

Section 3

<Viewpoint 2> Establishing a New Paradigm of Health through Science and Technology in Ageing Society

[Purpose]

To introduce the results of the “Survey on the Health of Older People” (FY2017) and provide information on the current science and technology including the latest technology which are expected to play a major role in solving existing problems (unless otherwise stated, the source is Cabinet Office “Survey on the Health of Older People” (2017)).

Cabinet Office “Survey on the Health of Older People” (FY2017)

- Survey area: Nationwide
- Surveyed persons: Males and females (excluding facility residents) aged 55 and over(as of January 1, 2017),
- Survey period: December 16, 2017-January 14, 2018 (however, the survey was suspended during the New Year holidays from December 26-January 5)
- Number of effective responses collected: 1,998 (sample number and gender combined 3,000 people)

[City size wise classification]

Large city: 23 wards of Tokyo/ ordinance- designated cities

Middle-sized city: cities with population of 100,000 and over

Small city: cities with population less than 100,000

Towns and villages: counties (towns and villages)

[Table of contents]

Chapters	Science and technology
1. Health and daily lives of older people	Robot therapy and safety support car S
2. Use of medical services and method of transportation	Telemedicine
3. Internet literacy	Computer training courses for seniors taught by seniors

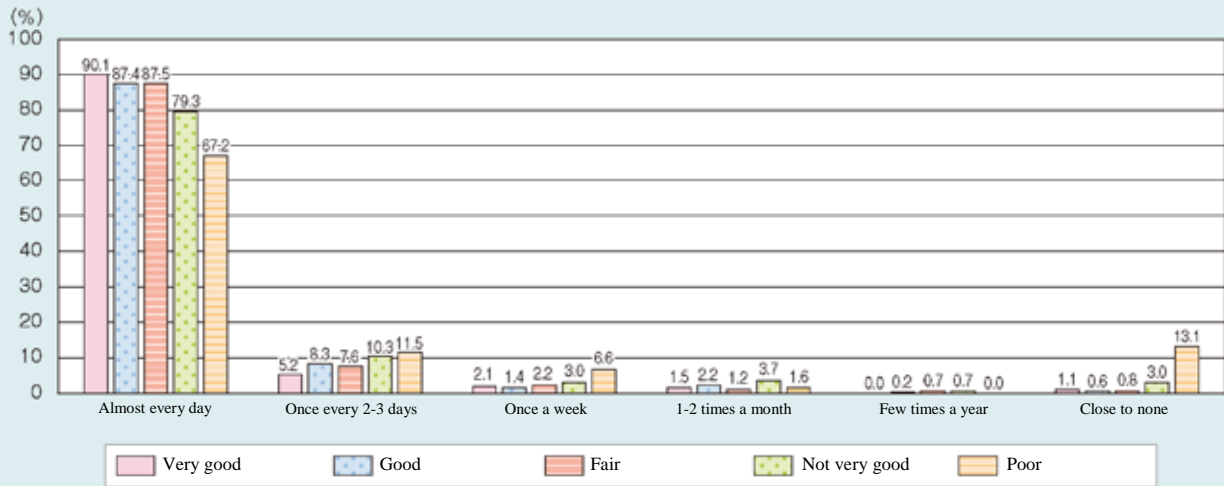
[Summary]

1 Health and daily lives of older people

The results indicated that those who believe to be in a “good” health condition happened to be more active in going outside, talking with people and taking part in social activities than those who were in a “poor” health condition (Chart 1-3-1).

Chart 1-3-1

Frequency of conversation with family and friends (alternative answer) (by subjective health condition)



