Rethinking Prevention in Primary Care: Applying the Chronic Care Model to Address Health Risk Behaviors

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Background

- Smoking, risky drinking, physical inactivity, and unhealthy diet are risk factors for chronic disease
- Opportunities to address patient behaviors are often missed in primary care practices
- CCM is potential template to improve preventive efforts
  - Proactive vs. reactive approach to care
  - Systematic delivery of care
  - Broader impact of changes made in practices
- This study: empirical analysis of CCM as template for addressing health risk behaviors

Data Sources

- “Prescription for Health” Round 1 – RWJF initiative
- Primary care practices in AHRQ Practice-Based Research Networks (PBRN)
- Self-administered surveys: Practice Information Form (PIF) and Practice Staff Questionnaire (PSQ)
- PIF (84%): N=52 practices; PSQ (>50%): N=318 staff members

Measures: Dependent Variables

- Practice reports of conducting –
  1) Health risk assessment
  2) Referral to community programs
  3) Individual counseling
  4) Group counseling

- Assessed for all risk behaviors, composite score for each preventive service

- Factor analysis: 4 components with eigenvalues > 1.0, factor loading coefficients > 0.65, Cronbach α > 0.84

5) Individual counseling for diet alone

CCM Measures: Independent Variables

- Health system / Organization of care
  - Practice ownership (1: hospital health system, 0: clinician, university, public sponsor)
  - QI practice culture (0-100: group oriented, developmental, rational, hierarchical)
- Patient self-management support
  - Patient reminder cards (0-1, “never” to “always”)
- Delivery system design
  - Multispecialty physician staff (1: multi-, 0: single-spec.)
  - Dieticians on staff (# of FTEs)

CCM Measures: Independent Variables

- Decision support
  - Risk factor chart stickers (0-1: “never” to “always”)
  - Checklists/flowcharts (0-1: “never” to “always”)
  - Patient chart review (0-1: “never” to “always”)
  - Clinical meetings (0-1: “never” to “daily”)
- Clinical information systems
  - Patient registry (0-1: “never” to “always”)
  - Electronic medical record (1: yes, 0: no)
- Practice size
  - # FTE employees

Frequency of Preventive Service Delivery

	Mean	*SD*	*Range*
Health risk assessment	**2.09**	**0.82**	**(0–3.5)**
Tobacco use	2.36	1.09	(0–4)
Risky drinking	2.02	1.04	(0–4)
Dietary patterns	2.07	0.80	(0–3.5)
Physical inactivity	2.00	0.92	(0–3.5)
Referral to community programs	**1.96**	**0.55**	**(0.3–3)**
Tobacco use	1.91	0.73	(0–4)
Risky drinking	2.02	0.63	(0–3)
Dietary patterns	2.04	0.55	(1–3)
Physical inactivity	1.87	0.67	(0–3)

	Mean	*SD*	*Range*
Individual counseling	**1.42**	**0.69**	**(0–3.5)**
Tobacco use	1.41	0.84	(0–3.5)
Risky drinking	1.20	0.77	(0–3.5)
Dietary patterns	2.07	0.80	(0–3.5)
Physical inactivity	1.37	0.75	(0–3.5)
Group counseling	**0.43**	**0.57**	**(0–2.5)**
Tobacco use	0.49	0.62	(0–2)
Risky drinking	0.31	0.53	(0–2)
Dietary patterns	0.44	0.68	(0–3)
Physical inactivity	0.34	0.62	(0–3)

0=never, 1=rarely, 2=occasionally, 3=usually, 4=always

PCP Characteristics & CCM Indicators

	Mean or %	SD	Range
Practice size (FTEs)	17.9	15.6	1.5–64.7
Health system / Organization of care			
Practice ownership			
Clinician (*n* = 13)	25.0%	-	-
Hospital health system (*n* = 22)	42.3%	-	-
University health system (*n* = 10)	19.2%	-	-
Public sponsor (*n* = 7)	13.5%	-	-
Practice culture			
Group oriented	34.6	11.2	(17–58.5)
Developmental	12.8	3.9	(4–20)
Rational	24.6	6.5	(4.5–39)
Hierarchical	24.4	8.6	(12–55)
Self-management support			
Patient reminder cards	0.50	0.30	(0–1)

PCP Characteristics & CCM Indicators

	Mean or %	SD	Range
Delivery system design			
Specialty type			
Single specialty (*n* = 40)	76.9%	-	-
Multispecialty (*n* = 12)	23.1%	-	-
Dietician FTEs	0.20	0.09	(0–0.6)
Decision support			
Risk factor chart stickers	0.30	0.29	(0–1)
Patient chart review	0.52	0.21	(0–1)
Checklists or flowcharts	0.64	0.22	(0–1)
Clinical staff meetings	0.57	0.26	(0–1)
Clinical information systems			
Patient registry	0.25	0.23	(0–0.86)
Electronic medical record			
Yes (*n* = 8)	15.4%	-	-
No (*n* = 44)	84.6%	-	-

Regression Results

- Overall model statistics
  - Adjusted R^2 range: 0.22 to 0.41
- Health system / Organization of care
  - Hospital health system more likely to conduct hra (b= 0.60, p<0.01)
  - QI culture positively associated with all services (b=0.20 to 0.30 per 10-point increase, p<0.01)
- Patient self-management support
  - Practices using reminder cards less likely to conduct hra (b=-0.92, p<0.05) and individual counseling (b=-0.61, p<0.05)

- Delivery system design
  - Multispecialty staff: hra ($b=0.50$, $p<0.05$)
  - Dieticians: individual counseling on diet ($b=2.04$, $p<0.05$)
- Decision support
  - Risk factor chart stickers: indiv. counsel. ($b=1.33$, $p<0.001$)
  - Checklists/flow: hra ($b=1.01$, $p<0.05$), referrals ($b=0.83$, $p<0.01$)
  - Chart review: indiv. counsel. ($b=1.03$, $p<0.01$)
  - Clinical meetings: group counsel. ($b=0.55$,$p<0.05$), referrals ($b=-0.53$, $p<0.05$)
- Clinical information system
  - Patient registry: indiv. counseling ($b=-0.76$, $p<0.05$)
  - Electronic medical record: indiv. counsel. ($b=0.44$, $p<0.05$), referrals ($b=0.38$, $p<0.05$)

Summary & Significance

- Services that address risk behaviors not frequently offered in primary care practices
- Incomplete implementation of CCM components
- Health system/organization most strongly associated with delivery of behavioral interventions
- General support for CCM as an effective template for prevention of risk behaviors
- Need to tailor components - chronic care to preventive care