The Social and Economic Impact of Health Promotion Programs
— A Case Study of Nishiaizu-machi, Fukushima Prefecture

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Introduction

The promotion of health and fulfillment in old age are goals not only for elderly persons seeking a prosperous retirement life but for local governments charged with providing long-term care insurance benefits. As local health promotion programs gain recognition for reducing the incidence of persons needing care below the national average, the need for health programs is expected to increase sharply throughout society.

Despite individual differences, debilitation from aging is a fact of life for everyone. And as elderly persons increase in number, we expect that health promotion programs of local governments will develop, and the health promotion market will expand.

To examine health promotion business as an increasingly important concern of government and business, this paper presents a case study of projects in the town of Nishiaizu-machi, Fukushima-ken, and notes the social and economic effects of the projects.

1. The Broader Context of Health Promotion Agendas

Western countries already have a significant lead in adopting health promotion agendas. In 1979, the U.S. adopted its “Healthy People” agenda to promote health and prevent illness. From the start, over 350 entities including state and local governments, academic groups, and companies came together to provide information enabling the general public to lead long and healthy lives. Research was conducted on themes included osteoporosis, cancer, diabetes, disabilities, community education programs, access to quality service providers, family planning, food safety, health communication, AIDS, psychological disorders, public health, and smoking. The research results are disseminated to support the public in taking individual responsibility for their health.

Healthy People 2000 took a further step and focused on promoting disease prevention methods, development of long-term care equipment, and the introduction of computer systems. Its successor, the Healthy People 2010 plan, anticipates the population's aging and diversifying composition by promoting research on public hygiene and medical systems long-term care. In addition to research, the plan calls for a scheme that provides information on local services so that consumers can freely choose from available services. The plan also encourages private organizations to enter the market.

In the U.K., the responsibility of promoting health and preventing disease rests with registered family doctors, who perform health checkups and follow-up treatment. Because of the close connection of health promotion and disease prevention to lifestyle factors, a project called the Health of the Nation was launched in 1992 to review family life from the viewpoint of health and health promotion.

All social insurance expenses in Denmark are paid by tax money. While the public is satisfied with medical services, life expectancy is low compared to the rest of Europe. Studies have shown that the cause lies with lifestyle factors, health promotion is being actively pursued. A typical example are the Healthy City Shops, which house a full-time staff of experts including public health nurses to instruct the public on health and lifestyle practices.

Germany's public medical insurance system, which covers 90% of the public, provides not only medical services but is responsible for health promotion in the area of preventing disease. Insurance benefits are thus applicable to a wide range of services including health promotion, disease prevention, and rehabilitation. While deteriorating medical finances have dealt a slight setback to the health promotion policy in the form of benefit cuts, health promotion is included in the category of medical treatment.

2. The Healthy Japan 21 Plan

In line with the global trend described above, the Ministry of Health and Welfare is introducing "Healthy Japan 21," a national health promotion campaign for the 21st century. The campaign aims to reduce the occurrence of disease through the secondary prevention efforts of early detection and treatment disease, as well as health promotion.

While Japan's life expectancy of 84 years is the world's highest, there has unfortunately been an increase in circulatory system diseases and other debilitating lifestyle diseases that result in a bed-ridden state and senility. Given the importance of improving lifestyle habits on an ongoing basis and preventing disease, Healthy Japan 21 aims both to improve lifestyle habits and promote health.

Specifically, nine categories are established including nutrition and diet, exercise and physical activity, smoking, and diabetes. The program is slated to start in January 2001 and sets targets to be achieved

over the next decade. A plan containing the targets was released this March 31, 2000.

3. The Implications of Health Promotion

The promotion of health has obvious merits at the individual level, including the ability to live healthier lives and reducing medical and long-term care costs. In addition, incentives also exist for various entities such as local governments, health insurance associations, and private companies to participate in health promotion.

In municipalities, the promotion of health among local residents is expected to stimulate local communities by reducing health insurance costs and increasing the number of healthy elderly persons. Specific policies include the zero-bed-ridden campaign, construction of health promotion facilities, introduction of home health management systems, guidance on diet and nutrition by public health nurses, and measures to increase health management awareness among residents. In our case study of Nishiaizu-machi in Fukushima prefecture, the measures taken have helped bring down the incidence rate of elderly persons needing care below the national average.