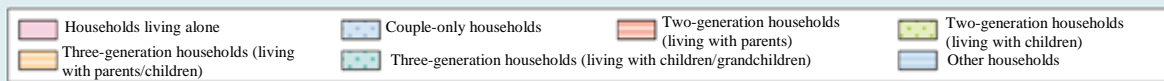
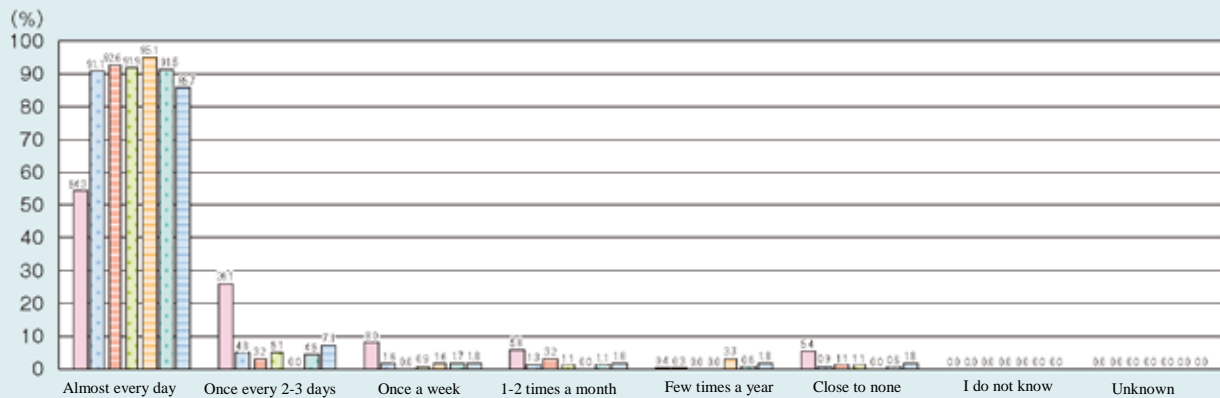
	Almost every day	Once every 2-3 days	Once a week	1-2 times a month	Few times a year	Close to none	I do not know	Unknown	Number of conversations (total)
Very good	90.1	5.2	2.1	1.5	—	1.1	—	—	98.9
Good	87.4	8.3	1.4	2.2	0.2	0.6	—	—	99.4
Fair	87.5	7.6	2.2	1.2	0.7	0.8	—	—	99.2
Not very good	79.3	10.3	3.0	3.7	0.7	3.0	—	—	97.0
Poor	67.2	11.5	6.6	1.6	—	13.1	—	—	86.9

In order to prevent the vicious cycle of those who believe to be in a “poor” health condition becoming inactive and thereby worsening their understanding of their health condition, it is beneficial to take necessary measures based on the characteristics and the actual conditions of the population who believe to be in a “poor” health condition.

While the number of households living alone is increasing, the results showed that the frequency of outdoor activities and conversation of households living alone is significantly low (Chart 1-3-2). It is desirable to support elderly social lives in various forms such as employment support, social activities and cross-generational exchanges.

Chart 1-3-2

Frequency of conversation with family and friends (alternative answer) (by household)



	Almost every day	Once every 2-3 days	Once a week	1-2 times a month	Few times a year	Close to none	I do not know	Unknown	Number of conversations (total)
Households living alone	54.3	26.1	8.0	5.8	0.4	5.4	-	-	94.6
Couple-only households	91.1	4.8	1.6	1.3	0.3	0.9	-	-	99.1
Two-generation households (living with parents)	92.6	3.2	-	3.2	-	1.1	-	-	98.9
Two-generation households (living with children)	91.9	5.1	0.9	1.1	-	1.1	-	-	98.9
Three-generation households (living with parents/children)	95.1	-	1.6	-	3.3	-	-	-	100.0
Three-generation households (living with children/grandchildren)	91.5	4.5	1.7	1.1	0.6	0.6	-	-	99.4
Other households	85.7	7.1	1.8	1.8	1.8	1.8	-	-	98.2

	Almost every day	Once every 2-3 days	Once a week	1-2 times a month	Few times a year	Close to none	I do not know	Unknown	Number of conversations (total)
Males households living alone	45.7	22.3	12.8	6.4	1.1	11.7	-	-	88.3
Females households living alone	58.8	28.0	5.5	5.5	-	2.2	-	-	97.8

Establishing a new paradigm of daily health through science and technology

Is it possible to increase the frequency of conversation and outdoor activities through utilization of science and technology?

One application example is the therapeutic robot using AI. Therapeutic robot “Seal-Type Robot: PARO” developed by the National Institute of Advanced Industrial Science and Technology (AIST) in 2004 was the pioneer of this field. Modelling after a baby harp seal, PARO is 57 cm long and weighs 2.5 kg. It is equipped with a sensor and a microphone which detect external stimuli and circadian rhythm to embody the real baby harp seal. With the learning function, PARO is designed to gradually establish a robotic personality by learning new names and preferred actions depending on the owner (Chart 1-3-3, Chart 1-3-4).

According to empirical studies in the long-term care health facilities, some social effects (increase in conversation between older people and carers) and psychological effects (depression improvement etc.) were observed.

