Using Risk Based Incentives and Wellness Programs to Foster Healthier Behavior

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By Jeff Wu
Regional Head of Accident and Health Insurance, Generali Asia
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An interesting study shows that healthcare cost increases with age. The following graphs illustrate this trend for both US Commercial and US Medicare aging curves:

- **US Commercial aging curve**
  - Male
  - Female

- **US Medicare aging curve**
  - Male
  - Female

The graphs also show the Australian Government health spending by program based on age:

- **Australian Government health spending by program based on age**
  - Medicare Benefits Schedule
  - Pharmaceutical Benefits Scheme
  - Public hospitals
  - Source: Department of Health, Australia

Lastly, the health cost weights, by age group for New Zealand:

- **Health cost weights, by age group – New Zealand**
  - Male
  - Female
  - Currency: NZD
  - Source: 2010 Data, Ministry of Health, New Zealand
An interesting study shows that sub-healthy individuals are at high risk of developing diseases if not treated in time, but their sub-health status can be eliminated simply by psychological interventions and/or lifestyle modifications, e.g. increasing physical activity and following a healthy diet.

### Age-specific prevalence of health, subhealth and disease among 1473 Chinese adults

Source: 2013 “Sub-health: definition, criteria for diagnosis and potential prevalence in the Central region of China”
Prevalence of Selected Chronic Diseases

The conditions of concern among the elderly are primarily those associated with chronic disease.

Source: “Chartbook on Aging in America” by Allan C. and H. Brotman
Prevention of Chronic Diseases

Many chronic diseases have been associated with personal habits and, conversely, each of these habits may be associated with several diseases.

<table>
<thead>
<tr>
<th>Smoking</th>
<th>Diet</th>
<th>Stress and Isolation</th>
<th>Physical activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Chronic obstructive pulmonary disease</td>
<td>• Cancer of the colon, pancreas and prostate.</td>
<td>• Increases blood pressure, abnormal</td>
<td>• Reduces the risk of falling and fracturing</td>
</tr>
<tr>
<td>• Lung cancer</td>
<td>• Cardiovascular and cerebrovascular disease</td>
<td>stress response, heart disease and poor sleep</td>
<td>bones</td>
</tr>
<tr>
<td>• Coronary heart disease, stroke and lower respiratory tract infections</td>
<td>• Diabetes</td>
<td>• Strong correlated with Depression</td>
<td>• Reduces the risk of coronary heart disease</td>
</tr>
<tr>
<td>• Dementia</td>
<td>• Osteoporosis</td>
<td>• Increases chances of developing</td>
<td>• Reduces the risk of high blood pressure,</td>
</tr>
<tr>
<td>• Cataracts</td>
<td></td>
<td>dementia and Alzheimer’s disease</td>
<td>colon cancer, and diabetes</td>
</tr>
<tr>
<td>• Blindness and visual loss</td>
<td></td>
<td></td>
<td>• Reduces anxiety and depression</td>
</tr>
</tbody>
</table>

Source: “Prevention and the Elderly: Risk Factors”
Falls and healthcare costs

Falls are a significant problem for the elderly. It is estimated that one out of three older adults (those aged 65 or older) falls each year but less than half talk to their healthcare providers about it.

**Rate per 1000 Population of Fall-related Hospital Admissions of Older Adults Western Australia**

- Source: “Injury in Western Australia: The Health System Cost of Falls in Older Adults in Western Australia”

**Average length of Hospital Stay (in days) Canada**

- Source: British Colombia, Canada 2004/2005 “The evolution of senior’s falls prevention in British Colombia”
How personal habits influence medical costs

Some researches have highlighted how an active and healthy lifestyle influences the healthcare costs, especially for older adults.

Medical costs of active and inactive people without physical limitations – both sexes - USA

Currency: 1987 USD
Source: “Higher Direct Medical Costs Associated with Physical Inactivity” by Pratt, Macera, Wang

Healthcare cost per person per year (Canada)

Currency: 1988 USD
Risk factors related to healthcare cost

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>High risk criterion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illness Days</td>
<td>More than 5 days in the past year</td>
</tr>
<tr>
<td>Existing Medical Conditions</td>
<td>Self-reported heart problems, cancer, diabetes, past stroke, chronic bronchitis/emphysema</td>
</tr>
<tr>
<td>Alcohol</td>
<td>Male: More than 14 drinks per week. Female: More than 7 drinks per week.</td>
</tr>
<tr>
<td>Life Satisfaction</td>
<td>Partly or not satisfied</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>Less than one time per week</td>
</tr>
<tr>
<td>Perceived Health</td>
<td>Fair or Poor</td>
</tr>
<tr>
<td>Medical/Drug for Relaxation</td>
<td>Use almost every day or sometimes</td>
</tr>
<tr>
<td>Diastolic Blood Pressure</td>
<td>Greater than 89 mmHg</td>
</tr>
<tr>
<td>Systolic Blood Pressure</td>
<td>Greater than 139 mmHg</td>
</tr>
<tr>
<td>Smoking</td>
<td>Current cigarette smoker</td>
</tr>
<tr>
<td>Stress</td>
<td>Greater than 20 (based on a composite score from questions related to personal life and hours of sleep)</td>
</tr>
<tr>
<td>Body Weight</td>
<td>Body Mass Index (BMI) equal to or greater than 27.5 kg/m2</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>Greater than 239 mg/dL</td>
</tr>
<tr>
<td>Job Satisfaction</td>
<td>Disagree or strongly disagree</td>
</tr>
</tbody>
</table>

Source: The University of Michigan Health Management Research Center

Currency: USD
Some risk factors are modifiable, some are not

We can group the risk factors in two main categories: modifiable and non-modifiable.

