(Fiscal Year 2007-2011)

Advanced Preventive Health Care Services Cluster

Life Sciences   IT   Environment   Nanotech/Materials

Greater Sendai Area

Providing customized prevention and healthcare services for each citizen based on advanced sensing technology and highly secure network technology

Cluster Vision

With a rapidly aging population and a falling birthrate, increased medical and nursing care costs have been highlighted. In addition, the development of the necessary social systems and infrastructures cannot keep pace with such change. To avoid increased costs and ensure our citizens' lives remain safe, secure and healthy, in addition to ensuring treatment after disease (secondary and tertiary prevention) we must reinforce primary prevention, which means preventing the occurrence of disease. This project aims to establish an advanced preventive healthcare services cluster in the Greater Sendai Area to strike a balance between improving the quality of our citizens' health, improving efficiency to reduce administrative costs, and revitalizing local economies. With these aims in mind, we conduct research and development and offer demonstrations in advanced prevention utilizing leading-edge research resources, including Tohoku University and Tohoku Fukushi University.

Project Overview

Striving to improve people's health in the Greater Sendai Area and revitalize the region, this project aims to provide healthcare services focusing on primary prevention, i.e. preventing lifestyle-related diseases and mental illness by improving our daily lives. We are developing these services by utilizing knowledge resources from universities and providing them to our citizens via local providers, In order to build a cluster that emphasizes people's networks, and in which citizens' needs for healthcare services as well as their requests and opinions about improving existing services are fed back to researchers, developers and providers, we are building a local platform to design and demonstrate/develop healthcare services and start up businesses.

(1) Developing a healthcare service model with epidemiological evidence
By combining systems to collect data on health with epidemiological evidence, based on biological information obtained from advanced devices with patient interview and lifestyle data, we are developing a healthcare service model that provides individuals with tailored health guidance to maintain or improve their health, and supports them in implementing and continuing their programs.

(2) Designing, demonstrating/developing healthcare services and starting businesses
Based on the healthcare service model we are developing, we are designing healthcare services for individual service providers' business categories and conducting demonstration tests by using sample fields from the local platform. Once the propriety and profitability of the services have been confirmed, service providers will offer them widely to citizens.

(3) Feedback to elemental technology
We are building a scheme to feed back needs that emerge in the process of providing our citizens with healthcare services to the research and development teams, and are promoting the development of elemental technology and service models based on healthcare service-related needs.

(4) Broad-based cooperation
We are collecting and analyzing instances of advanced healthcare services and local cluster building elsewhere, particularly overseas, to create a new hybrid healthcare service model (Sendai model) that can satisfy the needs of the Greater Sendai Area. At the same time, we are expanding the health care service model created in the Sendai Area to other areas, both in Japan and abroad.

Project Director
Hisakazu IIZUKA

Formerly a Manager at the Toshiba Corp. Display Device Engineering Laboratory, Mr. Iizuka has successively held important posts supporting commercialization in the Miyagi Prefectural Government and JST (Japan Science and Technology Agency).

Building a healthcare cluster based on advanced prevention technology

With the recent increasing aging of society, health maintenance has become a major problem for citizens, which needs to be urgently addressed, especially in the Tohoku district where it is accelerating. Fortunately, leading-edge research facilities including Tohoku University and Tohoku Fukushi University, which are globally competitive in IT, electronics and various other fields, have concentrated in Sendai. Utilizing these resources, we are researching hardware and software technology for advanced measuring systems that have less impact on the body and combining them with network security technology to create an environment where every resident can individually keep tabs on their health. Through the Knowledge Cluster Initiative, we are facilitating a lifestyle shift from supportive disease treatment after onset to disease prevention with early detection/treatment in order to improve QOL and keep medical costs under control. We are also encouraging related industries such as device companies and healthcare service companies to concentrate in this area.

Cluster Headquarters
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Core Organization
Intelligent Cosmos Research Institute Co., Ltd.

Participating Research Organizations (Bold: Core Research Organization)
Industry・・・NTT DoCoMo, Inc., Cyber Solutions Inc., SHARP Corporation, DENSO Corporation, Nippon Telegraph and Telephone East Corporation, Fukuda Denshi Co., Ltd, FUDOKI Co., Ltd., MIYAGIKEN-SEIJINBYOU-YOBOU-KYOUKAI, MEMSAS, Inc., YOU-STAFF Inc., RENAISSANCE Inc., Let's Sports Inc., Honda Electronics Co., Ltd., Sony Corporation, Willcom, Inc., Hitachi High-Technologies Corporation, Sendai Software Center Co., Ltd., Three Links Co., Ltd., Logos, I. T. Research Co., Ltd., Vital-Net, Inc. (Health Care Management Institute), Tsukuba Wellness Research, Sendai Wholesaler Center Health Insurance Union, Japan Nordic Fitness Association, Miyagi Information Service Industry Association, ATWC, MIYAGI-HOKEN-IRYO-FUKUSHI-KANREN-IT-SANGYO-SHINKOKYOGIKAI
Academia・・・**TOHOKU University,** Tohoku Fukushi University
Government・・・Industrial Technology Institute, Miyagi Prefectural Government, Sendai City Industrial Promotion Organization

Main Results

○An integrated service model for building the fitness habit
We started demonstrating the service model for building the fitness habit, which consists of the following three phases:
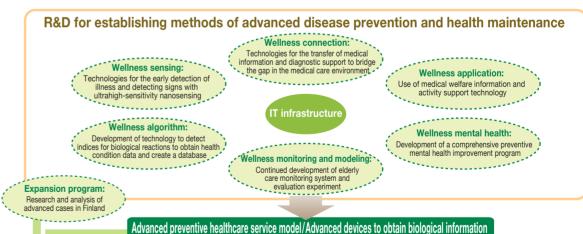(i) We obtain lifestyle information (e.g. level of physical activity, diet, preferences), health indices (e.g. arteriosclerosis risk factors) and test indices related to the risks involved in physical exercise through additional check items from citizens who take medical check-ups, and evaluate their lifestyles based on this data.
(ii) Based on an evaluation of the individual lifestyle information obtained as above, we provide health guidance and fitness recommendations that match individual constraints (e.g. physical strength, work).
(iii) By visualizing the effects of fitness with various sensors, we ensure individuals build their recommended fitness programs into a habit.

○Development of portable ultrasonic devices
We have developed portable testing equipment for use with the advanced preventive healthcare service model that can evaluate arterial data with highly-sensitive ultrasonic sensing technology.

○Fitness resources data search system
We have built a database of fitness resources in the Sendai Area and developed a prototype system by combining it with a search engine that uses a geographic information display function and data mining technology.

R&D for establishing methods of advanced disease prevention and health maintenance