Evaluating Disease Management Programs

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Top 38 Commercial Health Insurance Companies - 1989

Commercial Health Insurance Companies - Change
• From 1971 to 1989
  – Relatively little change in largest carriers
• From 1989 to 2004
  – Many changes in largest carriers
• What happened?

Commercial Health Insurance Companies - Change
• Managed Care, especially HMO’s, arrived
• Paradigm for medical coverage changed
• Some companies built or bought the needed infrastructure to survive
• Many companies were unable to compete and either sold out or stopped selling medical coverage
Important Points

• Change does not always happen smoothly
• Being huge does not protect you
• The world is changing even for actuaries
• Even if your company is “merely” bought, impact on the actuaries often isn’t good

Potential Paradigm Change

• Cost of medical care per person:
  – % of people with an illness or injury
  – # of services or products per sick person
  – Intensity of services or products provided
  – Cost per intensity of service or product
  – All multiplied and added together
• Decreases in one factor often lead to increases in another

Potential Paradigm Change

• Historically carriers:
  – Tried to keep people well (wellness)
  – Reduced days in hospital (U.R.)
  – Moved surgeries from Inpatient to Outpatient
  – Negotiated prices
• Each process was often managed separately from the other.
• Disease Management manages in total!

Hospital Costs As A % Of Total Medical Costs

<table>
<thead>
<tr>
<th>Year</th>
<th>Out-patient</th>
<th>In-patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>70%</td>
<td>30%</td>
</tr>
<tr>
<td>1983</td>
<td>65%</td>
<td>35%</td>
</tr>
<tr>
<td>1988</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>1993</td>
<td>55%</td>
<td>45%</td>
</tr>
<tr>
<td>1998</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>2003</td>
<td>45%</td>
<td>55%</td>
</tr>
</tbody>
</table>
Disease Management

- DM seeks to manage all cost components as a whole
- Focuses on only one disease process
- Generally chronic conditions
- Follows patient over several years
- Willing to increase one component if the net result is lowering the total cost

Why Manage Chronic Conditions?

- For people **diagnosed in 2002** as chronic:
  - 35.2% of total cost in 2002 is the excess cost of these people
  - 24.8% of total cost in 2003 is the excess cost of these same people
  - 23.1% of total cost in 2004 is the excess cost of these same people
- Large database: $6 Billion in claims on people insured for all three years

Evaluating Disease Management

- If DM has such a large potential, why not just go for it?
  - 1. Cost of DM is not small
  - 2. Not all DM produces positive results
  - 3. Regression to the mean makes many DM programs look better than they are
  - 4. DM can be intrusive, even dangerous
  - 5. Credible DM results need huge datasets
How **Not** To Evaluate DM

Identify people in 2002

- Assume DM was applied during 2003
- Per every $100 of claims
  - Chronic people cost $286.18 in 2002
  - Same chronic people cost $265.85 in 2003
  - Assuming 15% trend, we “saved” $63.26 each
  - Saved costs on 15.9% of members
- Overall plan savings is 8.7% !!!!!!

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How **Not** To Evaluate DM

- If anyone wants to purchase this incredible disease management program,
- I’m willing to implement it for only 50% of the net calculated savings after trend
- The program is very easy to implement since I actually do nothing
- Regression to the mean does all the work
- Note: Regression patterns are different for different chronic conditions. (Diabetes went up!)

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How **Not** To Evaluate DM

- Even so, plans might be willing to pay percent of savings based on current diagnoses or other simple mechanism
- Since the cost for various diseases will tend to move randomly, some plans will show “savings” in some years
- Many DM programs could be funded on such “savings”
- After a few such “savings”, plans might decide to ignore all DM programs

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Evaluating Disease Management

- **Randomized Control Trials**
- **Gold Standard In DM Evaluation**
  - Most accurate methodology
  - Mirrors protocols for medical treatment evaluation
  - Random assignment by patient to
    - DM program
    - Not in DM program
  - Double blind – patients and researchers don’t know who was assigned to DM
  - Very difficult to implement in real world
Evaluating Disease Management

