

Does The Chronic Care Model Work?

**A Chartbook created by the staff of:
Improving Chronic Illness Care,
At Group Health's MacColl Institute
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I. American Healthcare: A Broken System

Chronic Illness in America

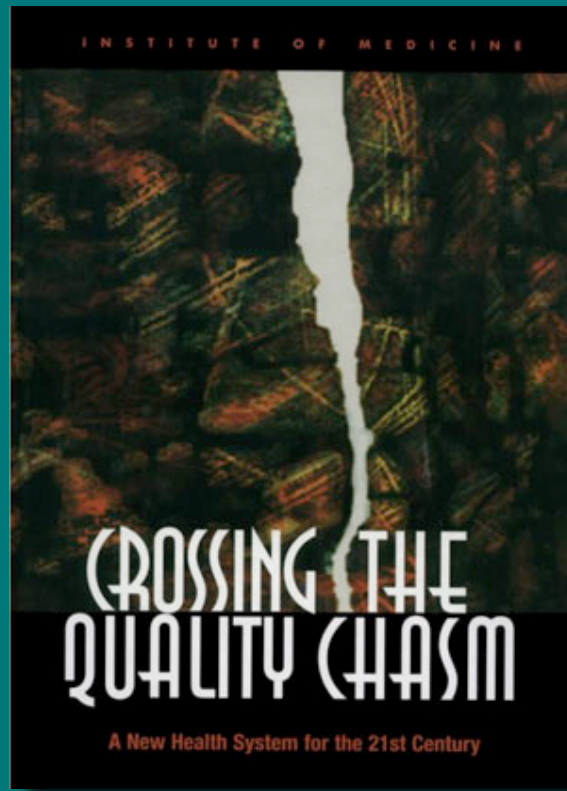
- **More than 125 million Americans suffer from one or more chronic illnesses and 40 million limited by them.**
- **Despite annual spending of nearly \$1 trillion and significant advances in care, one-half or more of patients still don't receive appropriate care.**
- **Gaps in quality care lead to thousands of avoidable deaths each year.**
- **Best practices could avoid an estimated 41 million sick days and more than \$11 billion annually in lost productivity.**
- **Patients and families increasingly recognize the defects in their care.**

Number of Chronic Conditions per Medicare Beneficiary

<u>Number of Conditions</u>	<u>Percent of Beneficiaries</u>	<u>Percent of Expenditures</u>
0	18	1
1	19	4
2	21	11
3	18	18
4	12	21
5	7	18
6	3	13
7+	2	14

A bracket groups the rows for 4, 5, 6, and 7+ conditions. The total percent of beneficiaries in this group is 63%. A second bracket groups the rows for 4, 5, 6, and 7+ conditions in the Expenditures column, with a total of 95%.

The IOM Quality report: *A New Health System for the 21st Century*



<http://www4.nas.edu/onpi/webextra.nsf/web/chasm?OpenDocument>

The IOM Quality Chasm Report Conclusions:

- “The current care systems **cannot** do the job.”
- “Trying harder will not work.”
- “Changing care systems will.”

The Chasm Report: Implications for How to Change Practice

- If the problem is the system, and not the individual “bad apples,” then the focus for practice improvement needs to shift.
- Need to make the right thing to do the easy thing to do.

To Change Outcomes Requires Fundamental Practice Change

Reviews of interventions in several conditions show that effective practice changes are similar across conditions.

Integrated changes with components directed at:

- 1influencing physician behavior,
- 1better use of non-physician team members,
- 1enhancements to information systems,
- 1planned encounters
- 1modern self-management support, and
- 1care management for high risk patients

