Why are Managed Care Plans Less Expensive: Risk Selection, Utilization, or Reimbursement?

Daniel Polsky, Ph.D.
and
Sean Nicholson, Ph.D.
University of Pennsylvania, USA
Polsky@mail.med.upenn.edu

iHEA Conference
July 23, 2001
York, England

We would like to thank The Robert Wood Johnson Foundation’s Changes in Health Care Financing and Organization (HCFO) Initiative for supporting this work.

Introduction
- Managed care offers lower premiums and lower out-of-pocket payments...
- ...in return for restrictions on:
  - physician choice
  - access to care through the use of gatekeepers and other utilization management
  - physician behavior through incentives such as capitation
- Do the restrictions imposed by managed care reduce premiums and medical expenditures:
  - by creating incentives for greater efficiency in the delivery of health services
  - by attracting the healthiest enrollees?
  - Or are lower reimbursement fees responsible for lower premiums?

Decomposing Premium Differences

Introduction - Managed care offers lower premiums and lower out-of-pocket payments...
- ...in return for restrictions on:
  - physician choice
  - access to care through the use of gatekeepers and other utilization management
  - physician behavior through incentives such as capitation
- Do the restrictions imposed by managed care reduce premiums and medical expenditures:
  - by creating incentives for greater efficiency in the delivery of health services
  - by attracting the healthiest enrollees?
  - Or are lower reimbursement fees responsible for lower premiums?

Decomposing Premium Differences

Introduction - Managed care offers lower premiums and lower out-of-pocket payments...
- ...in return for restrictions on:
  - physician choice
  - access to care through the use of gatekeepers and other utilization management
  - physician behavior through incentives such as capitation
- Do the restrictions imposed by managed care reduce premiums and medical expenditures:
  - by creating incentives for greater efficiency in the delivery of health services
  - by attracting the healthiest enrollees?
  - Or are lower reimbursement fees responsible for lower premiums?

Decomposing Premium Differences

Introduction - Managed care offers lower premiums and lower out-of-pocket payments...
- ...in return for restrictions on:
  - physician choice
  - access to care through the use of gatekeepers and other utilization management
  - physician behavior through incentives such as capitation
- Do the restrictions imposed by managed care reduce premiums and medical expenditures:
  - by creating incentives for greater efficiency in the delivery of health services
  - by attracting the healthiest enrollees?
  - Or are lower reimbursement fees responsible for lower premiums?

Decomposing Premium Differences

Introduction - Managed care offers lower premiums and lower out-of-pocket payments...
- ...in return for restrictions on:
  - physician choice
  - access to care through the use of gatekeepers and other utilization management
  - physician behavior through incentives such as capitation
- Do the restrictions imposed by managed care reduce premiums and medical expenditures:
  - by creating incentives for greater efficiency in the delivery of health services
  - by attracting the healthiest enrollees?
  - Or are lower reimbursement fees responsible for lower premiums?

Decomposing Premium Differences

Introduction - Managed care offers lower premiums and lower out-of-pocket payments...
- ...in return for restrictions on:
  - physician choice
  - access to care through the use of gatekeepers and other utilization management
  - physician behavior through incentives such as capitation
- Do the restrictions imposed by managed care reduce premiums and medical expenditures:
  - by creating incentives for greater efficiency in the delivery of health services
  - by attracting the healthiest enrollees?
  - Or are lower reimbursement fees responsible for lower premiums?

Decomposing Premium Differences

Introduction - Managed care offers lower premiums and lower out-of-pocket payments...
- ...in return for restrictions on:
  - physician choice
  - access to care through the use of gatekeepers and other utilization management
  - physician behavior through incentives such as capitation
- Do the restrictions imposed by managed care reduce premiums and medical expenditures:
  - by creating incentives for greater efficiency in the delivery of health services
  - by attracting the healthiest enrollees?
  - Or are lower reimbursement fees responsible for lower premiums?

Decomposing Premium Differences

Introduction - Managed care offers lower premiums and lower out-of-pocket payments...
- ...in return for restrictions on:
  - physician choice
  - access to care through the use of gatekeepers and other utilization management
  - physician behavior through incentives such as capitation
- Do the restrictions imposed by managed care reduce premiums and medical expenditures:
  - by creating incentives for greater efficiency in the delivery of health services
  - by attracting the healthiest enrollees?
  - Or are lower reimbursement fees responsible for lower premiums?

Decomposing Premium Differences

Introduction - Managed care offers lower premiums and lower out-of-pocket payments...
- ...in return for restrictions on:
  - physician choice
  - access to care through the use of gatekeepers and other utilization management
  - physician behavior through incentives such as capitation
- Do the restrictions imposed by managed care reduce premiums and medical expenditures:
  - by creating incentives for greater efficiency in the delivery of health services
  - by attracting the healthiest enrollees?
  - Or are lower reimbursement fees responsible for lower premiums?

