Bicycle Usage Incentives to Motivate People for Health Promotion in Japan

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The Japan Syndrome

The Shrinking Society with aging population

Source: The Economist, Nov 18th, 2010
Elderly Population Share in Japan

Japanese Life Expectancy

Private Automobile vs. Diabetes

Mode of Travel (%)

Persons/100,000

Source: H. Tamemoto, Obesity and Diabetes, Vol. 8 No.923, 2009
Soaring Social Security Expenditure

Source: Ministry of Health, Labour and Welfare
Smart Wellness City

• To delay the frailty of elderly, the best approach is to maintain/improve health.
• It involves not only health care, but also the improvement of living environments.
• The basic objective of SWC is to promote active transport such as walking and cycling to form healthier communities.
• Now there are more than 80 SWCs in Japan and the number is increasing.
Four Elements of SWC

1. Infrastructure for public transport, bicycles and walking
2. Objective evaluation based on health and medical data analysis (Evidence-based Analysis)
3. Health promotion incentives to change citizen’s lifestyle
4. Enhancement of health literary and social capital formation
Effect of Exercise Program

Physical age change of 4.5 years due to exercise program in Mitsuke City

Average age was 58 years old for 2,132 citizens ranging from 30 to 80 years old.

Source: Kuno Laboratory 2011
Effect of Health Program

Average medical expenditure for 70 years old citizens in Mitsuke City

1000 yen per person per year

- **Participants**
- **Others**

$1,000 difference

Utsunomiya City – a Case Study

- A regional capital with half a million population.
- Located 100km north of Tokyo.
- Highest auto-dependency in Japan.
- From Sprawl to Compact City
- New LRT, the first in Japan.
- Cycle City Utsunomiya Plan.
- Revive CBD with pedestrian.
- New campaign to improve city image.
Cycle City Utsunomiya

Japan Cup Cycle Road Race

Criterium in the city center since 2010
New LRT in Utsunomiya

• The first new LRT in Japan
• 15 km route with 19 stops
• 5 Transit Centers (TOD) planned
• The construction started now, to be in service in spring, 2022
Citizen Willingness to Participate Exercise

Source: Utsunomiya Health Department Survey
Utsunomiya Health Point System

Point Conversion table and additional points

- Additional points will be given by achieving daily or weekly walking steps or cycling distance targets
- Also by weight measurements, medical checkup, BMI improvement
- Participation to walking rally and sport events
Utsunomiya Health Point System App

1. Main Page
Automatically measures walking and cycling amount and converts to points acquired. Bottom shows daily activity amount converted to equivalent steps.

2. My Page
Height, weight, BMI at the top
History of activity records.

3. Activity Record
Amount of activities by mode, Route moved on map

After registration, health points are automatically added by just carrying a smartphone.
Encouragement for continuous commitments

- Walkathon with automatic check-in function

- Automatic goal setting and encouragement of exercise
Profile of participants (2019.5.31)

<table>
<thead>
<tr>
<th>Sex</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>4,688</td>
<td>6,830</td>
<td>11,518</td>
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<tr>
<td>Ratio</td>
<td>40.7%</td>
<td>59.3%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Under 20</th>
<th>30s</th>
<th>40s</th>
<th>50s</th>
<th>60s</th>
<th>70 and over</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>1,199</td>
<td>1,997</td>
<td>2,682</td>
<td>2,067</td>
<td>1,668</td>
<td>1,905</td>
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<tr>
<td>Ratio</td>
<td>10.4%</td>
<td>17.3%</td>
<td>23.3%</td>
<td>17.9%</td>
<td>14.5%</td>
<td>16.5%</td>
</tr>
</tbody>
</table>
Results after one year

• More than 11 thousand people participated
• High participation of middle aged group
• Average increase of 2,000 steps after one year
  – (4249 steps in April 2018 => 6,277 steps after 1 year)
• 72.2% of participants improved their BMIs
• 55 sponsors donated gifts
• 2,830 participants exchanged their points to gifts
• Total points exchanged is 4.6 million points as of May 22, 2019 (= about 38,000 Euro)
Accumulated user traces for GIS analysis
(It is fun to run in Utsunomiya)

Thank You for Your Attention