Disease Management
An Evolving New View from a National and Local Perspective

Vincent Bufalino, MD
Midwest Heart Specialists
Identify Problems

- Rising burden of chronic diseases in American
- Changing demographic of “baby boomers” reaching 65 years of age
- Rising healthcare costs
- Institute of medicine reports on “errors”
- Need for better definitions
Quality Chasm Recommendations

I. Healthcare System should adopt to continual reduction of the burden/conditions of people in US.

II. Healthcare system should pursue safe, effective, patient-centered, timely, efficient and equitable healthcare.

III. Congress should authorize and appropriate funds for monitoring and tracking processes to evaluate health systems against these criteria.
Quality Chasm Recommendations (continued)

IV. Healthcare system should redesign itself, incorporating concepts such as patient-empowered, evidence-based decision making, shared knowledge and cooperation among clinicians.

V. Agency for Healthcare Research and Quality (AHRQ) and National Quality Forum (NQF) should convene stakeholders to develop strategies, goals, and action plans for substantial improvements quality in the next 5 years for 15 priority conditions.

VI. Congress should establish a Health Care Quality Innovation Fund to produce a public-domain portfolio of programs, tools, and technologies for widespread applicability.
AHA Policy Recommendations

Improving Quality of Care Through Disease Management
Principles and Recommendations From the American Heart Association’s
Expert Panel on Disease Management

David P. Faxon, MD; Lee H. Schwamm, MD; Richard C. Pasternak, MD;
Eric D. Peterson, MD, MPH; Barbara Joyce McNeil, MD, PhD; Vincent Bufalino, MD;
Clyde W. Yancy, MD; Lawrence M. Brass, MD; David W. Baker, MD; Robert O. Bonow, MD;
Lynn A. Smaha, MD, PhD; Daniel W. Jones, MD; Sidney C. Smith, Jr, MD; Gray Ellrodt, MD;
Jerilyn Allen, ScD, RN; Sanford J. Schwartz, MD; Gregg Fonarow, MD; Pam Duncan, PhD;
Katie Horton, RN, JD; Renee Smith, MPA; Steve Stranne, MD, JD; Kenneth Shine, MD

(Circulation. Vol 109, No 21 2651-2654, June 2004)
Guiding Principles for Development/Implementation of Disease Management

I. The main goal of disease management should be to improve quality of care and patient outcomes.

II. Scientifically derived peer-reviewed guidelines should be the basis of all disease management programs. These guidelines evidence based and consensus driven.

III. Disease management programs should help increase adherence to treatment plans based on the best available evidence.

IV. Disease management programs should include consensus-driven performance measures.
Guiding Principles (continued)

v. All Disease Management efforts must include ongoing and scientifically based evaluations, including clinical outcomes.

vi. Disease management programs should exist within an integrated and comprehensive system of care in which the patient/provider relationship is central.

vii. To ensure optimal patient outcomes, disease management programs should address the complexities of medical co-morbidities.

viii. Disease management programs should be developed for all populations and should particularly address members of the underserved or vulnerable population.

ix. Organizations involved in disease management should scrupulously address potential conflicts of interest.
Disease management has existed for 20 years, but its impact has been limited.

Approximately 1% of current chronic care expenditures are covered under disease management programs.

Chronic Care Expenditures and Disease Management Revenue
U.S. Population, 2001

Sources: Peter Smith, CorSolutions interview; JP Morgan Company Report, American Healthways; SG-2 Analysis, 2002
The recent growth in disease management services is projected to continue throughout the decade.

Growth in Disease Management (Covered Lives)
U.S. Population, 2001-2010

Projected government (Medicare) adoption begins 2005-2006

Sources: Peter Smith, CorSolutions Interview; JP Morgan Company Report, American Healthways, 2001; SG-2 Analysis, 2002
Disease management will reduce inpatient admissions across a number of DRGs.

<table>
<thead>
<tr>
<th>DRG Description</th>
<th>Admission Reduction**</th>
</tr>
</thead>
<tbody>
<tr>
<td>88 Chronic Obstructive Pulmonary Disease</td>
<td>44%</td>
</tr>
<tr>
<td>127 Heart Failure and Shock</td>
<td>37%</td>
</tr>
<tr>
<td>316 Renal Failure</td>
<td>54%</td>
</tr>
<tr>
<td>294 Diabetes Age &gt;35</td>
<td>48%</td>
</tr>
<tr>
<td>97 Bronchitis and Asthma</td>
<td>45%</td>
</tr>
<tr>
<td>96 Bronchitis and Asthma</td>
<td>46%</td>
</tr>
<tr>
<td>295 Diabetes Age 0-35</td>
<td>31%</td>
</tr>
</tbody>
</table>

Source: SG-2 IoC ™ Database Analysis, 2002

* DRGs are ranked from top to bottom by the overall absolute reductions in admissions attributable to disease management.
** % reduction in admissions for normalized baseline volumes per DRG.
Disease Management of Congestive Heart Failure (CHF) can reduce the high cost of hospital readmission for by 35%.

