A Patient-Centered Medical Home (PCMH) Care Delivery Innovation That Improves Outcomes

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Objectives

Objective 1: Describe a care delivery approach that can lead to improved patient self-efficacy, empowerment, and clinical outcomes.

Objective 2: Identify opportunities to capture revenue dollars and control costs in the primary care setting.

Objective 3: Recognize DNP opportunities to develop and implement innovative health care delivery strategies that lead to improved outcomes.

Background

- The number of patients with diabetes continues to climb
  - By 2020, 52% of the population will have diabetes/prediabetes
  - $500 billion/year, 10% health care spending (United Health, 2010)
- The majority of patients with diabetes receive their care from a primary care provider (PCP) (AADE, 2009).

Background

- Successful diabetes management is difficult in the primary care (PC) setting.
  - There are time issues in PC for developing self-management expertise with the patient.

Background PCMH

- The patient centered medical home (PCMH) – emerging practice

  - Incorporates comprehensive primary care with a whole person orientation

  - Hallmarks are quality, safety, enhanced access

  - Health Information technology to monitor performance

  - Reimbursement reform to support areas like patient education

Background

- Ongoing innovations related to patient centered care and quality
  - Accountable Care Organizations
  - Blue Cross Blue Shield of Michigan initiative - PGIP
  - IOM
  - MiPCT

Background – DM Ed/Cost

- Boren (2008) "…18 of 26 papers identified reported findings that associated diabetes education (and disease management) with decreased cost, cost saving, cost-effectiveness/positive return on investment" (AADE, 2009, p. 3).

- Improved glycemic control, cost-effectiveness and decreased length of hospital stay are the main benefits of nurse-led interventions in diabetes care (Carey & Courtenay, 2007).

- Gilmore and O'Connor (2003) stress that "it is important to target the clinical initiatives in ways that consider potential clinical gains, but also the wide variation in the cost of interventions that target different clinical domains (p.443).

Project Purpose

- To implement and evaluate a demonstration project utilizing a PCMH model that incorporates the RN, CDE in this care setting to assist in the achievement of clinical and cost outcomes.

  - Educate and support patients with diabetes;

  - Complete pay for performance criteria (i.e. lab work, foot exam, eye exam, etc); and

  - Collaborate with providers in the management of the patient

- To identify links between self-efficacy and the caring relationship that affect clinical outcomes.

Significance of the Practice Improvement Initiative

- "Diabetes educators' experience and training make them the ideal team member to explore individualized behavior strategies and to help set customized goals" with the patient (Rice & Austin, 2009, p. 5).
  - Extensive expertise and knowledge related to diabetes
  - Proven clinical effectiveness based on established competencies
- RN-CDEs, in particular, "…focus on the whole person and the relationship between nurse and patient are both central and primary" (Quinn et al, 2003, p. A65).
  - This relationship builds the patient's trust/confidence to move forward; empowered and with self-efficacy.
  - Required agent within PCMH

CDE Competencies

- **Domain I:** Pathophysiology, Epidemiology, and Clinical Guidelines of Diabetes

- **Domain II:** Culturally-Competent Supportive Care Across the Lifespan

- **Domain III:** Teaching and Learning Skills

- **Domain IV:** Self-Management Education

- **Domain V:** Program and Business Management

Hypothesis

- When the RN-CDE utilizes a relationship based approach with the patient, perceived caring and trust will develop and lead to increased self-efficacy, perceived health, empowerment and positive clinical and cost outcomes.

Design

- One group 14 week pre-intervention/post-intervention design

- Two principal investigators collaborated to examine the effect of the intervention

- Criteria: A1c ≥8%, English speaking, No DM Ed within 6 months, age 18-80

Conceptual Framework Model

	Structure	Process	Outcome
Conceptual	Chaos PCMH HIT Reimbursement	Relationship Based Caring Group Education Intervention	Health System Psychosocial Physiological General Health
Operational	Inclusion Criteria Identify patients RN-CDE Depression	Individualized assessment Continuity Motivational interviewing Flexibility Personal Health Goals Caring Factor Survey	Cost of Care Utilization Empowerment Efficacy Trust Engagement Satisfaction Attendance HEDIS Measures Perceived Health Status Behavioral Change Goals

Process - Intervention

- Relationship based caring
  - Establish rapport - human connection; increasing trust
  - Creating a healing environment –continuity and flexibility
  - Patient centered - individualized assessment
- Education Intervention
  - Assessment
    - Motivational interviewing; ID group meeting agenda/personal health goals
  - Group meeting
    - Address individual agenda items
    - Deliver evidence-based educational content through use of group strengths; RN-CDE was the facilitator
    - Goal development/refinement
    - Plan agenda for next meeting

