

Variation in Care Improvement Opportunities Suggests Need for Tailored Clinician-Specific Improvement Interventions

Jeffrey P. Anderson, ScD, MPH¹; JoAnn M. Sperl-Hillen, MD^{1,2}; A. Lauren Crain, PhD¹;
Jay R. Desai, PhD¹; Pritika C. Kumar, PhD, MPH, MA¹;
Rebecca C. Rossom, MD, MSCR¹; Patrick J. O'Connor, MD, MA, MPH^{1,2}

¹HealthPartners Institute, Minneapolis, MN

²HealthPartners Center for Chronic Care Innovation, Minneapolis, MN



HealthPartners® Institute

make good happen

Conflicts of Interest: Patrick O'Connor

- No funding from industry
- 11 Current NIH Grants (NHLBI, NIDDK, NICHD, NIA, NIMH, NIDA, NCI, and PCORI)
- Employed at HealthPartners Institute
- Co-Director, HealthPartners Center for Chronic Care Innovation
- Trained in Primary Care, Epidemiology

The Macro-Geography of Care Quality

Various organizations including CMS have defined accountability measures that are publicly reported and used to adjust payment for clinical services. There is considerable variation in primary care clinician (PCC) performance on publicly reported accountability measures such as **Optimal Diabetes Care (ODC)** or **Optimal Vascular Care (OVC)**.

In one medical group, ODC across clinics varies from 30% to 55%

Within large clinics, ODC varies across PCCs from 20% to 65%

Clearly, PCC-specific care improvement opportunities can be identified by looking at these quality measures.



Optimal Diabetes Care (ODC)

- BP < 140/90 mm Hg
- A1c < 8% (within 12 months)
- On Statin
 - Or Statin intolerant
- On Aspirin
 - Secondary prevention
 - Unless Aspirin intolerant
 - Or Contraindicated
- Non-smoker

Composite Quality Measures:

- Lump a lot of things together
- Must be dis-entangled to identify specific strategies to improve care
- We thus need to look deeper—but how much deeper?
- Let's look at ODC components

When You Go Deeper, You See Care Improvement Opportunities

	All DOCS	Doc A	Doc B	Doc C
ODC (% pts who meet all 5 goals)	48	40	38	40
A1c <8%	71	80	60	72
BP<140/90	85	60	85	78
Non-Smoker (documented)	84	90	90	80
On Aspirin (med list)	98	98	98	98
On Statin (med list)	97	95	85	94
LDL<100 mg/dl**	70	80	60	50

It Gets Complicated.....

Need to Go a Little Deeper

	All DOCS	Doc A	Doc B	Doc C
ODC (% pts who meet all 5 goals)	48	40→57	38→52	40→47
A1c <8%	71	80	60→71	72
BP<140/90	85	60→85	85	78→85
Non-Smoker (documented)	84	90	90	80→84
On Aspirin (med list)	98	98	98	98
On Statin (med list)	97	95	85→97	94
LDL<100 mg/dl	70	80	60	50



And Even Deeper: Micro-Geography of Care Improvement

- Rely on CDS algorithms to identify numerator and denominator of multiple metrics.
- Not just the HTN control rate
- Profile the **specific care processes** that must be in place to achieve excellent control of HTN



The Anatomy of Clinical Algorithms

As part of a clinical decision support (CDS) system implemented within a large health care delivery system, we developed evidence-based algorithms provided individualized patient treatment recommendations related to optimal management of six major cardiovascular risk factors at adult encounters.

As appropriate, we developed process-of-care metrics for each major CV risk factor, such as: recognition of risk factor, timely monitoring of risk factor, time to medication intensification for patients in suboptimal control, medication choices, frequency of drug-condition and drug interaction safety concerns, timely and appropriate referral when indicated, etc.