Chart 1-3-3

Seal-Type Robot PARO



Source: National Institute of Advanced Industrial Science and Technology

Chart 1-3-4

Robot therapy in long-term care health facility



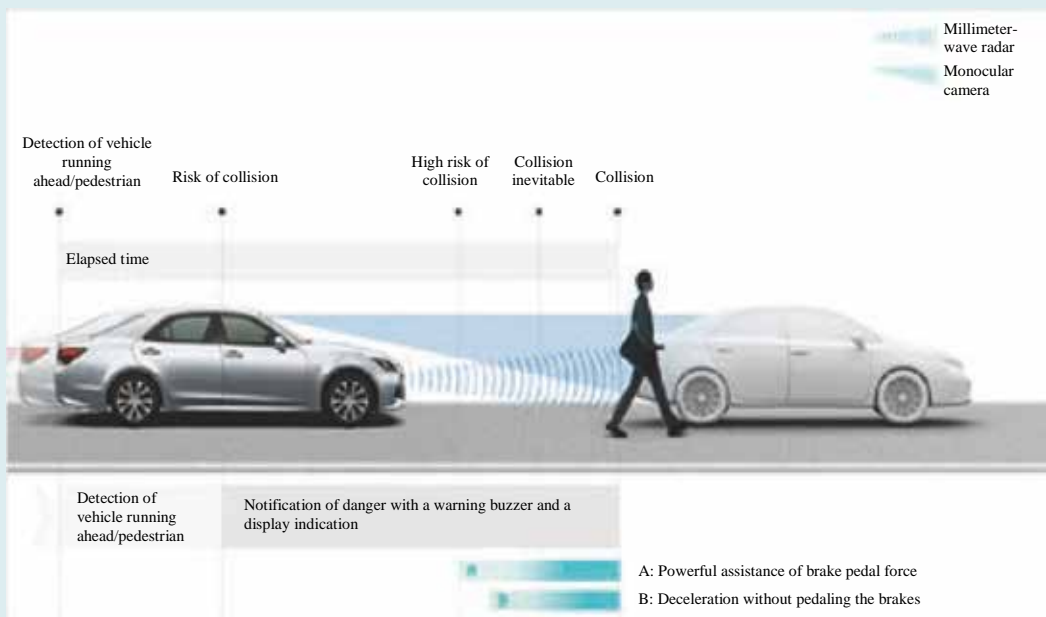
Source: National Institute of Advanced Industrial Science and Technology

Technology is considered to have great potential to encourage elderly to participate in outdoor activities. Frequency of going outdoors drops sharply with the voluntary return of a driver’s license in many cases. If there is a vehicle which can be safely used by elderly drivers, it may provide a opportunity for going outside as necessary, such as for daily shopping.

The government and the private sectors are making united efforts to popularize a vehicle developed with the latest safety technology for supporting the safe driving of elderly drivers under the name of “Safety Support Car S” (Sapocar S). Equipped with automatic brakes, acceleration suppression device for pedal misapplication, lane departure warning and advanced lights, the vehicle is expected to make certain contributions to the prevention of traffic accidents involving elderly drivers (Chart 1-3-5, Chart 1-3-6).

Chart 1-3-5

Example of the automatic brakes of Sapocar S



Source: Ministry of Land, Infrastructure, Transport and Tourism

Chart 1-3-6

Logo of Sapocar S for awareness-raising



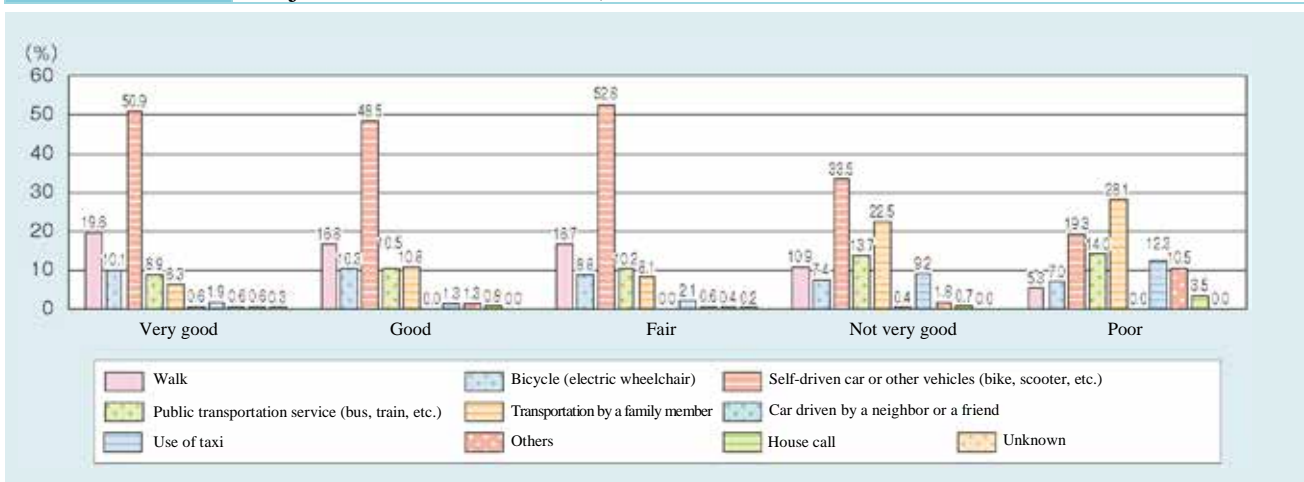
Source: Official website of Safety Support Car/Safety Support Car S

2 Use of medical services and method of transportation

Approximately 20-30% of those who believe to be in a “poor” health condition and those who are in their late 70s and beyond are relying on their family members for transportation when using medical services (Chart 1-3-7). Approximately 20% of those who believe to be in a “not very good” health condition and 30% of those who believe to be in a “poor” health condition are using medical services at least once a week. Meanwhile, their family members’ burden to drive to and from a health care facility every time must also be noted.