Decomposing Premium Differences

Introduction - Managed care offers lower premiums and lower out-of-pocket payments...
- ...in return for restrictions on:
  - physician choice
  - access to care through the use of gatekeepers and other utilization management
  - physician behavior through incentives such as capitation
- Do the restrictions imposed by managed care reduce premiums and medical expenditures:
  - by creating incentives for greater efficiency in the delivery of health services
  - by attracting the healthiest enrollees?
  - Or are lower reimbursement fees responsible for lower premiums?

Decomposing Premium Differences

Introduction - Managed care offers lower premiums and lower out-of-pocket payments...
- ...in return for restrictions on:
  - physician choice
  - access to care through the use of gatekeepers and other utilization management
  - physician behavior through incentives such as capitation
- Do the restrictions imposed by managed care reduce premiums and medical expenditures:
  - by creating incentives for greater efficiency in the delivery of health services
  - by attracting the healthiest enrollees?
  - Or are lower reimbursement fees responsible for lower premiums?

Decomposing Premium Differences

Introduction - Managed care offers lower premiums and lower out-of-pocket payments...
- ...in return for restrictions on:
  - physician choice
  - access to care through the use of gatekeepers and other utilization management
  - physician behavior through incentives such as capitation
- Do the restrictions imposed by managed care reduce premiums and medical expenditures:
  - by creating incentives for greater efficiency in the delivery of health services
  - by attracting the healthiest enrollees?
  - Or are lower reimbursement fees responsible for lower premiums?

Decomposing Premium Differences

Introduction - Managed care offers lower premiums and lower out-of-pocket payments...
- ...in return for restrictions on:
  - physician choice
  - access to care through the use of gatekeepers and other utilization management
  - physician behavior through incentives such as capitation
- Do the restrictions imposed by managed care reduce premiums and medical expenditures:
  - by creating incentives for greater efficiency in the delivery of health services
  - by attracting the healthiest enrollees?
  - Or are lower reimbursement fees responsible for lower premiums?

Decomposing Premium Differences

Introduction - Managed care offers lower premiums and lower out-of-pocket payments...
- ...in return for restrictions on:
  - physician choice
  - access to care through the use of gatekeepers and other utilization management
  - physician behavior through incentives such as capitation
- Do the restrictions imposed by managed care reduce premiums and medical expenditures:
  - by creating incentives for greater efficiency in the delivery of health services
  - by attracting the healthiest enrollees?
  - Or are lower reimbursement fees responsible for lower premiums?

Decomposing Premium Differences

Introduction - Managed care offers lower premiums and lower out-of-pocket payments...
- ...in return for restrictions on:
  - physician choice
  - access to care through the use of gatekeepers and other utilization management
  - physician behavior through incentives such as capitation
- Do the restrictions imposed by managed care reduce premiums and medical expenditures:
  - by creating incentives for greater efficiency in the delivery of health services
  - by attracting the healthiest enrollees?
  - Or are lower reimbursement fees responsible for lower premiums?

Decomposing Premium Differences

Introduction - Managed care offers lower premiums and lower out-of-pocket payments...
- ...in return for restrictions on:
  - physician choice
  - access to care through the use of gatekeepers and other utilization management
  - physician behavior through incentives such as capitation
- Do the restrictions imposed by managed care reduce premiums and medical expenditures:
  - by creating incentives for greater efficiency in the delivery of health services
  - by attracting the healthiest enrollees?
  - Or are lower reimbursement fees responsible for lower premiums?

Decomposing Premium Differences

Introduction - Managed care offers lower premiums and lower out-of-pocket payments...
- ...in return for restrictions on:
  - physician choice
  - access to care through the use of gatekeepers and other utilization management
  - physician behavior through incentives such as capitation
- Do the restrictions imposed by managed care reduce premiums and medical expenditures:
  - by creating incentives for greater efficiency in the delivery of health services
  - by attracting the healthiest enrollees?
  - Or are lower reimbursement fees responsible for lower premiums?
Selection Results From Previous Studies

RAND study found no evidence of favorable selection of patients by the HMO.
Switcher studies usually find evidence of large risk selection effects.
- Cutler and Zeckhauser (1997) found those who switched from FFS to an HMO had 32% lower expenditures than those who remained in FFS.
- Cox and Hogan (1997) found 37% lower expenditures in a Medicare population.
Switcher studies focus on specific firms rather than entire geographic markets, and randomized controlled trials focus on a small number (or one) of markets. Difficult to generalize to US as a whole.
Switcher studies measure a marginal rather than average risk selection effect.

Empirical Model

\[ M = \beta_1 H + \beta_2 X + \beta_3 Z + \epsilon, \]
\[ \text{M: person's use of medical services,} \]
\[ H = 1 \text{ for HMO enrollees and} \]
\[ H = 0 \text{ for non-HMO enrollees.} \]
\[ X: \text{observable enrollee characteristics (e.g., age, gender).} \]
\[ Z: \text{unobservable enrollee characteristics (e.g., preferences for medical care, unmeasured health).} \]

Identification Problem

\[ Z \text{ is not observed:} \]
- If individuals who are relatively healthy or have weak preferences for medical care are more likely to enroll in an HMO plan than a non-HMO plan, \( H \) and \( Z \) will be correlated, and \( \beta_1 \) will be biased downward.
- \( \beta_3 \) cannot be estimated directly.