Process - Intervention

- Evidence Based Content:
  - AADE 7
    - Healthy Eating
    - Being Active
    - Healthy Coping
    - Monitoring
    - Taking Medications
    - Reducing Risks
    - Problem Solving

Process - Intervention

- Follow up
  - Venue determined by the patient
  - Focused on patient concerns
  - Developing the discrepancy
  - Encouragement and support for behavior modification

Instrumentation – Psychosocial Measures

- **Perceived sense of RN-CDE caring** – Caring Factor Survey (post program)

- **Empowerment** - Diabetes Empowerment Scale-Short Form (DES-SF)

- **Self-efficacy** - Diabetes Self-Efficacy Scale

- **Depression** - PHQ-9 Depression Scale

- **Perception of Health** - Self Rated Health Scale

Instrumentation - Physiological

- Diabetes clinical outcomes:
    - A1c
    - FBG
    - LDL-C
    - BMI
    - BP
    - Retinal eye exam, Urine Micro Albumin

Instrumentation – Cost of Care

- **Cost effectiveness** evaluation included all development and planning costs of time and resources, as well as
  - Revenue within the PC office due to achieving pay-for-performance criteria,
  - CDE revenue generating contributions,
  - Provider timed saved, and
  - **Health care utilization** - measured pre/post program using the Health Care Utilization Scale

Sample

- 34 patients in two clinics

- Males $n=22$ (65%), females $n=12$ (35%)

- Mean age of 53.24 ($SD=12.48$), range 21-80

- 82% of the patients were white, 9% were black, and 9% were Hispanic

Clinical and Psychological Variables Pre-Intervention

Variable	Mean	Std. Dev	Min.	Max.	Scale
Self-efficacy	6.0	2.15	2.4	10	1-10
Perceived Health	3.6	0.86	2	5	1-5
Empowerment	3.7	0.81	2	5	1-5
PHQ-9 Depression	9.7	6.83	0	27	0-27
FBG	206	73.1	84	359	
A1c	9.7	1.5	8.0	13.0	
LDL*	122	16.31	104	150	
BMI	34.7	6.50	22	49	
BP (systolic)	128	13	105	160	
BP (diastolic)	78	8	60	93	

*The LDL sample is comprised of those individuals with LDL levels greater than 100mg/dL

Caring Analysis

- 5.3-7.0 ($M = 6.7$, $SD = 0.49$)

- High level of caring perceived

- Relationship to literature/significance

Changes in Psychological Measures

Variable	Mean	SD	df	t	Sig.	d
Self-efficacy	1.53	1.54	28	5.30	.000*	.99
Health	0.45	0.91	28	2.65	.010*	.49
Empower	0.51	0.74	28	3.71	.001*	.69
Depression	-3.21	4.81	28	-3.59	.001*	.67

*p<.05, two-tailed

Changes in Clinical Measures

---Variable

Variable	Mean	SD	df	t	Sig.	d
A1c	-1.61	1.70	30	-5.29	.000*	-.95
FBG	-78.63	85.05	15	-3.70	.002*	-.93
LDL	-16.00	20.03	8	-2.40	.042*	-.80

P<.05, two-tailed

Correlations Between Significant Variables

	Caring	Depr	Self-eff	Empower	Health
Depr	-.41*				
Self-eff	.33	-.08			
Empower	.29	-.48**	.40*		
Health	.12	-.38*	.01	-.35	
A1c	.40*	-.12	-.04	-.35	-.01

*p<.05
**p<.01

Participant Satisfaction

- Post program Likert scale 0-10
- **Patient** program satisfaction scores ranged from 4.38-10 with a mean of 9.34(SD=1.18)
- **Provider** program satisfaction scores ranged from 6.6-10 with a mean of 8.51(SD=1.28)
- Results suggest strong program satisfaction

Cost Analysis - Expenses

	Total
CDE Salary[a] $41.00/hour (*n*=34)	
Initial assessment 1 hour	$1,394.00
Group meeting 2.5 hours (4 meetings/month)	$1,640.00
Follow-up 30 minutes (119 visits)	$2,439.50
Total CDE Salary Costs	**$5,473.50**
Start-up costs (copies, white board, charts, etc)	**$ 796.71**
Physician Costs - Physician salary[b] $108.23/hour	
Physician chart review (34 initial visits & 119 follow-up visits)	$ 612.00
Medical Assistant - salary[c] $18.57/hour	
Chart retrieval/return (34 initial & 119 follow-up visits)	$ 94.86
Total Physician Costs[d]	**$ 706.86**
Potential Physician Costs for Group Visit Model (*n*=34)	
Physician salary - group meeting (2 hours x 4/month)	$3,463.36