Chart 1-3-7

Method of transportation when using a “medical service” (multiple answers) (by subjective health condition)



n Establishing a new method to access medical services

Telemedicine utilizing information technology is one of the measures that are being developed using the recent science and technology to improve accessibility to medical services.

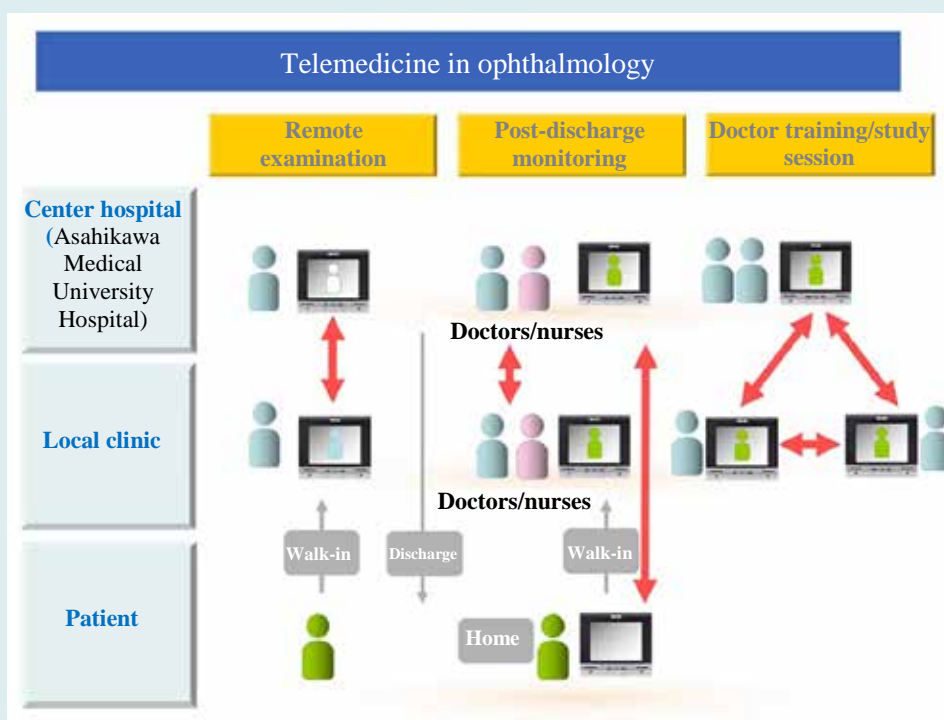
Telemedicine allows doctors to take other specialists’ advice through an online platform (doctor-to-doctor) and to examine patients at home or an older people welfare facilities. through a computer screen (doctor-to-patient). If medical examination for follow-up purposes such as check-ups after a surgery can be replaced by telemedicine, it is possible to relieve the burden of transportation and thereby improving accessibility to medical services.

Asahikawa Medical University Hospital has been implementing telemedicine using information technology since 1994 (Chart 1-3-8). Through utilization of telemedicine, for example, a patient who has undergone an eye surgery requiring special postoperative care can consult the surgeon of Asahikawa Medical University Hospital at the nearest clinic. They have also developed a home digital assistant for patients who are recuperating at home. By having the device transmit vital data such as blood pressure to the hospital, the doctors can monitor patients' conditions remotely.

They have also been utilizing "cloud medical care" (Chart 1-3-9) since 2016. This system allows specialists to look through patient information from local clinics sent over the cloud system on the Internet. Specialists can then examine, give advice on treatment plans and decide whether a patient requires an emergency medical transportation to Asahikawa Medical University Hospital. The cloud medical care has been effective in reducing the time between the onset of an illness and the initiation of its treatment.

