



HEALTH

***Disease Management  
What is the evidence?  
What are realistic expectations?***

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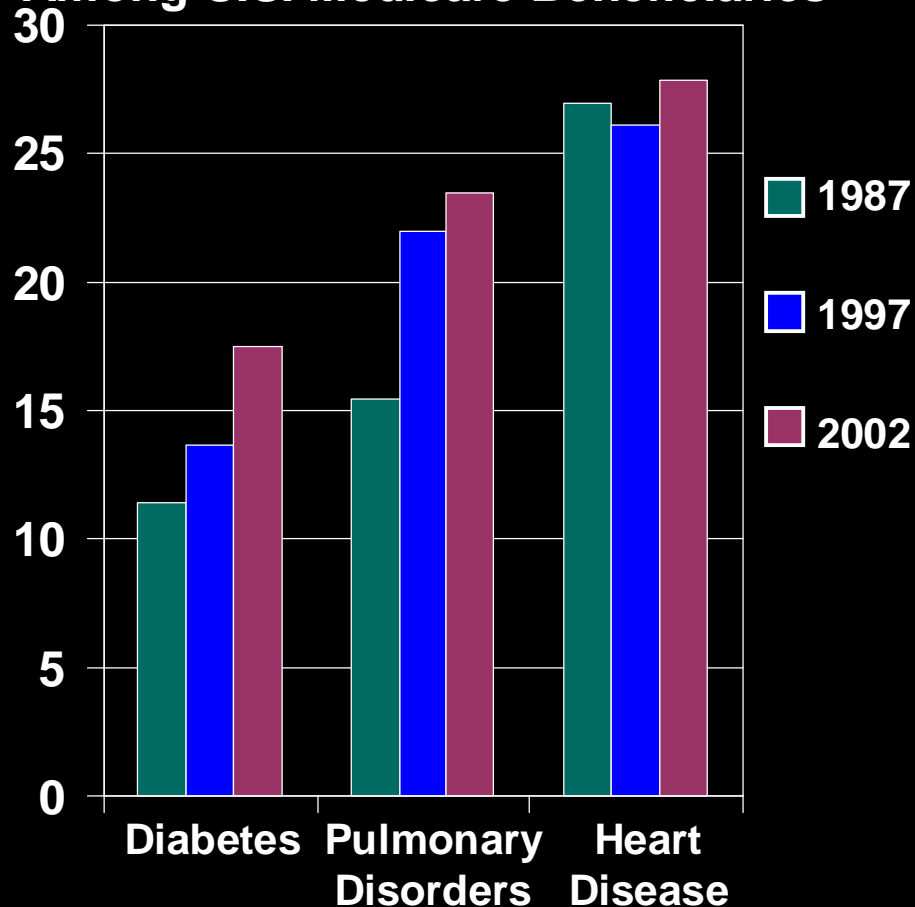
**Singapore Disease Management Conference 2008**

# *Roadmap*

- **Disease Management (DM): An Overview**
- **Effects of DM Program: Systematic Review**
- **Conclusions and Future Directions**

# There Is Concern About the Growing Prevalence and Cost of Chronic Disease

Age-Adjusted Disease Prevalence  
Among U.S. Medicare Beneficiaries\*



- Aging populations and lifestyle factors contribute
- Substantial impact on cost and utilization
- Current model of care delivery is ill-equipped to handle chronic conditions
  - Most interaction is encounter-driven
  - Limited role for patient
  - Insufficient decision support