Cost Analysis - Revenue[a]

T – Code Revenue Generation (*n*=11[b])		Total
T1015 $65.01/patient (assessment)		$ 715.11
T1019 $32.50/19 visits x 2(face-to-face)		$ 1,235.00
T1019 $32.50/18 visits x 2 (telephone)		$ 1,170.00
Total T-Code Revenue		**$ 3,120.11**

E & M Codes Revenue-Group Visits[c] (*n*=20)

	Monthly	Total
99211 $18.64 (1 visit)	$ 18.64	$ 74.56
99212 $39.12 (2 visits)	$ 78.24	$ 312.96
99213 $65.43 (11 visits)	$ 719.73	$ 2,878.92
99214 $65.43 (6 visits)	$ 392.58	$ 1,570.32
Total Group Visit Revenue		**$ 4,836.76**

Cost Analysis-Efficiency/Performance

Potential Efficiency[a] Savings - Average primary care visit 15 minutes.

- Glucose management 4 minutes x17 patients[b] x4 visits = 272 minutes
- Foot exam 3 minutes x 31 patients[c] = 93 mins
- Total time saved = 365 minutes

Translated into visits = 24.33 saved billable visits:

99211 – 1 visits x $18.64	$ 18.64
99212 – 2 visits x $39.12	$ 78.24
99213 – 14 visits x $65.43	$ 916.02
99214 – 7 visits x $65.43	$ 458.01
Total efficiency revenue	**$ 1,470.91**

Attainment of Performance Criteria – B/P, eye exam, A1C, LDL, and UMA

$4000 x 6 physicians = $24,000 potential incentive revenue

64% of the measures were achieved pre-program	$ 15,360.00
27% additional measures were obtained by the CDE	**$ 6,480.00**

Cost Analysis - Program Benefit[a] (*n*=34)

Total T code revenue[b]	$ 3,120.11
Total group visit revenue[c]	$ 4,836.76
Total efficiency revenue	$ 1,470.91
Total performance incentives[d]	$ 6,480.00
Total Revenue	**$15,907.78**
Program expenses[e]	$(6,977.07)
Physician salary	$(3,463.36)
Total Expenses	**$(10,440.43)**
Total Revenue	**$ 15,907.78**
Less expenses	**$(10,440.43)**
Total program financial benefit	**$ 5,467.35**

Discussion

- In this study, integrating the RN-CDE in the PCMH improved clinical outcomes and was cost effective.
  - There was not a significant change in BMI, UMA, or B/P
- Significance of Psychological Measurement Results
  - Perceived high level of caring
  - Significantly improved psychological measures of self-efficacy, empowerment, self-rated health and depression scores.
  - Significant correlations between depression and caring, empowerment, health rating, as well as, self-efficacy and empowerment
- Potential revenue generation (calculated through the use of T codes and E & M codes).
  - HEDIS measures attainment improved 27% - $6,480.00.
  - No change in ER visits or overnight hospital stays
  - Theoretical net pre-tax benefit of $5,467.35 for the practice

Limitations

- 14 week design did not allow for continued follow-up
- Small homogeneous group size - limits the overall generalizability of the study.
- Time of year – weather, holidays.
- The financial reimbursement climate continues to change
  - Maintain gains
  - Potential additional gains

Conclusions

- Care delivery innovations that integrate specialized care providers in the PCMH setting, such as the RN-CDE, can be successful in improving clinical and fiscal outcomes.
  - Caring/relationship builds trust and helps improve self-efficacy, empowerment, and decrease depression scores.
- Opportunities to improve clinical outcomes and capture revenue that supports this role and adds to the practice financial viability.

Recommendations

- Continue to focus on identifying patients with co-morbid depression
- Develop evidence-based programs specific to patient needs
- Continue to evaluate methods of assisting patients to increase self-management skills
  - Relevant to all chronic disease patient populations

DNP Opportunities

- MSMT - entrepreneurial
- Practice transformation/ACO linkages
- Consulting
- RN development in primary care/leadership/education

Sponsors

- American Association of Diabetes Educators: Innovation in Practice Award

- Blue Cross Blue Shield of Michigan: Student Award

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