**Development and Use of the Chronic Care Model**

- This article describes the Academic Chronic Care Collaborative (ACCC), an ongoing network of 48 teams from 22 teaching hospitals and systems that have committed to implementation of the evidence-based Chronic Care Model in their residency practices.

- This article chiefly focuses on how team members work together.

- This article describes a CMS disease management initiative, and describes and compares the disease management and chronic care model models and the effects they have on physician practice and on patient care.

- Case studies are provided describing how components of the chronic care model have been implemented in the primary care practices of 4 health care organizations.

- This article reviews research evidence showing to what extent the chronic care model can improve the management of chronic conditions (using diabetes as an example) and reduce health care costs.

- This article describes initial testing of the Assessment of Chronic Illness Care (ACIC), a practical quality-improvement tool to help organizations evaluate the strengths and weaknesses of their delivery of care for chronic illness in six areas: community linkages, self-management support, decision support, delivery system design, information systems, and organization of care.

- This article reports the first 5 years of a comprehensive, integrated approach to diabetes care at Group Health Cooperative of Puget Sound, a large group model Health Maintenance Organization in Washington State.
- This article describes the structure and functioning of patient care teams in primary care.

Recent Clinical Interventions Supporting the Model Elements

- This study examines the impact of participation in a collaborative implementing the chronic care model (CCM) on the reduction of cardiovascular disease risk in patients with diabetes. Over a 1-year interval, this collaborative intervention using the CCM lowered the cardiovascular disease risk factors of patients with diabetes who were cared for in the participating organization's settings.

- This study examines the Chronic Care Model (CCM) as a framework for preventing health risk behaviors such as tobacco use, risky drinking, unhealthy dietary patterns, and physical inactivity. Adaptation of the CCM for preventive purposes may offer a useful framework for addressing important health risk behaviors.

- This trial shows that Clinicians in small independent primary care practices are able to incorporate elements of the CCM into their practice style, often without major structural change in the practice, and this incorporation is associated with higher levels of recommended processes and better intermediate outcomes of diabetes care.

- This study shows that chronic care training programs for residents may influence the health outcomes of patients treated in their continuity clinics while simultaneously offering an important educational experience in an underemphasized area of medicine.

- This study develops and evaluates the effectiveness of multifaceted organizational system interventions--operational assessments, tracking systems, reminder calls, tailored education, physician prompts and a tailored counseling call--on mammography rescreening rates within three community clinics using the Chronic Care Model as a framework.

Platt G et al., Translating the Chronic Care Model Into the Community: Results from a randomized controlled trial of a multifaceted diabetes care intervention. Diabetes Care. 2006 Apr;29(4):811-7
- The results of this trial suggest that implementing the CCM in the community is effective in improving clinical and behavioral outcomes in patients with diabetes.

- This study is a qualitative, comparative case study of 5 of 18 group clinics 18 to 23 months after the implementation of the CCM. The findings highlight specific organizational challenges with health care transformation in the absence of a blueprint more specific than the CCM.
Evidence is reviewed from controlled clinical trials suggests that (1) programs teaching self-management skills are more effective than information-only patient education in improving clinical outcomes; (2) in some circumstances, self-management education improves outcomes and can reduce costs for arthritis and probably for adult asthma patients; and (3) in initial studies, a self-management education program bringing together patients with a variety of chronic conditions may improve outcomes and reduce costs.


This study shows that the CCM serves as an effective model for implementing and sustaining self management training programs.

Methods

Lester RT, Grant RW et al., Randomized controlled trial of an informatics-based intervention to increase statin prescription for secondary prevention of coronary disease. JGIM 2006 Jan;21(1):22-9

This study reports the impact of a computer-assisted physician-directed intervention to improve secondary prevention of hyperlipidemia


In this study, population-level clinical registries were combined with summarized recommendations to PCPs and had a modest effect on management. The intervention was limited by good overall quality of care at baseline and temporal improvements in all control clinics. It is unknown whether this intervention would have had greater impact in clinical settings with lower overall quality.

Chuang J, et al., Design and Analysis of Controlled Trials in Naturally Clustered Environments:Implications for Medical Informatics, J Am Med Inform Assoc. 2002;9:230-238

Abstract: In medical informatics research, study questions frequently involve individuals who are grouped into clusters. For example, an intervention may be aimed at a clinician (who treats a cluster of patients) with the intention of improving the health of individual patients. Correlation among individuals within a cluster can lead to incorrect estimates of the sample size required to detect an effect and inappropriate estimates of the confidence intervals and the statistical significance of the intervention effects. Contamination, which is the spread of the effect of an intervention or control treatment to the opposite group, often occurs between individuals within clusters. It leads to an attenuation of the effect of the intervention and reduced power to detect a difference. If individuals are randomized in a clinical trial (individual-randomized trial), then correlation must be taken into account in the analysis, and the sample size may need to be increased to compensate for contamination. Randomizing clusters rather than individuals (cluster-randomized trials) can eliminate contamination and may be preferred for logistical reasons. Cluster-randomized trials are generally less efficient than individual-randomized trials, so the tradeoffs must be assessed. Correlation must be taken into account in the analysis and in the sample-size calculations for cluster-randomized trials.
**Web Based Resources**

Improving Chronic Illness Care Website  
http://www.improvingchroniccare.org/

Chronic Care Model Bibliography (complete)  
http://www.improvingchroniccare.org/resources/bibliography/ccm.html

Required and Additional Quality Measures (from the Bureau of Primary Health Care)  
https://services.aamc.org/privatesite/index.cfm?path=/patientcare/iicc/private/accc/measures.pdf

Using Computerized Registries in Chronic Disease Care  
http://www.chcf.org/documents/chronicdisease/ComputerizedRegistriesInChronicDisease.pdf

Essential Functions of an Information System (Registries)  
https://services.aamc.org/privatesite/index.cfm?path=/patientcare/iicc/private/accc/functionsofregistry.pdf

Patient Self management Tools: An Overview  

Helping Patients Manage Their Chronic Conditions  

It Takes A Region: Creating A Framework to Improve Chronic Disease Care  
http://www.chcf.org/documents/chronicdisease/CreatingAFrameworkToImproveChronicDiseaseCare.pdf

A Toolkit for Redesign in Health Care  

The Advanced Medical Home: A Patient-Centered, Physician-Guided Model of Health Care  
(American College of Physicians)  
http://acponline.org/hpp/statehc06_5.pdf
Facilitated Small Group Work

1. Assessing Your Practice

Use the ACIC v3.5 to review current status of Chronic Care Model elements in your practice. For best results, have multiple members of your practice complete an ACIC v3.5, then collate and compare results. Further copies of the ACIC v3.5 can be downloaded from: http://www.improvingchroniccare.org/tools/acic.html

2. Team Meetings

Assess the current state of your practice’s Team Meetings. Indicate how you are doing in the following areas:

Do you have regular team meetings? If not, what barriers exist to having them? What steps could you take in the next two weeks to overcome these barriers?

Who currently meets at your team meeting? Are residents included? If not, what could be done to include them?

Do the members of your practice collaborate on the following? If not, what barriers exists to collaboration?

   Setting Common Goals
   Assigning Roles/Divide Labor
   Cross Training Staff
   Communicating in Real time
3. Forming a Research Question

Statement of the problem you plan to address:

What is the hypothesis?

What is the mechanism through which you expect your intervention to work? (I.e. what are the actual steps from intervention implementation to changes in your final measured outcome?)

What will you measure (baseline variables – including variables that might confound your results; outcomes – primary and secondary)?

What study design will you implement to test your hypothesis?
4. Outcome Measures