Every nation that provides health care faces the same dilemma.  

*How can scarce resources be allocated fairly across plans and other risk bearing entities?*

Risk adjustment is one tool of redistributing payments to risk-bearing entities, to accurately align these payments with the level and risk of services provided to their members.
Risk Adjustment – A Global Perspective

“Risk Adjustment in Health Care Funding”, Contingencies Jan./Feb. 2011
Sponsored by the Academy’s Health Practice International Task Force (HPITF)

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風險調整 - 全球性的視野

HIPTF委員會的任務

探索風險調整的

什麼

為什麼

誰

如何
Risk Adjustment – A Global Perspective

WHAT?

Tool used to adjust payments to health plans to accurately reflect the health status of their members

• Relies on risk assessment →
  Review the risk adjusters for each country

• Relies on available data →
  Universal, consistent, current, verifiable, feasible to collect, plausible and confidential
Risk Adjustment – A Global Perspective

WHY?

Enhance solidarity

• Protect open enrollment & community rating
• Respond to consumers’ preferences

Prevent antiselection

• Create a level playing field

Improve efficiency

• Encourages fair competition

Ensure quality and appropriateness of care

Establish a sustainable health care system

• Market stability
# Risk Adjustment – A Global Perspective

<table>
<thead>
<tr>
<th>Health Financing System</th>
<th>UK</th>
<th>Israel</th>
<th>Netherlands</th>
<th>Chile</th>
<th>South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Insurers</td>
<td>Public</td>
<td>Mandatory</td>
<td>Mandatory</td>
<td>Voluntary</td>
<td>Voluntary</td>
</tr>
<tr>
<td></td>
<td>Primary Care Trusts (PCTs)</td>
<td>Non-Profit Sick Funds</td>
<td>For-Profit Sick Funds</td>
<td>For-Profit Isapre (Instituciones de Salud Previsional)</td>
<td>Non-Profit Medical Schemes</td>
</tr>
<tr>
<td># of Insurers</td>
<td>152</td>
<td>4</td>
<td>~20</td>
<td>13</td>
<td>~100</td>
</tr>
<tr>
<td>Models</td>
<td>Budgets</td>
<td>Prospective</td>
<td>Prospective / Retrospective</td>
<td>Prospective</td>
<td>Prospective</td>
</tr>
<tr>
<td>Special Features</td>
<td>Person-Based Resource Allocation (PBRA) model for General Practitioners</td>
<td>3-Tiered System</td>
<td>In 2006, moved to mandatory private health care</td>
<td>Explicit Health Guarantees</td>
<td>Risk Equalization Fund is Transparent</td>
</tr>
</tbody>
</table>
Mandatory health care was introduced in 1948.
- In England, 152 PCTs deliver health care to distinct regions.
- Typically a few PCTs will fail to stay within their allotted budget, and the government will bail them out.
- Person-Based Resource Allocation (PBRA) model predicts the General Practitioner (GP) practice budgets.
Person-Based Resource Allocation (PBRA)

• National predictive model, introduced in 2009, that links physician, hospital and social care information to predict future costs of care. Mental health, maternity and community based services are excluded.

• PBRA was able to predict the next year practice level expenditure within 10% for about 2/3rd of the practices.

• PBRA determines the next year’s budget on the patients registered with that GP. At the end of the year there is a reconciliation between the amount of hospital care used by that GP and predicted budget. The idea is that GPs will want to reduce unnecessary hospital care. Presently, they are only used for benchmarking, with the PCT picking up the slack. The PCTs will be replaced by a GP consortia, who will assume more risk for their members.
PBRA Risk Adjusters – UK

Age / Gender - 18 age bands

152 Morbidity Markers

- Consists of contiguous ICD-10 codes, which are comparable to the US’s 70 Hierarchical Condition Categories (HCC)

Local Neighborhood Health Indicators

- Residents in public housing
- Disability
- Residents between 16 & 74 lacking education qualifications
- Residents who sought private medical care in last 2 years
- Students
Israel’s 4 Sick Funds have been delivering health care since the mid-1950s.
• The Israel National Health Insurance Act (INHIA) was established in 1995.
• Sick funds receive a prospective payment (for the basic/universal coverage) that accounts for over 95% of compensation, with the remaining coming from a retrospective payment.
Israel has a 3-tier health care structure, which leads to a complex risk adjustment environment.