Chart 1-3-8

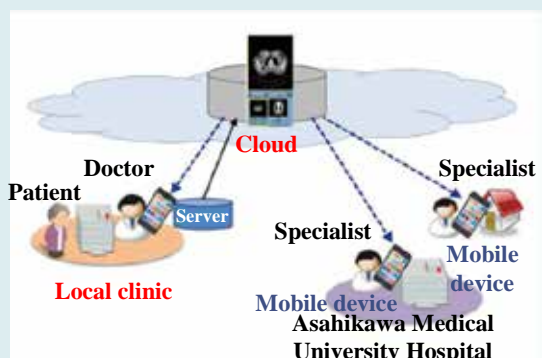
Remote medical examination in the department of ophthalmology at Asahikawa Medical University Hospital (conceptual diagram)



Source: National University Corporation Asahikawa Medical University

Chart 1-3-9

“Cloud medical care” promoted by Asahikawa Medical University Hospital (conceptual diagram)



Source: National University Corporation Asahikawa Medical University

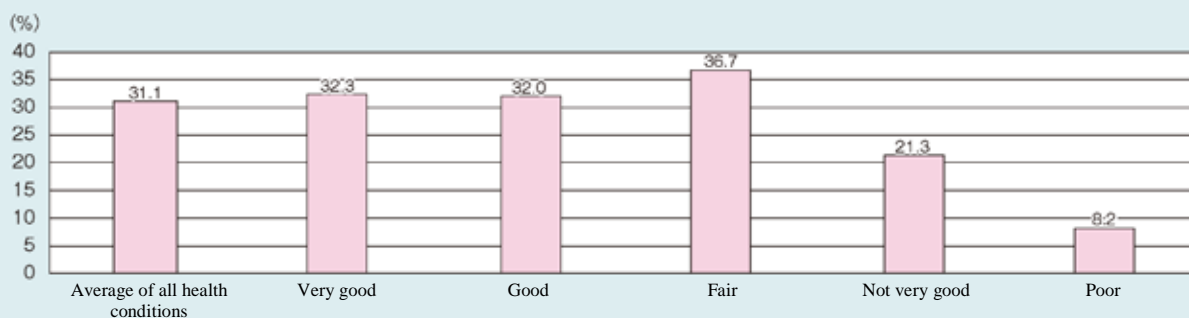
3 Internet literacy

Active utilization of the Internet to obtain information on medicine and health was seen in approximately 30% of the survey respondents and it was especially significant in the younger bracket (Chart 1-3-10).

Excluding females households living alone, the proportion of respondents who base their actions on information obtained from the Internet was small; most of respondents would use the information just as a reference or to support other information (Chart 1-3-11).

Chart 1-3-10

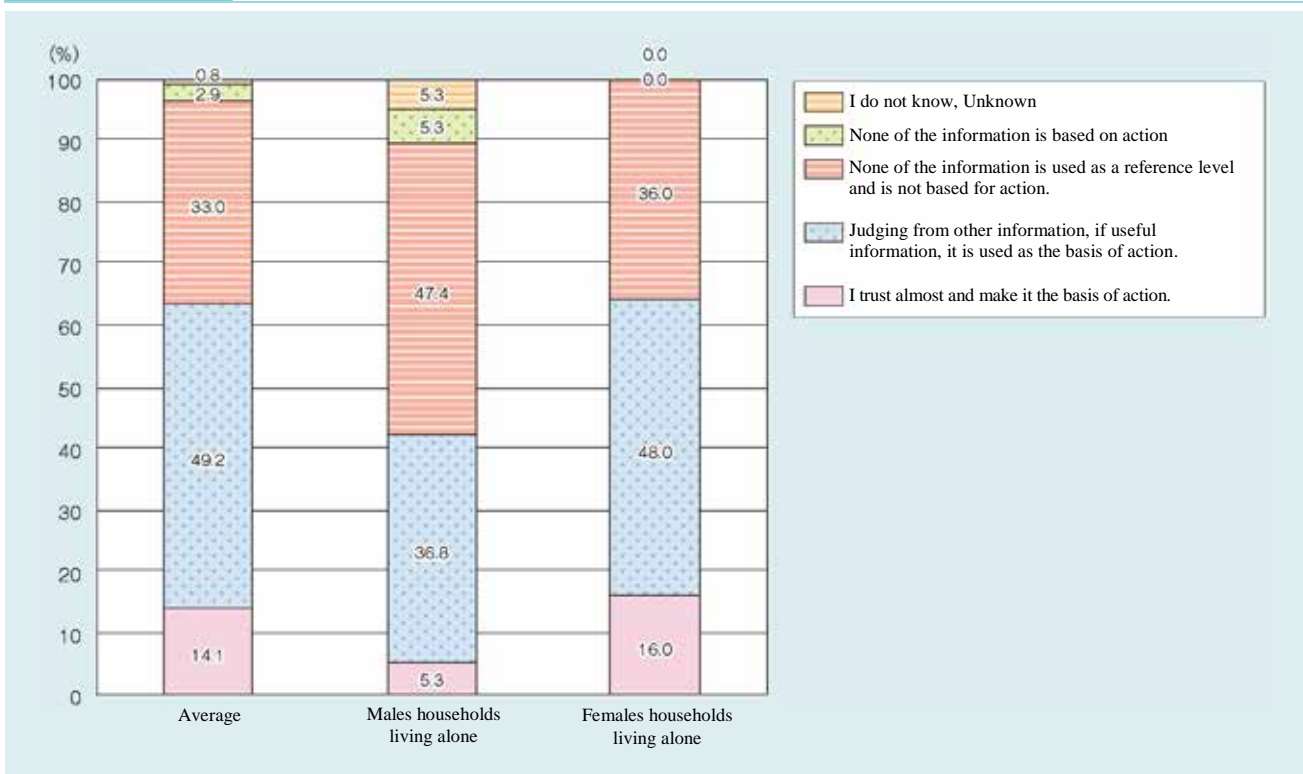
Experience of searching information about medicine and health on the Internet (by subjective health condition)