As with municipalities, health insurance associations are also expected to reap gains from health promotion in the form of insurance benefit savings. A number of corporate health insurance associations have rolled out health promotion programs. For example, the health insurance association of Osaka Gas has compiled an exercise therapy manual to promote the health of its members, while that of Hankyu Bus provides health guidance via home visits.

Private businesses are approaching health promotion as a full-fledged industry. Based on surveys of health maintenance and promotion expenses for the elderly, we estimate that the health promotion industry will become a ¥3 trillion yen market in 2000, and grow to ¥4.4 trillion by 2020. This includes categories such as health management products (body fat meters, etc.) and health fitness services offered by fitness clubs such as exercise programs for individual health management.

While anecdotal evidence indicates that health promotion also contributes to the prevention of disease, this observation has not yet been substantiated by hard data. Moreover, while programs would need to be sustained over a long period for such effects to become visible, the reality is that since both public and private sectors are under tight budget constraints, the necessary sustained effort is difficult to achieve.

Figure 1 The Health Related Market

(¥ billion)

Category	2000	2020
Health goods	796	1,189
Health facilities / facilities with sleeping accommodations	913	1,367
Health consultation / medical checkup, etc.	135	203
Appropriate exercise or work	534	749
Cultural activity / recreation	523	760
Health magazines / classes & seminars	44.8	68.8
Social activity	76.5	106
Total	**3,021**	**4,442**

Sources: Compiled from Tokyo Metropolitan Government, *Survey of Living Expenses for the Elderly* (1996), and National Institute of Population and Social Security Research, *Population Projection for Japan* (January 1997).

4. Nishiaizu-machi's Health Promotion Program

The town of Nishiaizu-machi is located in northwestern Fukushima prefecture near the border with Niigata prefecture. In the past, the town flourished as a post town on the Echigo road because of its strategic location for commerce and traffic. Geographically, it is located in a valley next to the Aizu valley, with the Iide mountain range visible to the north, the Agagawa river flowing through the valley, and Route no. 49 and the JR Banetsusai line running parallel to the river. It has an area of 298 square kilometers, 86% of which is mountainous forestland.

In 1998, the town had a population of 9,505, with 3,020 households. The proportion of elderly persons in the population (elderly ratio) was 33.3%, which is far above the national average. The town's fiscal budget was ¥6 billion, of which ¥8.72 million (14.5%) was allocated to *minsei expenses* (welfare expenses including medical, health, long-term care, and living allowances; Figure 2).

Figure 2 Nishiaizu-machi Statistics

Category	1985	1990	1995	1998
Population	11,249	10,570	10,098	9,505
No. of households	3,039	2,992	3,036	3,020
Town's ratio of elderly persons (%)	18.72	24.5	29.82	33.34
Prefecture's ratio of elderly persons (%)	11.8	14.3	17.4	19.2
Nation's ratio of elderly persons (%)	10.3	12.1	14.5	16.2
Public financing (¥ mil.)	3,971	3,999	5,673	6,000
—Of which, minsei expense	242	343	782	872

Notes: Figures are as of October 1 of year shown. In 1998, the town's elderly ratio was fifth highest among the prefecture's 90 towns and municipalities. Fiscal budget figures are the initial general account budget for the fiscal year.

Nishiaizu-machi's mortality rate for brain stroke is 1.7 times the national average, and 1.2 times the prefecture's average. Because of the town's high proportion of elderly persons, persons needing long-term care due to this debilitating disease are expected to increase. In light of this situation, the town launched a three-point health promotion program aimed at altering lifestyles: (1) measures to alter the health awareness of local residents, (2) introduction of home health management systems (from 1994), and (3) training of diet improvement workers to improve people's diets.

(1) Alteration of Health Awareness

On April 1, 1998, the town issued a "healthy town declaration" and launched events to promote health awareness including a lecture on the theme of the challenge of living to 100 and the distribution of health calendars to town residents. Furthermore, to alter people's health awareness and emphasize the need to take control of their own health management, the town built an indoor pool to encourage exercise during the cold winter months, when people tend to stay in their homes.