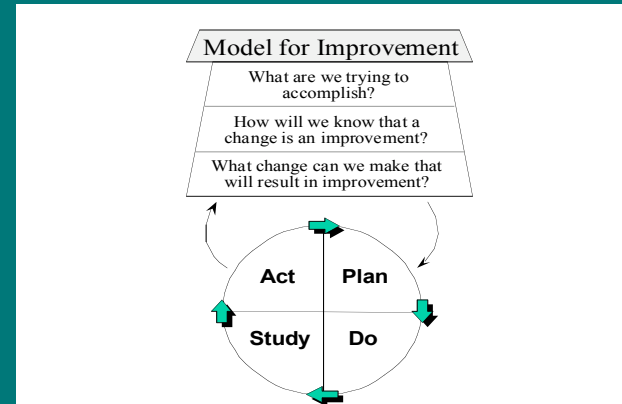


II. The Chronic Care Model

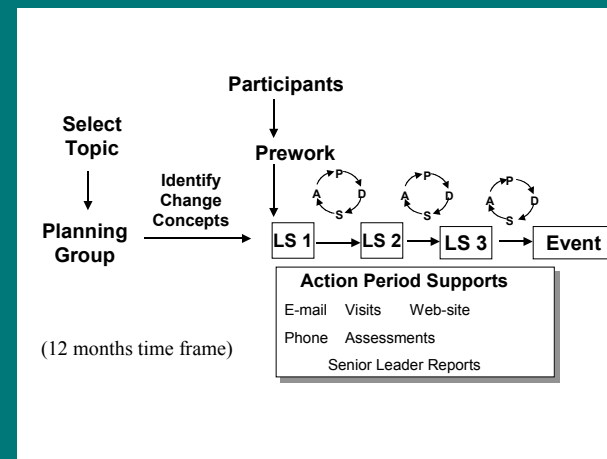
A Recipe for Improving Outcomes

**Evidence-based
Clinical Change
Concepts**

**System Change
Concepts**



System change strategy



Learning Model

System Change Concepts

Why a Chronic Care Model?

- Emphasis on physician, not system, behavior.
- Characteristics of successful interventions weren't being categorized usefully.
- Commonalities across chronic conditions unappreciated.

Chronic Care Model



Essential Element of Good Chronic Illness Care



What characterizes an “informed, activated patient”?



**Informed,
Activated
Patient**

**They have the motivation, information, skills,
and confidence necessary to
effectively make decisions about
their health and manage it.**

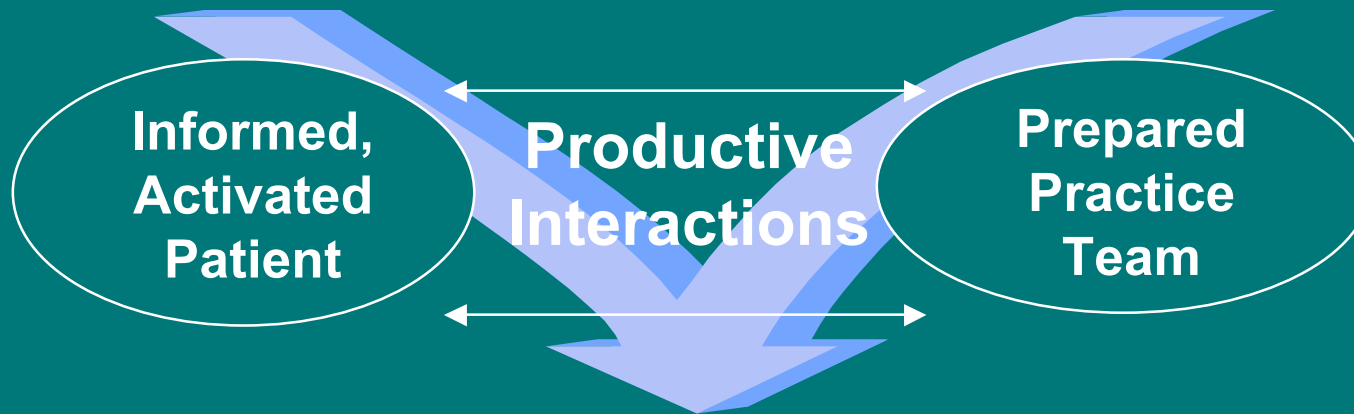
What characterizes a “prepared” practice team?



Prepared
Practice
Team

At the time of the interaction they have the patient information, decision support, and resources necessary to deliver high-quality care.

How would I recognize a productive interaction?