CV Wizard Clinician View

CV Wizard				
Print Patient Only & Close		Print Provider Only & Close		Print All & Close (double sided printer)
Print All & Close (single sided printer)				
Provider	Patient	Feedback	Statin Risk Assessment Tool	
Patient Name CVW,TESTONE	Age 64	Lifetime Cardiovascular(CV) Risk** Calculated for ages 20-59		10 Year CV Risk** 33.1%
Relevant problems: Diabetes				
Lipids CV Risk Reduction: 8 %*		Priority 2	Blood Pressure CV Risk Reduction: 0 %*	
Glucose/A1C CV Risk Reduction: 5 %*		Priority 3		
Goal: Consider statin initiation. Labs: LDL (mg/dl) 130 8/17/18 HDL (mg/dl) 35 2/17/18 TRIG (mg/dl) 220 2/17/18 TC (mg/dl) 250 2/17/18 Treatment Considerations: <ul style="list-style-type: none"> Statin initiation or intensification is recommended due to diabetes and CV risk. Many experts recommend high intensity statin doses for CV risk > 7.5%. Other Considerations: <ul style="list-style-type: none"> Baseline ALT measurement is recommended by many experts prior to statin therapy initiation. 		Goal: BP < 140/90 Labs: BP (mm Hg) 110/80 8/23/18 Last BP (mm Hg) 150/80 8/17/18 Treatment Considerations: <ul style="list-style-type: none"> Tobacco use is identified. Assess readiness and consider varenicline (Chantix), bupropion (Zyban), or nicotine patch, gum, lozenge, or inhaler. Type "hp connect" in Epic orders for smoking cessation counseling referral. Additional options listed on patient interface. 		Goal: A1C <= 7.9 Labs: A1c (%) 8.8 8/17/18 Medications: <ul style="list-style-type: none"> Metformin HCl Tab 500 MG Treatment Considerations: <ul style="list-style-type: none"> If appropriate, consider increasing metformin as tolerated (to 1000 mg bid). Consider starting a sulfonylurea (e.g. glimepiride). Consider starting a DPP4 inhibitor (e.g. linagliptin 5 mg qd). Other Considerations: <ul style="list-style-type: none"> Annual kidney function tests(GFR) are recommended for metformin use. Consider monthly visits and/or interim phone calls until A1c goal achieved. Urinary albumin excretion test (e.g. UMACR) may be due. Consider using diabetes educator, dietitian, or MTM pharmacist support.
BMI : 26.3 CV Risk Reduction: < 1 %* (based on 3 unit drop in BMI)		Priority 4	Tobacco Use : YES CV Risk Reduction: 9 %*	
Aspirin or Blood Thinner Use : YES CV Risk Reduction: 0 %*		Priority 1		
Treatment Considerations: <ul style="list-style-type: none"> Discuss advantages of reducing weight by 10-20 lbs. Potential actions are listed on patient interface. 		Medications: <ul style="list-style-type: none"> Aspirin Tab 81 MG Treatment Considerations: <ul style="list-style-type: none"> Clinical indication for ASA: Yes Low dose aspirin is recommended for primary prevention of cardiovascular disease and colorectal cancer if patient places a higher value on these benefits than the potential harm from bleeding and is willing to undergo long-term therapy. 		



And Even Deeper:

Micro-Geography of Care Improvement:

Example 1

- CDS algorithms necessarily identify both the numerator and the denominator that define specific actionable metrics:
 - Denominator= Number of patients with BP measures that meet criteria for HTN diagnosis
 - Numerator=Number in denominator with no HTN diagnosis



The **Micro-Geography of Care Improvement:**

Example 2

- CDS algorithms necessarily identify both the numerator and the denominator that define specific actionable metrics:
 - Denominator= Number of patients with elevated BP
 - Numerator=Number in denominator not on any BP meds



The **Micro-Geography of Care Improvement:**

Example 3

- CDS algorithms necessarily identify both the numerator and the denominator that define specific actionable metrics:
 - Denominator= Number of patients with elevated BP on 3 or more BP meds
 - Numerator=Number in denominator not on a diuretic



The **Micro-Geography of Care Improvement:**

Example 4

- CDS algorithms necessarily identify both the numerator and the denominator that define specific actionable metrics:
 - Denominator= Number of patients with diagnosis of diabetes
 - Numerator=Number in denominator with no A1c test in prior 12 months



Methods

We then calculated the proportion of each PCC's patients who might need treatment modification related to that process measure as follows:

We defined a set of 60 care improvement opportunities based on CDS algorithms related to control of major CV risk factors including overweight/obesity and glucose.