**Non modifiable**
- Conditions that increase the risk but cannot be changed
- Examples: age, gender, family medical history

**Modifiable**
- Risk factors that can be changed or treated
- Examples: smoking, physical activity, body weight

From the study analyzed in the previous slide, we can group the risk factors that are correlated with each other:

**Non Modifiable risk factors:**
- Absence of illness, medical problems

**Modifiable risk factors:**
- Physical Activity correlated: physical activity, diastolic and systolic blood pressure, body weight, cholesterol
- Bad habits: alcohol, smoking, drug abuse
- Personal perception: perceived health, life satisfaction, stress, job satisfaction
Focus of Wellness Programs

- Early detection
- Quit bad habits
- Health Education
- Physical Activity
## Examples of Wellness Programs

<table>
<thead>
<tr>
<th>Prevention</th>
<th>Check-up, healthy nutrition, stop-smoking, fitness &amp; exercise coaching, stress management, etc.</th>
</tr>
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<td>Tele assistance / Telemedicine</td>
<td>Measuring and monitoring of vital signs through dedicated tele medical devices in order to react in case of medical emergency and guarantee autonomy and peace of mind for care givers</td>
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<tr>
<td>Rehabilitation management</td>
<td>Coordination of medical, social and professional rehabilitation programs after a heavy injury in order to bring the injured back to “normal” life</td>
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<tr>
<td>Chronic Disease Management</td>
<td>Information provision, coaching, compliance monitoring, tele care and healthcare services for specific populations suffering chronic diseases</td>
</tr>
<tr>
<td>Medical advice hot line</td>
<td>Medical advice for persons with acute health problems based on evidence</td>
</tr>
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</table>
Key success factors for any wellness programs

A successful wellness program should be result-oriented.

- **Verifiable**: Can the program track and verify the result?
- **Enforceable**: Can the program enforce people to take the corrective measures?
- **Modifiable**: Is the program targeting risk factors that people can change?
Wearable devices can be helpful

**Physical Activity tracker**
Monitoring and access the data generated by today’s fitness trackers allow insurers to design enforceable fitness programs and verify the results.

**Diet tracker**
The sensor allow people to keep a track of their diet. Possibility to monitor diet of elderly and suggest the right diet advices.

**Tele assistance**
For elderly, a prompt medical treatment is very important. This device allow people to react in case of medical emergency and guarantee autonomy.

**Chronic Disease Management**
This device helps to monitor chronic illnesses with multiple data captures. For example, for patients with cardiac illness, monitoring of blood pressure, cortisol levels and cholesterol.
# The Effectiveness of Wellness Programs

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<th>Enforceable</th>
<th>Verifiable</th>
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## Discovery Vitality Program

It is the world's largest scientific, incentive-based wellness solution for individuals and corporates: by rewarding healthy behavior it is aimed to give members and their family knowledge and motivation to make healthy living.

### Earn Vitality Points

**Education activities**
- Health Assessment
- First aid certification
- Monthly medical Visit
- Kids Health Assessment

**Fitness activities**
- Verified workout (partner health club, device, mobile app)
- Sports league
- Athletic events
- Kids sport league and events

**Prevention**
- Health screenings
- Flu shot
- Nicotine test
- Dental exam
- Vision exam
- Kids prevention (exams and immunizations)

**Healthy Living**
- Blood donation
- Double points if you are healthy (based on BMI, blood pressure systolic, blood glucose, total cholesterol)

### Get Rewards

- Electronics
- Fitness devices
- Movie tickets
- Amazon.com gift cards
- Hotel stays

# Practical tips for wellness programs

| Wellness programs based on prevention | • Foster healthier behavior  
• Decrease medical cost |
|--------------------------------------|----------------------------------------------------------------|
| Incentives for engagement            | • Design personal goals  
• Reward healthy behavior |
| Wearable devices                     | • Can make more verifiable the wellness programs |
| Medical advice hot line              | • 24h medical hot line  
• Avoid unnecessary medical visit |
| Tele assistance                      | • Can guarantee autonomy to elderly  
• Offered as added service |
| Chronic Disease Management Program   | • Aim to educate the patient  
• Identify health and care patient’s need |
| Rehabilitation Management            | • Very important after a fall  
• Offered as added service |
Thank You