(2) Introduction of a Home Health Management System

In fiscal 1994, as part of the Ministry of Health and Welfare's special project to promote community health, one host computer and 300 NTT terminals were installed (each terminal accommodates up to four users). The system enables the management of health conditions by inputting health data such as answers to medical interviews, blood pressure, pulse, electrocardiogram reading, temperature, and weight, which is automatically transmitted to the host computer located at the public health center.

In fiscal 1996, the National Land Agency, as part of its model project on community facilities for information exchange, installed one host computer and 50 CATV home terminals in the town. Furthermore, in fiscal 1997 the Ministry of Agriculture and Fisheries also installed 50 CATV home terminals as part of a project to promote the rejuvenation of elderly persons in farming and fishing

towns, bringing the town's total CATV terminals to 100 units.

The system's users are residents who have circulatory problems and need special health guidance. Users are chosen based on the result of medical exams, or in the case of persons receiving care at home, recommendations from caregivers or doctors confirming the need for health guidance.

By the end of fiscal 1997, an interactive health management system was in place with an installed base of 400 CATV terminals. The system is free of charge to users, and the period of use is one year (and renewable). When users input health data such as blood pressure, pulse, and electrocardiogram reading, the public health center returns a message containing health guidance instructions. In addition, if abnormal readings are detected, a monthly report is sent containing health guidance instructions and advice from a physician. House calls may follow if needed.

The system's introduction has brought priority health guidance to high risk patients who have circulatory problems and need guidance or medical treatment, and is expected to lead to earlier detection and prevention of disease. It has also improved welfare at home by encouraging collaboration among the community's public health, medical and welfare resources. In addition, it provides extensive health guidance on lifestyle diseases such as strokes by bringing the care and advice of public health nurses and physicians into the home.

(3) Training of Dieticians

The dieticians' training program was stepped up in fiscal 1992, increasing the number of dieticians from 18 in fiscal 1993 to 110 in fiscal 1999. Specific guidance on diet improvement was given by sending public health nurses, nutritionists, and dieticians into the community and through the CATV system. Particular attention was given on ways to reduce salt consumption in *misoshiru* soup, which is eaten at every meal.

5. Nishiaizu-machi's Program and Results

Nishiaizu-machi's program was to promote health and actively prevent the occurrence of disease, shares the concept behind the MHW's Health Japan 21 agenda. Below we describe the effects of the town's decade-long program.

(1) Social Impact

As stated earlier, statistics from fiscal 1985 show that Nishiaizu-machi had a high mortality rate from brain stroke, exceeding the national average by 1.7 times and the prefectural average by 1.2 times. Since then, this mortality rate converged roughly to the prefectural average for both men and women by fiscal 1990, and dipped under the prefectural average by 2.6 points for women in fiscal 1995 (Figure 3).

Figure 3 Mortality Rates for Brain Stroke

Fiscal year	Gender	Municipality	Prefecture	Nation	Remarks
1985	Men	176.7	124.7	100	1983 – 87
	Women	(Men & women)	129.1	100	No gender data
1990	Men	126.1	121.6	100	1988 – 92
	Women	127.5	121.3	100	
1995	Men	121.3	116.8	100	1993 – 97
	Women	116.6	119.2	100	

Life expectancy has also been affected. In fiscal 1990, the life expectancy of women exceeded the national average by 0.03 year; in fiscal 1995, this margin had increased to 0.50 year. This boosted the town's longevity ranking in the prefecture from 35th out of 90 in fiscal 1990 to 16th in fiscal 1995. However, a similar effect was not seen among men.

However, the incidence rate of elderly persons needing long-term care (the ratio of persons needing LTC among the population aged 65 and over) has fallen to 11.42%, outdoing the national average of 14.71% by 3.29 percentage points.

(2) Economic Impact

The economic impact of the town's "challenge to live to 100" health promotion campaign can be measured by two factors: the reduction in the growing national health insurance special account expenditure, and the decrease in the incidence rate of persons receiving LTC insurance benefits below the national average.

1. Reduction in National Health Insurance Expenditures

We obtained this effect by measuring the difference between two expenditure projections: an extrapolation of expenditures prior to the health promotion program from fiscal 1989 to 1994 (Projection A), and an extrapolation of expenditures after implementing the program from fiscal 1993 to 1998

(Projection B).