• Issues with **Randomized Control Trials**
  – If DM plan is known to be better treatment, then assigning a patient to a lower quality treatment is unethical
  – Since it is implemented at the patient level, all providers must cooperate
  – Providers do not like to give different treatments to patients with identical conditions even if treatments aren’t known to be better

• Alternatives to randomized control trials
  – Apply DM to everyone in a **specific location** and compare results to a different location
  – Issue: different local treatments and cost increases make it more difficult to be certain differences aren’t random
  – Example, % of false positive diagnoses varies by location

• Alternatives to randomized control trials
  – Apply DM only through **specific providers**
  – Issue: Any results from DM will be heavily masked by provider’s practice pattern for that condition and relative severity of patients going to these providers
  – Example, providers most willing to implement new protocols might be currently using poor quality protocols and wanting to upgrade

• Alternatives to randomized control trials
  – Apply the DM program only to **employer groups** that select program
  – Issue: Groups tend to self-select. Those who just had high costs for a condition would be most willing to select program
  – Example, group’s costs for cancer randomly jumped last year and therefore opts in. Costs drop back to normal in the following year
Evaluating Disease Management

- Other possible approaches:
  - Looking for “discontinuities” in costs
  - Comparing to external benchmarks
  - Comparing to prior cost trended forward
  - Comparing to other health plans
  - Risk adjusting groups with and without DM

DM Evaluation Issues

What determines when a person has a chronic condition?
- Example, is someone diabetic
  - If their fasting blood sugar was over 240?
  - If their Ha1C was over 9.0?
  - How many re-testings are needed to verify?
  - Is a diabetic a “diabetic” if they’re under treatment and their blood sugar is normal?
- If you are using claims data, can you exclude diagnoses from test procedures?

DM Evaluation Issues

- How do you separate
  - Alpha Thalassanemia (ICD9 282.4), from
  - Beta Thalassanemia (ICD9 282.4)?
- Alpha is very serious, extremely expensive, usually fatal, but quite rare
- Beta varies widely in severity, varies widely in cost, and is fairly common

DM Evaluation Issues

- Some other complicating issues:
  - Membership turnover, new people who have had the condition for a long time and people with the condition that leave
  - Deaths (don’t count these as cost savings)
  - Severity levels of people in DM program
  - Trend for costs
  - False positive diagnoses
Simple DM Evaluation Approach

- Identify people in year 1 with condition,
- Measure their total excess cost in year 2
- Example, costs in year 2
  - 10 chronic people costing $190 each
  - 90 non-chronic people costing $90 each
  - 100 people in costing $10,000 in total
  - Excess cost is $100 for 10 people = $1,000
  - Total excess cost is 10.0%

Simple DM Evaluation Approach

- Now identify people in year 2 with chronic condition. This will include some overlap from year 1, but will not be identical.
- Use the same identification protocol
- Compare
  - % excess cost in year 3 to
  - % excess cost in year 2

Simple DM Evaluation Approach

- What if 10 people are falsely identified as chronic
  - 10 chronic people costing $190 each
  - 10 false chronic people costing $90 each
  - Net: 20 “chronic” people costing $140 each
  - 80 non-chronic people costing $90 each
  - 100 people in costing $10,000 in total
  - Excess cost is $50 for 20 people = $1,000
  - Total excess cost is 10.0%

Simple DM Evaluation Approach

- All chronic costs compared to other costs in same year, hence assuming trend is uniform
- Since all chronic people are put together, severity level is less relevant
- Deaths, turnover, new entrants are accepted as a natural part of risk
- If you couldn’t get people in DM program, then you have no savings for these people
Where Will You Be In 10 Years?

- DM offers a promise of giving health plans a critical competitive advantage in cost
- DM is difficult to evaluate accurately
- Some DM "savings" are no savings at all
- Based on history, many carriers won’t invest in evaluating DM programs
- If DM works, based on history, many carriers won’t survive the next decade

Unpaid Advertisement

- “Disease Management Program Evaluation Guide®”
- Published by Disease Management Association of America (DMAA)
- DMAA also publishes a dictionary of terms
- Covers in more depth many of the issues and approaches in this presentation
- “Simple” approach is not covered