



Addressing Quality Measures within a Care Management Model Integration Across Six Practices in Rural Oregon

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Research Objectives

Given there is little research about implementation in small “real world” practices, this study is focused on addressing this gap in the research literature¹; it tests the economic impact, clinical outcomes, and feasibility/uptake of 6 clinics to address quality measures within a comprehensive nurse care management system² (a model called Care Management Plus, CMP) in small rural primary care practice settings.

Study Design

A cluster-randomized, staggered design was used to implement a nurse care manager (CM) and the Care Management Tracking (CMT) Software health IT system; in 6 rural primary care clinics associated with the Oregon Rural Practice-based Research Network; with 3 in an immediate intervention arm and 3 in one-year later intervention arm.

Table 1. Selected key characteristics of study clinics.

Intervention Group	Immediate			Delayed		
	Family Medicine	Family Medicine	Pediatrics	Family Medicine	Family Medicine	Pediatrics
Physicians	9	4	4	3	7	5
Other Clinicians	3	4	0	4	4	2
Patients in Practice	11,312	9,936	6,180	6,627	12,647	12,813
Business Model	Not for profit	Private practice	Private practice	Not for profit	Not for profit	Private Practice
Electronic Health Record	NextGen	Centricity	Practice One	Epic	Epic	Misys Healthcare

Utilizing guidelines from the American Medical Association’s Physician Consortium for Performance Improvement (PCPI)³, practices were instructed to select 3 quality measures that were important to their population to track in association with CMP implementation.

Clinics were given the choice to identify patients using either EHR population reporting or chart review techniques. Practice enhancement and research coordinators worked with both intervention and control clinics to implement the methods they chose.

Practices were provided instructions to identify the list of patients meeting the criteria for each quality measure, which would become the denominator. Patients meeting the criteria for the quality measure criteria became the numerator.

Each measure allowed for patients to be excluded from consideration. Examples of exclusion criteria include intolerance of medication, patient refusal to undergo laboratory measures, prior diagnosis, or clinician determination that patient is not suitable for examination.

Principle Findings

The quality measures, classified as process outcomes (completion of procedures) were coded to identify numerator and denominator values for the baseline and post-intervention period, creating a composite measure using the overall percentage method. Analysis of measures occurred through denominator weighting.

Table 2. Change in process outcomes using clinic identified quality measures at baseline and post-intervention.

Intervention Clinics	Baseline			Post-Intervention			Difference
	Patients having condition	Patients meeting measure	% meeting measure	Patients having condition	Patients meeting measure	% meeting measure	
Quality Measures							
Clinic A							
Diabetic patients with hemoglobin A1c in last 6 months	197	95	48.0	197	119	60.4	12.0%
Diabetic patients with LDL cholesterol in past 12 months	197	106	53.8	197	134	68.0	14.2%
Diabetic patients with blood pressure measured last 6 months	197	130	66.0	197	145	73.6	7.6%
Clinic B [Pediatric]							
Patients diagnosed with pervasive developmental disorder undergo CARS evaluation every 4 months*	121	0	0.0	121	15	12.4	12.4%
Type I diabetic patients with hemoglobin A1c measured in the last 3 months	45	6	13.3	45	5	11.1	(2.2%)
Patients diagnosed with anxiety undergo SCARED evaluation every 6 months*	216	0	0.0	216	13	6.0	6.0%
Clinic C							
Diabetics with hemoglobin A1c measured in the past 6 months	607	144	23.7	790	280	35.4	11.7%
Patients aged 5-40 with asthma prescribed long-term control medication	199	109	54.8	199	121	60.8	6.0%
Patients with coronary artery disease prescribed aspirin or clopidogrel	114	47	41.2	83	42	50.6	9.4%
Weighted average intervention							10.0%
Control Clinics							
Quality Measures							
Clinic D							
Diabetic patients with hemoglobin A1c measured in last 6 months	157	76	48.4	157	108	68.8	21.0%
Diabetic patients with lipid panel in past 12 months	157	103	65.6	157	109	69.4	3.4%
Diabetic patients receive evaluation for depression using PHQ2 in last 12 months	157	0	0.0	157	4	2.5	2.5%
Clinic E [Pediatric]							
Diabetic patients with hemoglobin A1c measured in last 3 months	14	8	57.1	16	56	93.8	36.6%
Newly diagnosed depression patients will have PHQ9 depression screen administered at each monthly visit	22	0	0.0	22	0	0.0	0.0%
Asthma patients on preventive medicine will have a current action plan in place	10	0	0.0	10	10	100.0	100.0%
Clinic F							
Diabetic patients with hemoglobin A1c measured in last 3 months	675	119	17.6	675	139	20.6	3.0%
Diabetic patients over age 18 will receive pneumovax at diagnosis, then again after age 65	675	116	17.1	675	144	16.9	4.1%
Diabetic patients with lipid panel in last 12 months	675	190	28.1	675	203	30.1	1.9%
Weighted average control							4.7%
Weighted Difference Intervention vs. Control							5.3% p<0.01

Table 3. Change in clinical outcomes using clinic identified quality measures at baseline and post-intervention.*

Quality Measures	Baseline				Post - Intervention			
	Patients having condition	Patients meeting Measure	% meeting measure	Average clinical value	Patients having condition	Patients meeting measure	%meeting measure	Average clinical value
Clinic A								
Diabetic patients with hemoglobin A1c ≤ 9.0%	60	57	95.0	7.20	106	100	94.3	6.55
Diabetic patients with LDL cholesterol ≤ 100 mg/dL	97	48	49.4	109.6	113	65	57.5	105.9
Clinic D								
Diabetic patients with hemoglobin A1c ≤ 9.0%	76	73	96.0	7.11	107	91	85.0	7.48
Diabetic patients with LDL cholesterol ≤ 100 mg/dL	101	49	48.5	109.9	121	64	52.9	97.32
Clinic F								
Diabetic patients with hemoglobin A1c ≤ 9.0%	119	105	88.2	7.05	139	124	89.2	7.21
Diabetic patients with LDL cholesterol ≤ 100 mg/dL	190	106	55.8	101	203	121	59.6	95.8

* Clinic B developed their own quality measures to track pervasive developmental disorder and anxiety – two areas of high priority for their CMP.

*Neither Clinic B, C, or E had clinical outcome measures identified as a quality measure.

For clinical outcome measures (laboratory results & readings) changes were measured at baseline and post-intervention and % meeting the measure was reported.

Three of the clinics show a slight increase in the post-intervention in the measure: % of diabetic patients with LDL cholesterol ≤ 100mg/dL.

The qualitative data from this study⁴ highlighted that the management structure of each of the six practices was unique in terms of staffing, IT support, and prior experience and that overall practice data collection capacities are limited. The ability to produce full quality measure reports varied by practice; and the lack of inter-operability between the electronic health record and CMT database makes the collection of data for clinical quality measures challenging.

Conclusions

Working with a diverse set of practices to implement an effective care coordination program and address quality measures requires resources beyond a model and software; including on-going outside practice facilitation, technical and data extraction and management assistance, and dollars to fund the nurse care managers and pay the practices for their efforts.

Next steps involve, further investigation with models that can compare the effect of the intensity of the care management program on quality measures, and subsequent effect of meeting quality measures on clinical outcomes.

Implications for Policy, Practice or Delivery

This study highlights the need for subsequent work to address what factors facilitate the transformation of chronic illness care coordination in small, independent primary care practices; as well as identify best practices in use of quality measures in various practice settings to ensure ease and accuracy in measurement and overall improvement in healthcare.

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