<table>
<thead>
<tr>
<th>Tier 1 Basic Coverage</th>
<th>Tier 2 Supplemental Health Care Services (SHCS)</th>
<th>Tier 3 Commercial Insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Care</td>
<td>More Choices-Selection of surgeon</td>
<td>Dread Diseases</td>
</tr>
<tr>
<td>Physician Services</td>
<td>Limit Increases-Additional IVF trials</td>
<td>Disability</td>
</tr>
<tr>
<td>Prescription Drugs</td>
<td>Services Not Covered-Orthodontic</td>
<td>Long Term Care</td>
</tr>
<tr>
<td>Home Health Care</td>
<td>Other out-of-network</td>
<td>Extension –RX</td>
</tr>
<tr>
<td>Psychiatric Care</td>
<td></td>
<td>Fixed compensation for medical treatment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Workmen’s compensation</td>
</tr>
</tbody>
</table>
Risk Adjusters - Israel

Basic Tier
- Age (11 age bands) accounts for 93% of allocation
- Severe diseases accounts for 6% of allocation
  - Renal failure requiring dialysis
  - Gauche
  - Talasemia
  - Hemophilia
  - AIDS
- *Age and distance from medical services is going to be added*

SHCS’s only risk adjuster is age
- An individual can only join the SHCS that is offered by his sick fund
- Uses waiting periods to mitigate risk
- About 75% do purchase SHCS

Commercial Insurance uses underwriting techniques
- Pre-existing
- Medical history
- Waiting periods
- Exclusions
Age is the driver of the fund allocation. Some argue that children are overvalued.

- Data is based on inpatient services and visits to outpatient clinics
The Netherlands has seen significant reform over the past 20 years.
• In the 1990s they had a mix of social health insurance (65%) and private insurance (35%). They changed to a mandatory system in 2006.
• About 20 private insurance companies must accept any applicant for basic care.
• Employers pay 7.2% of employee's salary (capped)
• 2/3rd receive subsidies for the flat premium
Risk Adjusters – The Netherlands

**Age / Gender – 18 age bands** 1991

Urbanization 1996
- 10 regional clusters based on non-Western immigrants, average income, % of single people, death probability, proximity of hospitals & doctors, number of nursing homes

**Pharmacy-based cost groups (PCGs)** 2002
- Out-patient drugs
- Not an incidental user (6 months usage)
- Linked to about 20 chronic conditions

**Diagnostic cost groups (DCGs)** 2004
- Based on diagnosis when discharged from hospital

**Source of income** 2007+
- Disability
- Receiving income support
- Unemployment
- Self-employed
- Employed
### Risk Adjustment – The Netherlands

<table>
<thead>
<tr>
<th>Risk Adjuster</th>
<th>Woman Age 67, Rural, Thyroid disorder</th>
<th>Man Age 19, City, Student No chronic disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age/Gender</td>
<td>970</td>
<td>389</td>
</tr>
<tr>
<td>Urbanization</td>
<td>-31</td>
<td>36</td>
</tr>
<tr>
<td>PCG</td>
<td>174</td>
<td>-109</td>
</tr>
<tr>
<td>DCG</td>
<td>-97</td>
<td>-97</td>
</tr>
<tr>
<td>Source of Income</td>
<td>0</td>
<td>-20</td>
</tr>
<tr>
<td>Total</td>
<td>1,016</td>
<td>199</td>
</tr>
</tbody>
</table>

The sick fund receives the monthly amount (in EURs) minus the policyholder’s flat rate premium. Final payments are adjusted retrospectively.
Privacy is maintained by assigning each insured a Pseudo-identity number.
- Enrollment covers employee and dependents.
- In 2006, $1M transferred from 6 Isapres.

FONASA, *Fondo Nacional de Salud*, is the state insurance fund.
The Fund for Solidarity Compensation, created in 2005, attempts to equalize health risks among Isapres beneficiaries as relates to explicit health care guarantees.

<table>
<thead>
<tr>
<th>Year</th>
<th># of Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>25</td>
</tr>
<tr>
<td>2007</td>
<td>56</td>
</tr>
<tr>
<td>Current</td>
<td>69</td>
</tr>
</tbody>
</table>

Example - A patient with a heart attack has the below guarantees:

- Within 30 minutes from arriving at health care center—EKG diagnostic and treatment with thrombolytic medication if indicated
- After discharge—secondary prevention visit within 30 days of discharge, monthly visits thereafter
Medical Schemes consists of about 100 non-profit private insurers. They must cover the Prescribed Minimum Benefits (PMBs), but are allowed to include supplemental benefits.

- Risk Equalization Fund (REF) was created in 2004, but is still not implemented.
The REF is responsible for collecting and redistributing funds only for the prescribed minimum benefits (PMBs). These are defined using ICD-10 codes, with the goal of ensuring that all medical scheme members have access to certain minimum health services, regardless of the benefit option they have selected.