- **Assessment of self-management skills and confidence as well as clinical status.**
- **Tailoring of clinical management by stepped protocol.**
- **Collaborative goal-setting and problem-solving resulting in a shared care plan.**
- **Active, sustained follow-up.**

Self-Management Support

- **Emphasize the patient's central role.**
- **Use effective self-management support strategies that include assessment, goal-setting, action planning, problem-solving, and follow-up.**
- **Organize resources to provide support.**

Delivery System Design

- Define roles and distribute tasks among team members.
- Use planned interactions to support evidence-based care.
- Provide clinical case management services for high risk patients.
- Ensure regular follow-up.
- Give care that patients understand and that fits their culture.

Features of case management

- Regularly assess disease control, adherence, and self-management status.
- Either adjust treatment or communicate need to primary care immediately.
- Provide self-management support.
- Provide more intense follow-up.
- Provide navigation through the health care process.

Decision Support

- Embed evidence-based guidelines into daily clinical practice.
- Integrate specialist expertise and primary care.
- Use proven provider education methods.
- Share guidelines and information with patients.

Clinical Information System

- Provide reminders for providers and patients.
- Identify relevant patient subpopulations for proactive care.
- Facilitate individual patient care planning.
- Share information with providers and patients.
- Monitor performance of team and system.

Community Resources and Policies

- Encourage patients to participate in effective programs.
- Form partnerships with community organizations to support or develop programs.
- Advocate for policies to improve care.

Health Care Organization

- **Visibly support improvement at all levels, starting with senior leaders.**
- **Promote effective improvement strategies aimed at comprehensive system change.**
- **Encourage open and systematic handling of problems.**
- **Provide incentives based on quality of care.**
- **Develop agreements for care coordination.**

Advantages of a General System Change Model

- Applicable to most preventive and chronic care issues.
- Once system changes in place, accommodating new guideline or innovation much easier.

III. The Evidence Base

Organizing the Evidence:

Look at each of these types in turn

1. Randomized controlled trials (RCTs) of interventions to improve chronic care.
2. Studies of the relationship between organizational characteristics and quality improvement.
3. Evaluations of the use of the CCM in Quality Improvement.
4. RCTs of CCM-based interventions.
5. Cost-effectiveness studies.

1: Randomized Controlled Trials of Interventions to Improve Chronic Care

- Most reviews are disease specific.
- Reviews and meta-analyses tend to focus on individual components rather than combined effects.
- Diabetes reviews played an important role in CCM development.

1: RCTs of interventions to improve chronic care results

- “Complex,” “integrated care,” “disease management” programs show positive effects on quality of care.
- Consistently powerful elements include: team care, case management, self-management support.
- No consensus on cost-effectiveness.

1: Randomized trials of system change interventions: Diabetes

Cochrane Collaborative Review and JAMA Re-review

- About 40 studies, mostly randomized trials.
- Interventions classified as decision support, delivery system design, information systems, or self-management support.
- 19 of 20 studies that included a self-management component improved care.
- All five studies with interventions in all four domains had positive impacts on patients.