A wide range of information on all different kinds of topics is being shared on the Internet and the obtained information is not necessarily accurate. It is very important that users seek out balanced, factual information.

Chart 1-3-11

Use of the Internet as a base for actions (alternative answer)



Internet literacy for improving health conditions with science and technology

Acquisition of Internet literacy in an elderly is commonly considered difficult. Despite the notion, there is a non-profit organization promoting “creation of a better society where seniors can gain information technology and utilize it in assisting middle-aged and older people for learning about the information, improving everyday lives and making friends.”

The organization is known as “Non-profit Organization PC Masters,” located in Nagoya. PC Masters consists of graduates of the computer instructor training course provided at the Nagoya Older People Employment Support Center. They have received the Emblem of Public Participation from the Minister of State for Special Missions in FY 2017 (Chart 1-3-12).

PC Masters have been providing computer training courses and individual lessons for senior learners for 16 years. The average age of the members is 71 (as of 2017). Approximately 6,000 and 4,000 seniors have participated in an individual lesson and a training session, respectively. PC Masters offers a variety of courses, ranging from introductory courses to intensive preparation courses for the ICT Proficiency Assessment up to Pre-Second Grade. In addition they also incorporate topics on cyber security to avoid involvement in Internet crimes and information leakage.

This senior-to-senior teaching system is a breakthrough in the elimination of fear that learning computers in an elderly is difficult and unsafe. The PC Masters community is expected to become a great place for sharing ideas on the utilization of the Internet for senior users.

Chart 1-3-12

Photo of the non-profit organization PC Masters' activity



Source: Non-profit organization PC Masters

These activities are yielding positive results in many different locations and two organizations received the Emblem of Public Participation from the Minister of State for Special Missions in 2016 and 2017.

- “NPO Senior Net Sadohara” in Miyazaki City (an organization providing courses on how to “use” computers from the very beginning and how to “correctly use” computers in an Internet safety training session style, 2016)
- Non-profit organization Senior SOHO Setagaya in Setagaya City (an organization providing courses on iPhone and iPad where senior instructors teach senior students)

The Cabinet Office is selecting and awarding organizations which are producing successful results through active engagement in social activities that are often considered difficult for older people as great examples in creating a better ageing society. Refer to the following website for more details.

- i Introduction of “Implementation Example of Ageless Life Activities” and “Example of Public Participation” and more activity examples wanted
http://www8.cao.go.jp/kourei/kou-kei/age_list_all.htm

Topics 1: “Social Wijk Team (social neighborhood team)” in the Netherlands ~ From a welfare state to a participatory society ~

- i The percentage of older people in the Netherlands was 13.6% in 2000, but it is 18.5% in 2017. Although the percentage is lower than that of Japan, a little less than 40 percent of older people live alone and a little less than 60 percent live together with a partner, and the percentage of older people living with family is less than 2%.
- i In order to tackle this situation, the Netherlands implements various reforms, supporting them to enrich their life. The fundamental idea is to ensure that they attach a great importance to their own network and that a wide range of people participate in and contribute to the society.
- i Through the reform, much responsibility shifted to local governments, which are creating original and ingenious ideas. For example, the City of Leiden (with a population of about 120,000) formed a social wijk team (social neighborhood team, Sociaal Wijkteam) in order to respond to citizens who seek advice. The city pays for the budget, appoints an experienced social worker as the leader for general management (team coach). The leader then gathers specialists from long-term care organizations in the city to form a team.
- i The outline of actual activity is as follows:
 - Lots of cities, towns and villages formed social wijk teams. In the city of Leiden there are 8 teams, each of which consists of ten members, taking charge of its own area.
 - Citizens who have a problem contact a social wijk team at first.
 - The team then visits to discuss with the client. Then, the team decides what the client can do by his / her own, what his / her family can do, what the neighborhood and the area can do, and then what volunteer organizations can do.
 - In case that the problem still cannot be solved, a possible solution is to gather people with the same needs. They do everything they can do, and they don't use long-term care by professional until they find that the requirement is so demanding that they still cannot solve the problem.
- i In the Netherlands, a big reform is ongoing with social service law and the social wijk team as the core, toward “participatory society.” Because it is still under way, it has not yet completely evaluated, but there are reports as follows:
 - “The social wijk team is formed in 87% local governments across the country. It is 96% in big cities. Most local governments understand the purposes are to “prevent more serious problem,” “comprehensively respond to complex problems,” “promote citizens' independence,” etc. recognizing it as a team for prevention, overall approach, and support for independence.” (Netherlands local governments association “Whole aspect of social wijk team” 2016)
- i The reform in the Netherlands gives implication also for the future direction of our country. In the local comprehensive care, it is said that it is required to link self-help, cooperation, mutual help and public assistance all together to systematize and organize them. In this sense, the social wijk team in the Netherlands is a noteworthy movement.

