Using and Testing Constructs related to Evidence-based Medicine to Improve the Quality of Care in Office Practices.

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Seventh International Conference on Health Policy Statistics:

Philadelphia, January 18, 2008

Maintenance of Certification (MOC) & Practice Improvement Modules (PIM)

- Internist have time-limited certification (10 yrs.).

- Physicians must MOC during the interim.

- MOC: unrestricted license, self-directed learning, pass exam, evaluate medical practice.

- PIM, web-based system demo: www.abim.org/online/pim/demo.aspx

Constructs and Instruments in Comprehensive Care PIM

- **Quality improvement:** IHI Idealized Office Design & Wagner's Chronic Care Model

- **Systems survey:** NCQA: Physician Practice Connections – structural design of practice

- **Patient Survey:** Consumer Assessment of Health Plans (CAHPS - Clinician version) – patient satisfaction & access to care

- **Chart audits:** AQA, NQF, & RAND quality measures of clinical outcomes and care processes

- H0: better office designs yield higher rates of care processes, better clinical outcomes, & greater patient satisfaction with care

Conditions in Comprehensive Care PIM

Chronic care	Acute Care	Preventive Care
• Hypertension • Coronary artery disease • H/o acute myocardial infarction • Congestive heart failure • Atrial fibrillation • Diabetes • Osteoarthritis of the knee and/or hip	• Upper respiratory infection • Urinary tract infection • Low back pain • Acute depression	• Weight counseling • Exercise counseling • Tobacco cessation • Influenza immunization • Pneumococcal immunization • Breast cancer screening • Colorectal cancer screening • Osteoporosis screening

Physician and Patient Samples

	Physicians 190	Charts Audits 12,752 Htn 90% Dia 42%	Pt. Survey 4,733
Age	43.5 (7)	64.3 (14)	57.3 (15)
Gender (f%)	35%	57%	61%
Race (w%)	60%	41% (45% other)	77%
Hispanic (%)	17%	8%	10%
Comorbidity	NA	1.2 (2, Rng: 0-16)	15% (Fair/poor) 38% good

Systems: Exploratory Factor Analyses

Measures Group	# Items	# Factors	Kaiser	TL
1) Conditions & Risk Data	2	1	0.50	NA
2) Pt Tracking & Registries	39	3	0.89	0.76
3) Care Mgmt & Pt Self-care	54	6	0.83	0.80
4) Access & Coordination	17	2	0.86	0.71
5) Electronic Prescribing	18	2	0.84	0.74
6) Tracking Tests	12	2	0.65	0.56
7) Tracking Referrals	16	1	0.78	0.55
8) EDS Interoperability	18	2	0.82	0.70
9) Performance Monitor & QI	18	3	0.77	0.43
10) Practice Quality Culture	9	1	0.87	0.70

Cluster Analyses:
Two Strategies for Primary Care

- **Coordination Group (ECO):** 90 practices – assess patient language needs, coordinate referral care, adopt patient self-care measures and office charting tools, have written policies on patient access, automated treatment monitoring plans, electronic prescription systems.

- **QI Performance Group (QIP):** 100 practices – uses patient information to identify major conditions treated and health risk factors, monitors and reviews practice, physician & staff performance against standards.

Cluster Analyses: Group Factors

Measures Group	# Factors	ECO	QIP	Prob.
3) Care Mgmt & Pt Self-care	6	<u>XXXX</u>	XX	<0.001-.60
4) Access & Coordination	2	XX		<.001,.002
5) Electronic Prescribing	2	XX		.002, .05
1) Conditions & Risk Data	1		X	<.001
9) Performance Monitor & QI	3		XXX	<.001-.003
2) Pt Tracking & Registries	3		XXX	.09-.79
6) Tracking Tests	2	X	X	.06, .75
7) Tracking Referrals	1	X		0.31
8) EDS Interoperability	2	X	X	.09, .17
10) Practice Quality Culture	1		X	.17

Group Practice Characteristics

Characteristics	ECO	QIP
Solo	37%	35%
Single Specialty	31%	29%
Multi-specialty	23%	26%
Ambulatory Care/Clinic	94%	97%
100% time @ site for Pt Survey	37%	45%
100% Board Cert. Physicians	72%	81%
Yrs. Practice in Existence	3.4 (1)	3.3 (1)
Yrs. With Practice	3.0 (1)	2.9 (1)
# Physicians	8.6 (5)	8.7 (5)
# PA & Nurse Practitioners	2.5 (2)	2.4 (2)
EDS/E-Prescript./EMR	73%/44%/33%	78%/33%/40%

Estimating Outcomes & Performance

- Case-mix adjustment: pt characteristics: age, sex, ethnicity, education, co-morbidities – principal components

- Linear random coefficient models for clinical values and patient satisfaction

- GEE (logistic) models for process and performance (quality) measures

Results: Diabetes Clinical Values, Performance and Process Measures

Diabetes	ECO 2,655	QIP 2,742	Prob
Hb_{a1c} Mean	7.3 (2) 8.2	7.2 (2) 8.2	0.44
Hb_{a1c}<7	42% OR=0.82	47% OR=0.82	0.05
Hb_{a1c} guideline	80% OR=0.82	83% OR=0.80	0.16
LDL Mean	98.0 (34) 94.6	97.1 (33) 93.5	0.47
LDL <130	67% OR=0.96	68% OR=0.94	0.60
LDL guideline	80% OR=0.94	81% OR=1.00	0.98

Results: Hypertension Clinical Values, Performance and Process Measures

Hypertension	ECO 5,545	QIP 5,908	Pr
Sys BP Mean	131.9 (17) 152.5	133.4 (17) 153.8	0.06
Sys BP <140	66% OR=1.14	63% OR=1.14	<.01
S. Creat. Mean	1.04 (.4) 1.29	1.06 (.4) 1.31	0.09
S. Creat. Goal	68% OR=1.09	66% OR=1.12	0.01
S. Creat. guideline	83% OR=1.07	82% OR=1.06	0.23
Patient Surveys: Ratings of Practice Overall (wtd*)			
Pt Ratings*	127.6 (16) 127.8 n=2,325	128.0 (15) 127.8 n=2,408	0.97

Limitations

- Small sample size
- Potential for pt. selection bias results & self-report on systems
- May not generalize to other practice, physician, or patient populations

Conclusions & Future Research

- Two difference type of systems of care: ECO coordination of care & QIP performance evaluation

- Each system has strengths and weaknesses - ECO group closer to ideal design (uses EDS Coordination of care)

- Future: resampling procedures to assess stability of results, composite scoring of factors, standard setting for performance