\*Source: Thorpe and Howard, 2006

# *Rising Costs and an Aging Population Have Led to an Interest in Managing Chronic Disease*

## Goal of Disease Management

*Improve overall health by*

**Supporting  
provider/patient  
relationship  
and plan of care**

**Emphasizing  
prevention  
of disease  
complications**

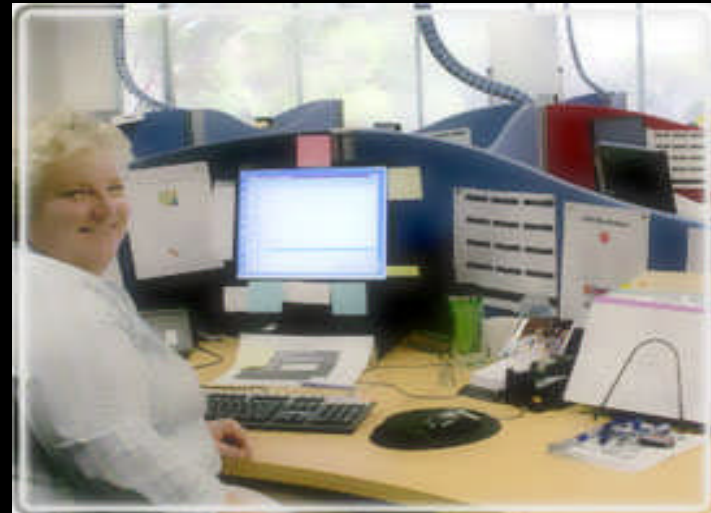
**Evaluating clinical,  
humanistic,  
economic  
outcomes on  
ongoing basis**

# ***A Little History of Disease Management***

- **Four origins:**
  - **Provider-driven efforts to improve chronic care**
  - **Patient self-management support**
  - **Case management services for high-cost patients, usually provided by health insurer**
  - **Attempts to increase adherence by pharmaceutical companies**
- **Historically, focus on CAD, CHF, diabetes, COPD and asthma**
- **More recent developments:**
  - **Emergence of products offered by free-standing vendors**
  - **Expansion to a broader range of conditions (back pain, mental health, cancer, maternity, autoimmune diseases, genetic disorders, etc.)**
  - **Expansion to a broader population (pre-disease states and risk factors)**

# ***Disease Management Is Expanding Rapidly***

- Annual growth of 40% from 1997 to 2005 in the commercially insured market in the US
- Other countries are beginning to embrace DM
  - Germany is promoting US-style commercial DM
  - Singapore is experimenting with various approaches
- But many remain skeptical
  - Lack of transparent and rigorous evaluation methods
  - Unrealistic promises
  - Broad generalizations



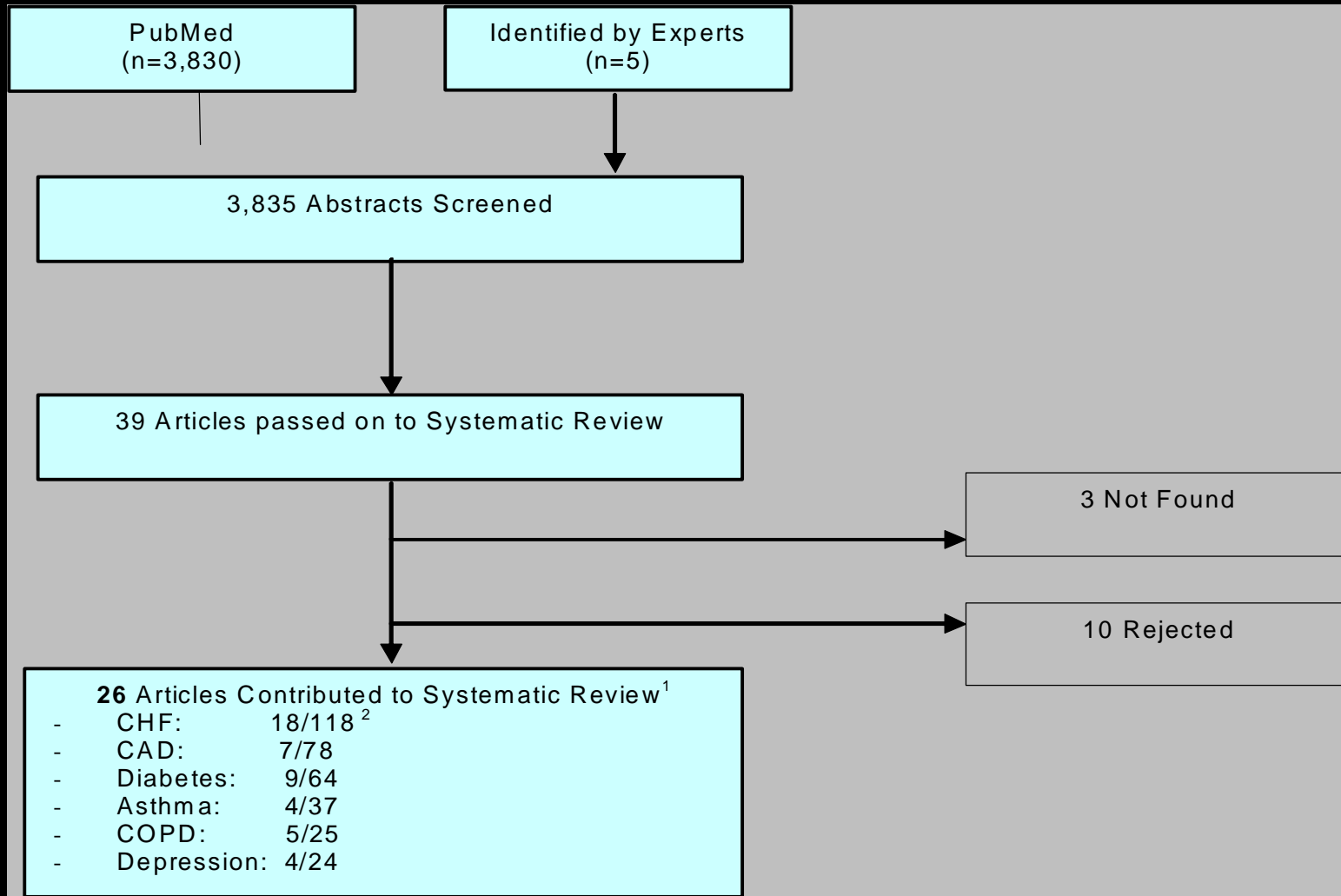
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# Structured Review of the Literature