Cost of Care and Disease Management among Selected CHF Patients, U.S. Population, Three Month Study

- An annual cost of $300 per patient for management intervention in the hospital setting could save approximately $1,000 per patient in total annual health care dollars.
- These savings can be realized as soon as three months after disease management begins.

Sources: Evidence-Based Cardiovascular Medicine, Vol. 5, December 2001; National Institutes of Health; American Heart Association, 2001 Heart and Stroke Statistical Update, Archives of Internal Medicine, Vol. 159, 1999; David Hoffman, North American Actuarial Services Group, Ernst & Young, LLP; American Healthways, SG-2 Analysis, 2002
Causes of Hospital Readmission for Congestive Heart Failure

As many as two thirds of hospitalizations may be preventable. Are any of these not remediable by Education/Communication?

- Diet Noncompliance: 24%
- Rx Noncompliance: 24%
- Inappropriate Rx: 16%
- Failure to Seek Care: 19%
- Other: 17%

Annals of Internal Medicine 122:415-21, 1995
### Heart Failure Clinics Effectiveness: Sample of Studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Setting</th>
<th>n</th>
<th>Design</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cline</td>
<td>NP HF Clinic</td>
<td>15</td>
<td>Pre and Post</td>
<td>60% reduction in hospitalizations</td>
</tr>
<tr>
<td>Hanumanthu</td>
<td>Univ HF Clinic</td>
<td>134</td>
<td>Pre and Post</td>
<td>69% reduction in hospitalizations</td>
</tr>
<tr>
<td>Fonarow</td>
<td>Univ HF Clinic</td>
<td>214</td>
<td>Pre and Post</td>
<td>85% reduction in hospitalizations</td>
</tr>
<tr>
<td>West</td>
<td>MC HF Clinic</td>
<td>51</td>
<td>Pre and Post</td>
<td>78% reduction in hospitalizations</td>
</tr>
<tr>
<td>Cline</td>
<td>NP HF Clinic</td>
<td>190</td>
<td>RCT</td>
<td>36% reduction in hospitalizations</td>
</tr>
<tr>
<td>Whellan</td>
<td>Univ HF Clinic</td>
<td>117</td>
<td>Pre and Post</td>
<td>61% reduction in hospitalizations</td>
</tr>
</tbody>
</table>

Fonarow “Clinic Model of Heart Failure Care”, in Moser, Riegel Improving Outcomes in HF Aspen Press 2001
The Heart Failure Clinic
Partial Listing of Current and Potential Roles

- Education of Patients and Families
- Alternative Site for Decompensated Heart Failure
- Drug Titration
- Screening and Prevention
- Exercise Training
- Diagnosis and Treatment of Depression
- Coordinate Referral for Advanced Therapies / Trials
- Coordinate End of Life Care and Palliation
Midwest Heart Specialists

- Private Practice in suburban Chicago
- 11 Affiliated Hospitals
- 56 Physicians
- 7 Main Offices
- 12 Satellite Offices
- 240 Employees
- Digital since ’97
We Are Evolving From Acute to Chronic Care & Prevention

- Hospital
- Interventions & Acute care
- Outpatient
- Disease Management & Screening
- Home
- Prevention
HIPAA Compliant?

Physician Encrypted

Progress Note

Do the rest yourself next time. Get yourself down here!
Continuity of Care Record

Longitudinal/comprehensive data collection

Clinic
Office
In-patient
Cath lab
Home

Integrated Cardiac Data

Point-of-care Alerts & Disease Management Modules

Benchmarking & Physician Performance Measures

VERICIS-Cardio Works Point-of-Care Domain

CVI nformatics Clinical Data Warehouse Clinical Knowledge Domain
EHRS Based Lipid Clinic

![Bar chart showing LDL values for different categories.]