We use a pseudo natural experiment to identify risk selection:
- Some employers provide only one type of health plan to their employees, thereby restricting choice, whereas other employers offer a choice between types of insurance plans: at least one HMO and at least one non-HMO plan.

Identifying assumption:
- When choice is restricted to either an HMO or a non-HMO plan, the distributions of \( Z | X \) are the same.
- Individuals do not choose employer based on type of plan offered.
- Non-trivial cost to switch jobs (in order to get one's preferred plan type).

Measuring the Reimbursement Effect: Allowing Provider Prices to Vary

Reimbursement effect = \( (M_C|H=1,p_0 - M_C|H=0,p_0) \)

HMO Expenditures

Data

The Community Tracking Study (CTS) is a longitudinal study designed to track and analyze changes in the health care system.

The Household Survey:
- Nationally representative sample of 32,732 families (60,446 individuals)
  - Community focus
  - Families from 60 randomly selected local health care markets
  - 12 of the 60 communities randomly chosen for more intensive study
  - Intensive sites have sample sizes 4 times larger than non-intensive sites
  - Interviews conducted between July 1996 and July 1997

Study Sample: 56,000 individuals:
- Individuals who are covered by employer-sponsored health insurance
- Persons younger than 65
**Key variables**

Individuals have choice of plan type when:

- main health plan policy holder could select from an HMO plan and a non-HMO plan
- when members of household who are covered by more than one employer sponsored health plan and one offered only an HMO plan and another offered only a non-HMO plan

Person chooses an HMO:

- each individual is classified as being enrolled in an HMO (includes POS) or a non-HMO plan (includes PPO) depending on whether the "main" health plan is self-defined as an HMO or a non-HMO.

---

**Table 1. Characteristics of HMO and Non-HMO Plans**

<table>
<thead>
<tr>
<th></th>
<th>HMO</th>
<th>Non-HMO</th>
</tr>
</thead>
<tbody>
<tr>
<td>(percentage of enrollees in plan)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the plan require its member to sign up with a certain primary care doctor, group of doctors, or clinic, with they must go to for routine care?</td>
<td>81%</td>
<td>27%</td>
</tr>
<tr>
<td>Under your plan do its members need approval or a referral to see a specialist or get special care?</td>
<td>84%</td>
<td>40%</td>
</tr>
<tr>
<td>Is there a book, directory, or list of doctors associated with the plan?</td>
<td>94%</td>
<td>63%</td>
</tr>
<tr>
<td>If you do not have a referral, will your plan pay for any of the costs of visits to doctors who are not associated with the plan?</td>
<td>44%</td>
<td>85%</td>
</tr>
</tbody>
</table>

---

**Table 2. Estimating Medical Expenditures: Coefficient Estimates of MEPS Expenditure Regressions (Resource use weights)**

<table>
<thead>
<tr>
<th></th>
<th>Non-HMO Enrollees</th>
<th>HMO Enrollees</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=4,665</td>
<td>n=4,472</td>
</tr>
<tr>
<td>Hospital admissions</td>
<td>5285</td>
<td>4801</td>
</tr>
<tr>
<td>Nights in hospital</td>
<td>576</td>
<td>1008</td>
</tr>
<tr>
<td>ER visits (no overnights)</td>
<td>796</td>
<td>374</td>
</tr>
<tr>
<td>Doctor visits</td>
<td>206</td>
<td>187</td>
</tr>
<tr>
<td>Medical practitioner visits</td>
<td>111</td>
<td>115</td>
</tr>
<tr>
<td>Nursing home care</td>
<td>7676</td>
<td>995</td>
</tr>
<tr>
<td>Top coded at 15 nights in hospital</td>
<td>13232</td>
<td>12289</td>
</tr>
<tr>
<td>Top coded at 30 physician visits</td>
<td>3171</td>
<td>397</td>
</tr>
</tbody>
</table>

---

**Figure 1: Utilization and Risk Selection Effects**

- **Medical Expenditure**
  - HMO plans (non-HMO prices)
  - Non-HMO plans (non-HMO prices)
  - HMO plans (HMO prices)
  - Non-HMO plans (HMO prices)

**Utilization Effect**
- Among individuals with a choice of plan type, estimated expenditures per HMO enrollee ($1,803) were $217 less than estimated expenditures per non-HMO enrollee (10.7 percent less).

**Components of this $217 difference:**
- Utilization effect: $26
- Observed risk selection: -$12
- Unobserved risk selection: $36

**Reimbursement effect:**
- Among individuals with a choice of plan type, estimated expenditures per HMO enrollee ($1,803) were $217 less than estimated expenditures per non-HMO enrollee (10.7 percent less).

**Conclusions**

- We find no evidence that HMOs attract a disproportionate share of low-risk enrollees.
- Consistent with RAND result.
- Inconsistent with switcher studies.
- Consistent with Tu et al. (1999).

- Consistent with Cutler, McClellan, and Newhouse (2000).

* = statistically significant at the 5% level.