The results show that from fiscal 1999 to 2003, the difference between the two projections ranges between ¥320 million to ¥560 million each year, for a cumulative difference of approximately ¥2.22 billion (Figure 4).

Figure 4 Savings to National Health Insurance

(¥1,000)

	1999	2000	2001	2002	2003
Projection A	1,488,762	1,563,564	1,638,366	1,713,167	1,787,969
Projection B	1,165,086	1,179,621	1,194,155	1,208,689	1,223,224
Difference	323,676	383,943	444,211	504,478	564,746

2. Reduction in the Incidence Rate of LTC Recipients

As explained earlier, Nishiaizu-machi's incidence rate of LTC recipients is below the national average (Figure 5). Assuming that this incidence rate gap can be attributed to the health promotion program, we calculated the difference in LTC insurance benefits resulting from the gap. The result was a difference of ¥29 million per month, or approximately ¥340 million per year (Figures 6 and 7).

Figure 5 Incidence Rate of Long-term Care Recipients

	Nation		Nishiaizu	
Elderly population	18,277,000		3,169	
Level of care required	**No. of persons**	**Ratio to population (A)**	**No. of persons**	**Ratio to population (B)**
Minor support	479,000	2.62	71	2.24
Care level 1	717,000	3.92	110	3.47
Care level 2	324,000	1.77	47	1.48
Care level 3	211,000	1.15	27	0.85
Care level 4	146,000	0.8	15	0.47
Care level 5	107,000	0.59	10	0.32
Subtotal	1,984,000	10.85	280	8.83
Medical facilities for LTC	197,000	1.08	23	0.73
Health facilities for LTC	205,000	1.12	24	0.76
Welfare facilities for LTC	304,000	1.66	35	1.1
Subtotal	706,000	3.86	82	2.59
Total	2,690,000	14.71	362	11.42

Figure 6 Economic Effect (Benefit) of Nishiaizu-machi's Health Promotion Program

Level of care required	Difference in incidence rate A − B	Reduction in no. of persons	Average unit cost (¥)	Difference (¥)
Minor support	0.38	12	64,000	770,701
Care level 1	0.45	14.3	170,000	2,424,285
Care level 2	0.29	9.2	201,000	1,847,210
Care level 3	0.30	9.5	274,000	2,604,918
Care level 4	0.33	10.5	313,000	3,273,260
Care level 5	0.27	8.6	368,000	3,148,718
Subtotal	2.02	64		14,069,092
Medical facilities for LTC	0.35	11.1	431,000	4,780,437
Health facilities for LTC	0.36	11.4	354,000	4,038,574
Welfare facilities for LTC	0.56	17.7	325,000	5,767,580
Subtotal	1.27	40.2		14,586,590
Total	3.29	104.3		28,655,683

Figure 7 Economic Benefit of Health Promotion to the Nation

(¥ billion)

FY	1999	2000	2001	2002	2003	Total
Reduction in national insurance special account expenditure	32.4	38.4	44.4	50.4	56.5	222.1
Reduction in LTC benefits paid		34.4	34.4	34.4	34.4	137.6
Total	32.4	72.8	78.8	84.8	90.9	357.9

(3) Cost-Effectiveness of Health Promotion

According to budget reports, the funds allocated from Nishiaizu-machi's public finances to the health promotion program totaled ¥7.9 billion from fiscal 1989 to 1998. As the breakdown of expenditures shows, most of this went toward facilities and equipment costs: ¥3.4 billion for facilities, ¥2.5 billion for equipment, ¥1.36 billion for human resources, and ¥670 million for operating expenses.

In the future, the cost-effectiveness of the health promotion program is expected to improve considerably because while human resources costs will continue to be incurred, the large investments in facilities and equipment of the past will no longer be necessary.

6. Conclusion

Judging from the Nishiaizu-machi case, the adoption of health promotion policies could become mandatory for towns and municipalities confronting budget problems. Large disparities could arise in medical and LTC expenses between towns that adopt health promotion policies and those who do not. In addition, as aging advances, the public LTC insurance system is expected to experience financial difficulties, providing another good reason to actively pursue health promotion policies. In particular, the Nishiaizu-machi case shows that considerable time is needed for health promotion policies to produce visible results. Thus what the Nishiaizu-machi tells us above all else is the crucial need to implement health promotion policies as quickly as possible.

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