## *While Many Approaches to DM Exist, Most Tend to Fall Between Two Extremes*

<u>Model</u>	<u>Provider-Centered</u>	<u>Third-Party Vendor</u>
<b>Service Provider</b>	Local provider	External entity
<b>Type of Intervention</b>	Goals developed in collaboration with multi-disciplinary team, patient	Standardized intervention
<b>Mode of Interaction</b>	In-person, group sessions, referrals to other resources	In-person, telephone, mass communications
<b>Program Objectives</b>	Improve quality of care	Provide return on investment (ROI) and quality improvement
<b>Data Tracking</b>	Potentially limited availability of patient information	Large databases, sophisticated IT platforms
<b>Goal for Operator</b>	Survive and publish	Grow and consolidate

## ***Most Studies to Date Have Focused on Small Provider-Based Programs***

- **Typical DM program was relatively small (30-500 patients)**
  - **Operated by single provider at one site**
  - **Targeted high-risk patients**
  - **Included patient education, care planning, follow-up delivered by case manager or nurse**
- **We found only three studies of large-scale, population-based interventions**

## *For Which Conditions Do We Have Evidence?*

Disease	Meta-analyses	Reviews	Individual Studies
CHF	7	11	118
CAD	3	4	78
Diabetes	4	5	64
Asthma	2	2	37
COPD	2	3	25
Depression	2	2	24

- Other conditions were not sufficiently well researched.

## *We Looked for Evidence of Several Possible Outcomes from Small-Scale Programs*

<b>Disease</b>	<b>Clinical Processes</b> Adherence to evidence-based guidelines	<b>Health-Related</b> Changes in behaviors	<b>Disease Control</b> Changes in intermediate measures	<b>Clinical Outcomes</b>	<b>Healthcare Utilization</b> Changes in utilization of services	<b>Financial Outcomes</b>	<b>Patient Experience</b> Satisfaction, quality of life, etc.
<b>Heart failure</b>							
<b>Coronary artery disease</b>							
<b>Diabetes</b>							
<b>Asthma</b>							
<b>Chronic lung disease</b>							
<b>Depression</b>							

# For Most Programs, Evidence Was Lacking or Inconclusive

Disease	Clinical Processes Adherence to evidence-based guidelines	Health-Related Changes in behaviors	Disease Control Changes in intermediate measures	Clinical Outcomes	Healthcare Utilization Changes in utilization of services	Financial Outcomes	Patient Experience Satisfaction, quality of life, etc.
Heart failure							
Coronary artery disease							
Diabetes							
Asthma							
Chronic lung disease							
Depression							