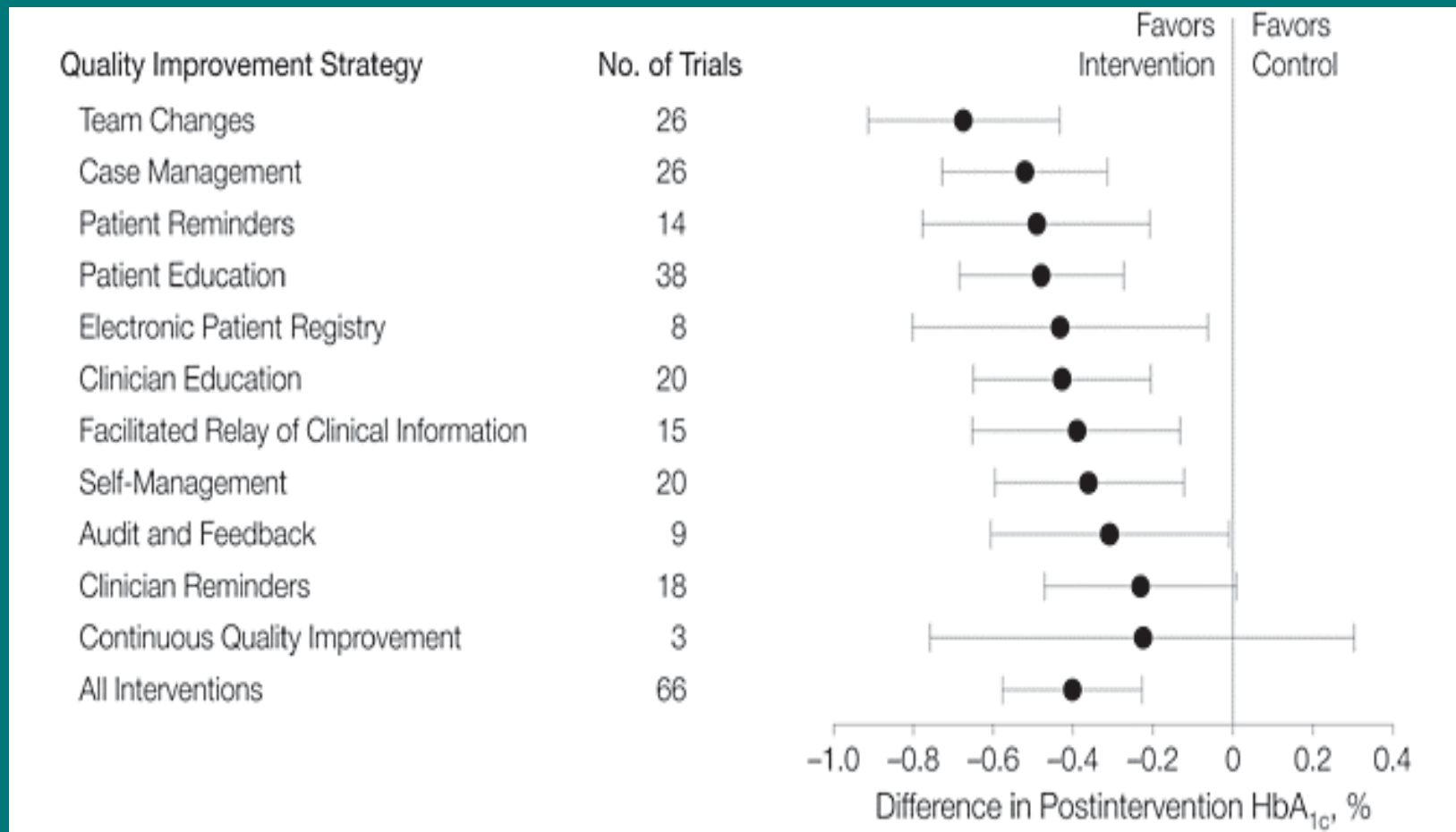
Renders et al, Diabetes Care, 2001; 24:1821

Bodenheimer, Wagner, Grumbach, JAMA 2002; 288:1910

1: An Example of a Meta-analysis of interventions to improve chronic illness

- Includes 112 studies, most RCTs (27 asthma, 21 CHF, 33 depression, 31 diabetes).
- Interventions that contained one or more CCM elements improved clinical outcomes (RR .75-.82) and processes of care (RR 1.30-1.61).
- No superfluous element.
- Didn't study interactive effects.

The Effectiveness of QI Strategies: Findings from a Recent Review of Diabetes Care



Shojania, K. G. et al. JAMA 2006;296:427-440.

2: Studies of the Relationship between Organizational Characteristics and Quality Improvement

- Diabetes, preventive services, asthma, chronic disease care.
- Organizational characteristics associated with...
 1. successful implementation of quality improvement programs.
 2. improved health outcomes of patients.

2: Studies of the Relationship between Organizational Characteristics and Successful Implementation of QI Projects

Common organizational characteristics across studies:

- Organized teams, including physicians, involved in quality improvement
- Reminder systems and patient registries
- Reporting data to external organizations
- Formal self-management programs

Others Characteristics associated with process improvement include:

- Receiving income, recognition, or better contracts for quality
- Improved IT infrastructure
- Large size
- Receiving capitation payments
- Utilizing guidelines supported by academic detailing
- Primary care orientation

2: Studies of the Relationship between Organizational Characteristics and Improved Health Outcomes

Similar to characteristics of organizations that successfully implement QI, those that achieve improved health outcomes are characterized by:

- Data reporting and feedback to physicians.
- Patient engagement and activation.