Topic 2: “Multi-generation house” Effort in Germany ~ Mutual Support among Multi-generation ~

- i The purpose of “multi-generation house” to which the German government is committed as a national policy is to promote interactions among multiple generations in the community. The facility does not need to be residential.
- i There are about 540 of those throughout Germany and the parent bodies of many of them are private welfare organizations which consist of church organization with a long history of leading the welfare activities, NPO organizations and volunteer organizations, etc.
- i Because of the increasing demand for support service for older people requiring long-term care, people with dementia and their families in Germany, the government set as its national policy, to reinforce and spread the “multi-generation house,” long managed by private organizations and others as a place of interaction among multiple generations and a facility that continues providing support services to patients with dementia as well as consultation service and information to their families in order to complement the range to which the long-term care insurance is not applied.
- i The building at “Sredzkistr. 44” has 11 private rooms and shared spaces, with an exhibition space of barrier-free equipment (bathing assistance equipment, care bed and others) on the first floor. Three of the private rooms are barrier-free with equipment to ensure that older people and people with disabilities can live safely. The multi-generational residents’ ages range from 1 year and 6 months to 88 years in the building. It was reported that residents interact and help each other; for example, children often go to other rooms to play with the residents, elderly residents ask children-resident’s to do a little shopping for them and have lunch together.
- i “Haus der Familie,” which was originally a facility of Protestant Thomas church, joined the “multi-generation house” in 2007, playing roles such as classroom or cafe, providing consultation service, holding events and festivals, etc. to function as a place where lots of people interact. There are many kinds of classes held in the facility such as cooking yoga, handicraft for kids, run by both paid lecturers and volunteers. Non-residents can also join the classes, making the atmosphere lively and warm. With a concept to provide something interesting, the classes sometimes step out of the premise for more interaction with the town and holds festivals in order to increase chances to meet with other volunteers.
- i It can be said that the “multi-generation house” is one of the ideal places, where multiple generations live and support each other. In Japan, which has been facing challenges such as increasing numbers of people requiring care and older people with dementia and necessity to secure caregivers to respond to the increasing demand for care because of the ageing society with declining birthrate similar to Germany, examples of similar facilities engaging in activities across the country are sometimes reported as topical news by media. It may be beneficial, in the future, for the public and private sectors to collaborate to establish such a “house”, taking characteristics and environment of each community into consideration.

(Note 1) The “multi-generation house” is an interactive facility where every generation from children to the older people can use, whose purpose is to ensure that wide generations from all walks of life live and help each other. It is a new life model devised from a demographic demand of an ageing society with a declining birthrate. Its establishment has been promoted since 2006 by the Federal Government of Germany. The German government, the European Social Fund and others subsidize establishment of the “multi-generation house” with a maximum total of 40,000 euros a year.

Topic 3: To Realize a Society Where Older People Live with Ease in Their Familiar Community