# *In Cases with Sufficient Evidence, We Often Found No Effect or Even a Negative Effect*

<b>Disease</b>	<b>Clinical Processes</b> Adherence to evidence-based guidelines	<b>Health-Related</b> Changes in behaviors	<b>Disease Control</b> Changes in intermediate measures	<b>Clinical Outcomes</b>	<b>Healthcare Utilization</b> Changes in utilization of services	<b>Financial Outcomes</b>	<b>Patient Experience</b> Satisfaction, quality of life, etc.
Heart failure							
Coronary artery disease		No effect		No effect			
Diabetes		No effect					
Asthma				No effect		No effect	
Chronic lung disease							
Depression					Increased utilization	Increased cost	

# Some Improvement Was Seen in Clinical Processes and Disease Control

Disease	Clinical Processes Adherence to evidence-based guidelines	Health-Related Changes in behaviors	Disease Control Changes in intermediate measures	Clinical Outcomes	Healthcare Utilization Changes in utilization of services	Financial Outcomes	Patient Experience Satisfaction, quality of life, etc.
Heart failure	Improved		Improved		Reduced hospital admissions		Improved
Coronary artery disease	Improved	No effect	Improved	No effect			
Diabetes	Improved	No effect	Improved				
Asthma				No effect		No effect	
Chronic lung disease							
Depression	Improved		Improved		Increased utilization	Increased cost	Improved

# ***Improvements from Large-Scale Programs Addressed Quality and Disease Control***

<b>Author</b>	<b>Setting</b>	<b>Managed Condition(s)</b>	<b>Results</b>
<b>Sidorov (2002)</b>	<b>Integrated delivery system</b>	<b>Diabetes</b>	<b>Better quality and disease control, lower cost and utilization, net cost savings</b>
<b>Fireman (2004)</b>	<b>Integrated delivery system</b>	<b>Coronary artery disease, heart failure, diabetes, asthma</b>	<b>Better quality and disease control, no net cost savings but slower cost increase</b>
<b>Villagra (2004)</b>	<b>DM vendor</b>	<b>Diabetes</b>	<b>Improved quality of care, lower cost and utilization, net cost savings</b>

## ***In Sum, Literature Provides Little Evidence About Improved Health Outcomes or Cost Savings***

- **Most of the evidence concerns small, high-intensity programs focusing on high-risk patients**
- **Only a few common chronic conditions have been studied**
- **Little evidence exists for large, population-based DM programs in spite of their rapidly growing market penetration**
- **Results show improvements mainly in quality of care, disease control, and patient experience**

## *The Medicare Experience*

- **The US Medicare program has experimented with various disease and care management designs**
- **Those are typically evaluated with randomized controlled trials**
- **Results tends to be disappointing:**
  - **Programs are usually not budget-neutral, let alone cost-saving**
  - **Effects on quality of care inconsistent**
- **No model for national roll-out could be identified so far**

# *Roadmap*

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## ***Realistic Expectations for Disease Management***

- **Overall, results have been disappointing with respect to cost savings:**
  - **No evidence thus far for budget neutrality in Medicare demonstrations that were evaluated in controlled trials**
  - **Very little published research overall**
- **More troubling, not even the effect on quality of care is consistent**
- **The problem of inadequate chronic care might be too fundamental for an easy fix like DM**

## *Implications*

- **With DM, a dynamic and innovative industry has outpaced its underlying science**
- **Substantial efforts will be necessary to allow the evidence catch up with product development**
- **Innovative research designs will be required as randomized controlled trials are rarely feasible**

## *Implications for Future Programs*

- Early enthusiasm about DM has been replaced by skepticism
- Expectations need to be adjusted but the concept of DM should not be abandoned
- Innovation is clearly needed to improve chronic care and lessons can be learned from past failures
  - Programs with greater levels of integration show promise
  - Multi-dimensional interventions may lead to better results
- “Post-modern” DM might emerge, a multifaceted, intelligent, patient-focused approach with richer interventions

## ***Implications for Research Agenda***

- **More integrative research is required to allow cross-program learning and design of tailored approaches**
- **Research should use observational designs and not just experiments**
  - **But this requires better understanding of differential performance of evaluation methods**
- **Measurement science needs to be advanced to allow capturing value beyond ROI**
- **Public sector has an important role in advancing this research agenda**



**HEALTH**