Medical Schemes must cover the costs of:

- Emergency conditions
- Set of 270 medical conditions defined as Diagnosis Treatment Pairs (DTPs)

<table>
<thead>
<tr>
<th>DTP Code</th>
<th>Diagnosis</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>109A</td>
<td>Vertebral dislocation/fractures with injury to spinal cord</td>
<td>Repair/reconstruction; medical management; inpatient rehabilitation up to 2 months</td>
</tr>
</tbody>
</table>

- Chronic Disease List (CDL)
- HIV/AIDS
Risk Adjusters – South Africa

Age – 19 age bands

Chronic diseases & number of chronic diseases

- 25 chronic diseases
- HIV/AIDS on ARV therapy

Maternity cases – counted separately
70 yr old female with diabetes (DBI) and coronary heart failure (CHF)
Maximum of (3745, 1791) + 246 = 3,992

<table>
<thead>
<tr>
<th>Age Bands</th>
<th>Chronic Disease List (CDL) Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ADS</td>
</tr>
<tr>
<td>Column</td>
<td>1</td>
</tr>
<tr>
<td>Under 1</td>
<td>669</td>
</tr>
<tr>
<td>1-4</td>
<td>115</td>
</tr>
<tr>
<td>40-44</td>
<td>218</td>
</tr>
<tr>
<td>70-74</td>
<td>794</td>
</tr>
<tr>
<td>85+</td>
<td>706</td>
</tr>
</tbody>
</table>

Combined Female and Male table for use in Shadow Year 2010

<table>
<thead>
<tr>
<th>Age Bands</th>
<th>Chronic Disease List (CDL) Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HYP</td>
</tr>
<tr>
<td>Column</td>
<td>19</td>
</tr>
<tr>
<td>Under 1</td>
<td>0.0</td>
</tr>
<tr>
<td>1-4</td>
<td>324.4</td>
</tr>
<tr>
<td>40-44</td>
<td>426.9</td>
</tr>
<tr>
<td>70-74</td>
<td>1,003.5</td>
</tr>
<tr>
<td>85+</td>
<td>914.8</td>
</tr>
</tbody>
</table>

Modifier for number of chronic conditions

<table>
<thead>
<tr>
<th>Number</th>
<th>CC2</th>
<th>CC3</th>
<th>CC4</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>246</td>
<td>673</td>
<td>1,373</td>
</tr>
<tr>
<td>3</td>
<td>246</td>
<td>673</td>
<td>1,373</td>
</tr>
<tr>
<td>4 or more</td>
<td>246</td>
<td>673</td>
<td>1,373</td>
</tr>
</tbody>
</table>

Source: South Africa, REF Contribution Table 2010
Risk Adjustment – South Africa

Monthly Payment to a Health Plan for a 70 year old Female

- **Healthy**
  - US: $299
  - Germany: $209
  - South Africa: $100

- **Diabetes**
  - US: $299
  - Germany: $209
  - South Africa: $225

- **Coronary Heart Failure (CHF)**
  - US: $333
  - Germany: $143
  - South Africa: $470

- **Diabetes & CHF**
  - US: $333
  - Germany: $143
  - South Africa: $470

Adapted from Contingencies Jan./Feb. 2010  “HCR: Germany”
### Risk Adjustment – A Global Perspective

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<th>South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic</td>
<td>Age (18 bands) Gender</td>
<td>Age (11 bands) Gender (expected)</td>
<td>Age (18 bands) Gender</td>
<td>Age (18 bands) Gender</td>
<td>Age (19 bands) Gender</td>
</tr>
<tr>
<td>Health Status</td>
<td>Morbidity Markers</td>
<td>5 Severe Diseases</td>
<td>PCGs / DCGs</td>
<td></td>
<td>Chronic Diseases # of Chronic Diseases Maternity</td>
</tr>
<tr>
<td>Socio-Economic</td>
<td>Neighborhood Health Indicators</td>
<td></td>
<td>Source of Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geography</td>
<td></td>
<td>Distance from services (expected)</td>
<td>Urbanization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Achieving Goals</td>
<td>Improve efficiency</td>
<td>Enhance solidarity</td>
<td>Prevent antiselection</td>
<td>Enhance solidarity</td>
<td>Prevent antiselection</td>
</tr>
<tr>
<td></td>
<td>Ensure quality &amp; appropriate care</td>
<td>Sustainable system</td>
<td>Improve efficiency</td>
<td>Ensure quality &amp; appropriate care</td>
<td>Sustainable system</td>
</tr>
</tbody>
</table>
Risk Adjustment – A Global Perspective

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Risk Adjustment – A Global Perspective

Resources:

“PBRA report v8.2”, by PBRA team, October 14, 2009.


Israel sick fund statistics - 2005 study to the Center for Research and Information of the Knesset (the Israeli Parliament) by Prof. D. Tchernichovski.