- **LDL Chart**
  - QAP Study: 44%
  - MHS Subset: 47%
  - Traditional LC: 97%
  - Virtual LC: 91%

- **LDL @ Goal**
  - QAP Study: 11%
  - MHS Subset: 22%
  - Traditional LC: 70%
  - Virtual LC: 60%

- **Lipid Drug**
  - QAP Study: 39%
  - MHS Subset: 51%
  - Traditional LC: 97%
  - Virtual LC: 75%
Improved Outcomes

- 2368 more patients at guideline goals
- 78 fewer deaths
- 158 fewer heart attacks
- 38 fewer strokes
- $3-5M saved in hospitalizations

MHS Performance Measures

- Time Period: January – December 2004
- Population: Physician Office Visits
  - Q1 04 – 11,902 visits
  - Q2 04 – 12,288 visits
  - Q3 04 – 13,023 visits
  - Q4 04 – 13,262 visits
- If patient had more than one office visit during the quarter, only the last visit of the quarter was included
- Excluded: PV Visits
# MHS Performance Measures 2004

## Population: CAD Patients

<table>
<thead>
<tr>
<th>Measure</th>
<th>Q1 04</th>
<th>Q2 04</th>
<th>Q3 04</th>
<th>Q4 04</th>
<th>MHS Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total CAD patients</td>
<td>6,570</td>
<td>6,820</td>
<td>7,042</td>
<td>7,107</td>
<td>---</td>
</tr>
<tr>
<td>Coumadin and/or antiplatelets</td>
<td>91.6%</td>
<td>91.5%</td>
<td>92.2%</td>
<td>91.9%</td>
<td>95%</td>
</tr>
<tr>
<td>ACEI and/or ARB (CAD with DM, LVSD, or EF &lt;40)</td>
<td>79.2%</td>
<td>81.0%</td>
<td>78.8%</td>
<td>80.9%</td>
<td>90%</td>
</tr>
<tr>
<td>Beta blocker (prior MI)</td>
<td>77.3%</td>
<td>77.1%</td>
<td>78.9%</td>
<td>79.9%</td>
<td>90%</td>
</tr>
</tbody>
</table>

This confidential information is being used for internal quality control for the purpose of improving patient care. As such, it is privileged and shall not be admissible as evidence nor discoverable in any action of any kind.
## MHS Performance Measures

### 2004

**Population: CAD Patients**

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<tr>
<th>Measure</th>
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<td>6,570</td>
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<td>7,042</td>
<td>7,107</td>
<td>---</td>
</tr>
<tr>
<td>LDL in EMR (w/in 14 months of office visit)</td>
<td>77.4%</td>
<td>79.5%</td>
<td>78.4%</td>
<td>80.6%</td>
<td>90%</td>
</tr>
<tr>
<td>LDL &lt;100</td>
<td>70.0%</td>
<td>71.8%</td>
<td>74.7%</td>
<td>75.3%</td>
<td>85%</td>
</tr>
<tr>
<td>LDL &lt; 70</td>
<td>18.2%</td>
<td>19.8%</td>
<td>22.7%</td>
<td>23.3%</td>
<td>TBD</td>
</tr>
<tr>
<td>LDL &gt;100, not on lipid lowering therapy</td>
<td>12.1%</td>
<td>12.9%</td>
<td>15.3%</td>
<td>16.0%</td>
<td>---</td>
</tr>
</tbody>
</table>

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# MHS Performance Measures 2004

**Population:** Heart Failure Patients

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<tr>
<th>Measure</th>
<th>Q1 04</th>
<th>Q2 04</th>
<th>Q3 04</th>
<th>Q4 04</th>
<th>MHS Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total HF patients</td>
<td>3,128</td>
<td>3,222</td>
<td>3,304</td>
<td>3,310</td>
<td>---</td>
</tr>
<tr>
<td>ACEI and/or ARB (LVSD or EF &lt;40)</td>
<td>86.3%</td>
<td>87.6%</td>
<td>85.3%</td>
<td>86.7%</td>
<td>90%</td>
</tr>
<tr>
<td>Beta blocker (LVSD or EF &lt; 40)</td>
<td>78.1%</td>
<td>77.9%</td>
<td>78.8%</td>
<td>82.8%</td>
<td>85%</td>
</tr>
<tr>
<td>Ejection fraction documented in EMR</td>
<td>60.2%</td>
<td>62.6%</td>
<td>65.3%</td>
<td>68.4%</td>
<td>90%</td>
</tr>
<tr>
<td>Functional class documented in EMR</td>
<td>5.8%</td>
<td>5.2%</td>
<td>6.2%</td>
<td>7.8%</td>
<td>50%</td>
</tr>
</tbody>
</table>

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Proven Disease Management Success

- Improves patient outcomes
- Puts the patient & physician back in control

Conditions:
- Cholesterol
- Hypertension
- Circulatory
- Heart Failure
- Cholesterol
Midwest Heart
Specialists