	0.04	.00	0.04	0.04	.00
Probability any readmission	0.00	0.00	.01	0.00	0.00	.00
Probability screened depression	0.04	0.06	.08****	0.07	0.11	.12****
Probability HgA1c > 9.0	0.20	0.20	.00	0.21	0.20	.03
	Pre	Post	Effect Size‡	Pre	Post	Effect Size‡
Gaps diabetic care	4.11	3.41	.95****	3.90	3.15	.97****
Gaps IVD care	0.30	0.30	.00	0.31	0.31	.01
Gaps preventative care	1.09	0.99	.59****	1.12	0.98	.72****
Diabetes illness severity	2.45	2.41	.05	2.38	2.35	.03
Cardiac illness severity	1.80	1.72	.11*	1.81	1.70	.14**
High-Risk Patients	Pre	Post	Effect Size†	Pre	Post	Effect Size†
Probability any ED visit	0.28	0.29	.03	0.23	0.22	.02
Probability any admission	0.44	0.47	.04	0.38	0.24	.21****
Probability any readmission	0.15	0.17	.05	0.13	0.06	.16****
Probability screened depression	0.06	0.09	.10****	0.15	0.23	.18****
Probability HgA1c >= 9.0	0.19	0.19	.00	0.19	0.18	.02
	Pre	Post	Effect Size‡	Pre	Post	Effect Size‡
Gaps diabetic care	3.61	2.83	1.01****	3.22	2.65	.71****
Gaps IVD care	0.27	0.27	.02	0.23	0.26	.12
Gaps preventative care	0.87	0.77	.61****	0.86	0.75	.53****
Diabetes illness severity	2.68	2.63	.04	2.49	2.46	.04
Cardiac illness severity	2.09	2.02	.08	1.98	1.83	.19*

Effect Size† r where .1 is small, .3 is medium and .5 is large; Effect Size‡ d where .2 is small, .5 is medium, and .8 is large. IVD = ischemic vascular disease. * p < .05, ** p < .01, *** p < .001, **** p < .0001.
Admissions are unplanned admissions only.

Practice Level 11-Month Outcomes by Presence of CCT and High Risk Status for Urban/Transitory Practices: Wave 2

Non-High Risk Patients	N	Pre	Post	Effect Size	p
Probability any ED visit	34568	0.34	0.31	.05	<.0001
Probability any admission	34568	0.041	0.039	.01	
Probability any readmission	34568	0.00	0.00	.00	
High-Risk Patients					
Probability any ED visit	1444	0.53	0.60	.07	<.01
Probability any admission	1444	0.36	0.36	.00	
Probability any readmission	1444	0.14	0.20	.08	<.01

Effect size r where .1 is small, .3 is medium and .5 is large.
Admissions are unplanned admissions only.

6-Month Outcomes for Patients from CCT Practices: Patients Engaged versus Not Engaged with CCT (N=812): Wave 1

	Matched Patients NOT Engaged CCT				Patients Engaged CCT			
Managed	Pre	Post	ES	p	Pre	Post	ES	p
Probability any ED visit	0.08	0.09	.03		0.26	0.22	.07	
Probability any admission	0.09	0.03	.24	.001	0.33	0.21	.19	.01
Probability any readmission	-	-	-		0.11	0.09	.06	
DC Reconciliation								
Probability any ED visit	0.12	0.10	.07		0.23	0.22	.02	
Probability any admission	0.23	0.05	.35	<.0001	0.87	0.35	.70	<.0001
Probability any readmission	-	-	-		0.26	0.19	.14	.04

ES = Effect size r where .1 is small, .3 is medium and .5 is large. Model failed converge: too few readmits.
Admissions are unplanned admissions only.

6-Month Outcomes for Patients Engaged with CCT at Urban/Transitory Practices (N=317): Wave 2

Managed	N	Pre	Post	Effect Size	p
Probability any ED visit	218	0.51	0.45	.11	
Probability any admission	218	0.50	0.35	.31	<.0001
Probability any readmission	218	0.18	0.19	.03	
DC Reconciliation					
Probability any ED visit	99	0.60	0.47	.17	
Probability any admission	99	0.84	0.36	.63	<.0001
Probability any readmission	99	0.18	0.19	.02	

Effect size r where .1 is small, .3 is medium and .5 is large.
Admissions are unplanned admissions only.

Results

Practice Level Outcomes: Within group analyses were used due to significant group baseline differences for some outcomes.

Wave 1: There were significantly reduced probabilities of an unplanned admission and readmission post-CCT for patients in CCT practices but not in non-CCT practices, but only among high-risk patients. While there was significant improvement for other quality indicators, it occurred for both CCT practices and non-CCT practices transforming towards PCMH.

Survey Data: There was no significant change in Practice Joy (WWQ) or Patient satisfaction (CAHPS).

For more urban/transitory populations (Wave 2): There was a significant but small reduction in the probability of an ED visit for non-high risk patients from CCT practices. However, for high-risk patients (patients the CCT staff did not have a chance to service to date or who refused CCT services), there were significant but small increases in the probabilities of an ED visit and a 30-day readmission.

Patient Level Outcomes: Within group analyses were used due to significant group baseline differences for some outcomes and lack of variance in the comparison group.

Wave 1: The probability of an unplanned admission was reduced for both CCT and non-CCT patients, although this effect was notably large for CCT patients receiving hospital discharge reconciliation from CCT staff. Furthermore, the probability of a readmission was only reduced in CCT patients receiving hospital discharge reconciliation calls.

For more urban/transitory populations (Wave 2), there was a significant reduction in the probability of an unplanned admission for both CCT patients who received management or discharge reconciliation.

Conclusions

PCMH transformation alone may be effective in creating improvements in patient care and cardiac disease, but the presence of CCT appears necessary to reduce unplanned admissions and readmissions at least among high-risk patients.

For patients who received CCT services directly, CCT had a significant impact on reducing the probability of a 30-day readmission with patients who received hospital discharge reconciliation calls from the CCT. For more urban/transitory populations, CCT patients, both those receiving management or discharge reconciliation, had a reduced probability of an unplanned admission, although high risk patients who have yet to receive CCT services or refused them, had small but significantly increased probabilities of an ED visit and a readmission.

The intent of the current endeavor was to perform a formative evaluation of the CCTs effectiveness. Despite analytic challenges of such early-stage analyses, we believed it was vital to determine the preliminary effectiveness of the CCTs care management interventions and, if possible, suggest improvements to the intervention.

Limitations

Despite attempting multiple matching schemes, there was notable difficulty developing comparison groups which were equivalent to the intervention groups at baseline. We hope to overcome this limitation via propensity score matching and multilevel modeling.

Another major gap was the need to improve the strategy used for selecting patients for CCT intervention. Despite the use of a predictive risk score, prioritizing the very large list of high-risk patients remains a challenge. We hope that the addition of a brief measure of patient activation will be particularly helpful for selecting the riskiest/costliest patients for CCT intervention as well as tailoring CCT services to different types of patients.

While more rigor will be brought to future analyses, we hope the current evaluation highlights the utility of performing such formative evaluations.