Other common characteristics included:

- Computerized reminders.
- Involvement of organized teams, including physicians, in quality improvement.

3: Evaluations of the Use of CCM in Quality Improvement

- Largest concentration of literature.
- Includes RAND Evaluation of ICIC.
- Wide variety in quality and type of evaluation design.
- Majority of studies focus on diabetes.

3: RAND Evaluation of Chronic Care Collaboratives

- Two major evaluation questions:
 1. Can busy practices implement the CCM?
 2. If so, would their patients benefit?
- Studied 51 organizations in four different collaboratives, 2132 BTS patients, 1837 controls with asthma , CHF, diabetes.
- Controls generally from other practices in organization.
- Data included patient and staff surveys, medical record reviews.

3: RAND Findings

Implementation of the CCM

- Organizations made average of 48 changes in 5.8/6 CCM areas.
- IT received most attention, community linkages the least.
- One year later, over 75% of sites had sustained changes, and a similar number had spread to new sites or new conditions.

3: RAND Findings (2)

Patient Impacts

- Diabetes pilot patients had significantly reduced CVD risk (pilot > control), resulting in a reduced risk of one cardiovascular disease event for every 48 patients exposed.
- CHF pilot patients more knowledgeable and more often on recommended therapy, had 35% fewer hospital days and fewer ER visits.
- Asthma and diabetes pilot patients more likely to receive appropriate therapy.
- Asthma pilot patients had better QOL.

3: Non-RAND Evaluations of CCM Implementation

- In general, those studies with greater fidelity to the CCM showed greater improvements.
- All but one showed improvement on some process measures.
- Most showed improvement on outcomes and empowerment measures, as well.
- Sustainability and implementation of all CCM elements were challenges.
- Physician and staff must be motivated to change.

4: Randomized Controlled Trials (RCT) of CCM-based Interventions

- 6 RCTs covering asthma, diabetes, bipolar disorder, comorbid depression and oncology, and multiple conditions.
- 5 in the US – disease specific, 1 in Australia – multiple diseases.
- Practice-level randomization.
- Varying levels of disease severity: mild to severely ill and highly comorbid.

4: RCTs of CCM-based interventions

Results

- All but one study shows that implementation of the Chronic Care Model significantly improves process and outcome measures compared to controls and – when included in the trial – less intensive interventions (e.g. physician training alone).
- Often CCM implementation is linked with improved patient empowerment and education scores, as well.
- Active team motivation to change may be an important factor in predicting success.

5: Cost Effectiveness Studies

- No currently published articles evaluating the cost-effectiveness of CCM per se.
- Studies summarized on next slide examine how control of certain diseases, like diabetes, can reduce healthcare costs.
- Watch out for a new study by Beaulieu, Cutler, Ho and colleagues on *The Business Case for Diabetes Management for Managed Care Organizations*.

5: Cost Effectiveness Study Results

- Some evidence that improved disease control can reduce cost, especially for heart disease and uncontrolled diabetes.
- Achieving cost-savings depends on the disease management strategies employed.
- Features of the healthcare market place – including displacement of payoffs in time and place and failure to pay for quality – act as barriers to a business case for quality.

IV. Uses of the CCM and Next Steps

CCM Developments

- **The Chronic Care Model serves as guide to several state programs in U.S.**
- **Adaptations of the CCM undertaken by U.K.'s National Health Service, World Health Organization, and several Canadian provinces.**
- **CCM foundation for NCQA and JCAHO certification for chronic disease programs.**
- **CCM part of new Models of Primary Care proposed by AAFP and ACP.**
- **Several practice assessment tools now available for large and small practices.**
- **Assessments now used in some pay for performance programs.**

Challenges Remaining

- **Still reaching only early adopters.**
- **What effective QI strategies can be offered that are less time- and resource-intensive than collaboratives? Practice redesign is very difficult in the absence of a larger, supportive system, especially for smaller practices.**
- **How can we best help isolated small practices where majority of Americans receive their care?**

Contact us or access resources at:

www.improvingchroniccare.org