We then quantified variation across 597 PCCs (with a minimum of 20 patients) on these process-of-care measures by analyzing the data from 128,679 clinic visits made by 75,855 adults with diabetes or cardiovascular (CV) risk from January 1, 2017 through December 31, 2017.

PCCs were classified by percentile based on the proportion of their eligible patients for whom a specific care improvement opportunity was identified.



Findings

When comparing low versus high performing PCCs, we observed substantial variation with as much as a 29% difference in the proportion of patients for whom CDS recommendations were generated. Across measures, low performing providers had a proportion of patients for a CDS recommendation at least 1.9 times greater than high performing providers.



Percentage of Patients who would benefit from specified Care Improvement Opportunities

	10 Percentile	Median	90 Percentile
Meet HTN criteria but no HTN Diagnosis	1.2%	5.3%	11.0%
Consider starting a diuretic	5.3%	12.5%	20.5%
Increase HTN med dose or add new HTN med	9.6%	20.0%	30.0%
Rec combo med to improve adherence (high BP, on 3+ meds)	0%	4.0%	9.3%
A1c not done in 12 months	3.1%	9.1%	16.7%
Consider metformin start (A1c >goal, GFR >45)	3.6%	8.5%	13.8%
A1c >11% T2DM, not on insulin	0%	1.6%	5.0%
DM and no UMACR in 12 months	23.8%	37.0%	50.0%



Ratio of Care Opportunity Frequency in 90th Percentile versus 10 percentile Clinicians

Care Improvement Opportunity	90/10 Percentile
Meet HTN criteria but no HTN Diagnosis	9.1
Consider starting a diuretic	3.9
Increase HTN med dose or add new HTN med	3.1
Rec combo med to improve adherence (high BP, on 3+ meds)	>9
A1c not done in 12 months	5.4
Consider metformin start (A1c >goal, GFR >45)	3.8
A1c >11% T2DM, not on insulin	> 5
DM and no UMACR in 12 months	2.1



Percentile Ranks of Primary Care Clinicians A to E across Care Improvement Opportunities 1 to 5. This matrix identifies CIO to target for each PCC (Hypothetical Scenario)

PCC	Care Improvement Opportunity (CIO)						CIOs to target for each PCC		
	1	2	3	4	530			
A	90	40	10	92	78	40	1	4	5
B	30	78	90	40	15	80	2	3	30
C	50	55	30	75	40	20	1	2	4
D	45	82	28	36	68	74	2	5	30
E	80	30	74	60	50	10	1	3	4



QI Feedback to PCP and their Supervisor, Updated every 2 months

Selected Care Improvement Opportunity (CIO) from a set of 30	You're doing better than this % of PCP peers	Number of Patients evaluated in past 2 months	% of Your Patients with Opportunity to Improve Care	
			You Now	Your Goal*
Use thiazide diuretics	8	50	38%	23%
Initiate statin treatment when indicated	11	24	35%	28%
Refer smokers to cessation programs	23	14	24%	16%
Hypertension recognition	71	61	12%	😊 Great Job!
Screening for diabetes when indicated	83	33	9%	😊 Great Job!
Aspirin underuse	94	17	8%	😊 Great Job!

Limitations

- One clinical delivery system; only primary care; mostly physicians with few NP/PA
- Data predated last HTN Guideline change
- Results Are Preliminary; Analysis Ongoing
- Needs adjustment for patient mix
- Depends upon accuracy and completeness of EMR data: meds, labs, diagnoses, other
- Some PCCs have few patients in specific subgroups (A1c >11%, BP >180/110)



Conclusions/Implications

In a care delivery system frequently recognized for high quality care, we observed substantial variation in frequency of care improvement opportunities across PCCs within and across clinics.

PCC-specific patterns of care improvement opportunities could guide deployment of tailored and efficient care improvement interventions to improve care.

The dissemination potential for this method of mapping the Micro-Geography of care Improvement is high.



Thank you!

Patrick O'Connor

patrick.j.oconnor@healthpartners.com