~ Efforts by Kyoto City Residence Support Council ~

- i In order to address the increasing number of persons requiring special assistance in securing housing such as elderly households, The Japanese government established a new housing safety net in FY 2017 to provide support for renovations of houses and reduction of resident's economic burden, which includes a system to register rental houses utilizing private rental housing or vacated house which don't refuse occupancy by persons requiring special assistance in securing housing.
- i Before the system was established, Kyoto city started to register private rental houses which don't refuse older people's occupancy just due to their age as well as provide information of such houses and services including “watching” by social welfare corporations.
- i In March 2010, Kyoto city developed “Kyoto City Master Plan” (Kyoto City Housing Life Basic Plan), considering changes of social situation such as ageing society with a declining birthrate and the advent of society with a declining population. The housing master plan says that private rental housing shall be utilized as a resource to secure stable residences of persons requiring special assistance in securing housing and that policies shall be developed to ensure that older people can continue living in their familiar community to the maximum extent possible and Kyoto city started to engage in support for residence.
- i Later, a policy to reinforce partnership with organizations relating to real estate or welfare and advance preparation for establishment of the residence support council (in Japan FY 2011): and Kyoto City Residence Support Council (nickname: Kyoto City Sukoyaka (healthy) Housing Net), (hereinafter referred to as “the Council”) was established in September 2012.
- i At present, the Council consists of 4 real estate-related organizations, 3 welfare-related organizations, Kyoto city (divisions and departments in charge of residence and welfare) and Kyoto City Prefectural Housing Corporation, being managed mainly with incomes of burden charge provided by Kyoto city and charges for banner advertisements on the Council’s website. The council is promoting measures to secure housing so that older people can live with ease in their familiar community from the perspectives of both houses and welfare.
- i In the future, it will increase the number of registration of “Sukoyaka rental houses (private rental houses which don't refuse older people's occupancy just because of their age)” and “Sukoyaka rental house cooperation shops”; and aims to ensure that “residence and life support project for older people (real estate agents provide inexpensive houses” and social welfare corporations provide “watching and life consultation etc.” services as an integrated project, which is subject to, in principle, people aged 65 and over living alone and so on who require watching services etc. and want to move their residence) spreads throughout Kyoto city and try to expand the project to even wider areas. In order to realize it, the Council will further communicate with the real estate agents and social welfare corporations and engage in heightening citizen's awareness of the Council's projects.
- i In particular, the “residence and life support project for older people” is closely related to not only securing residence for older people but also their life after moving; therefore, it is required to develop it to the project which older people feel close to themselves, by means of listening to voices from those who used the consultation service or the project as well as from the service providers, or social welfare corporations. It is understood that it is possible to gradually realize the society where older people live with ease in their familiar community by improving services such as the one to make landlord feel secured when older people move in and a service to support their life by watching them after their move, which will lead to reinforcement of cooperation between housing services and welfare services.

Topic 4: Hyogo Prefecture’s Efforts on Senior Entrepreneurship Support
~ “Community Business Takeoff Support Project for Seniors” ~
(Labor Policy & Welfare Division, Industrial Policy Planning Bureau, Industry,
Employment & International Affairs Department, Hyogo Prefecture)

- i Recovery and reconstruction activities after the Great Hanshin-Awaji Earthquake that occurred in 1995 triggered mutual aid activities among Hyogo citizens, citizen groups and others. Activities by Specified Non-profit Corporations in the prefecture also increased as a result of the Act on Promotion of Specified Non-profit Activities (NPO Act) enacted in 1998. Originally, gratuitous volunteering was popular, but now has expanded into non-profit paid activities.
- i Under these circumstances, a proposal was made to utilize community businesses (Note 1) for community revitalization after the earthquake. In 1999, using the Great Hanshin-Awaji Earthquake Reconstruction Foundation as the financial source, the Community Business Takeoff Support Program for Disaster Victims was launched to subsidize the start-up expenses for community businesses in the disaster area.
- i Thereafter, in 2001, the applicable area of the support project was expanded from the disaster area to the whole of Hyogo Prefecture. Furthermore, since 2012, to promote more flexible forms of employment for the older people, the Community Business Takeoff Support Project for Seniors, whose members are 55 years and older, has been actively supported.
- i Through the Community Business Takeoff Support Project for Seniors, Hyogo Prefecture supports up to 50% of the “office opening costs,” “initial equipment costs” and “personnel costs” (up to 1 million yen), which are recognized as necessary expenses for starting target projects.
- i In one example of the project’s implementation a *nagaya* (Japanese traditional communal housing) along a side street in Sumoto City, which was built in the Meiji era, was renovated into a restaurant in cooperation with the locals. Three local senior citizens now work there. It provides meals and care for single-person households of senior citizens in the region. About four older people use it every day, except on holidays, and about 20 older people in total use the service.
- i Every spring and autumn, the event “Retro Town Walking” is held around the *nagaya* restaurant. At this event, restaurants, food and drink shops and shops selling small goods from inside and outside Sumoto City, about 100 shops in total, open street stalls for two days. In the autumn of 2017, which was the 12th holding of the event, 12,000 people visited despite the rainy weather. The event works to revitalize the area.
- i Hyogo Prefecture has been promoting community businesses with its citizens to revive the communities lost in the Great Hanshin-Awaji Earthquake. Working to address regional issues as paid laborers, rather than as volunteers, provided new employment opportunities for women and the older people.
- i With the declining birthrate and ageing population, it is becoming increasingly important for the older people to take advantage of their diverse experience and abilities to start businesses and work for local communities. Hyogo Prefecture will continue to support the creation of diverse work opportunities for the older people through the Community Business Takeoff Support Project for Seniors and other initiatives.

(Note 1) Community business: Proactive efforts by local residents to solve regional problems using business methods and regional resources. By utilizing local human resources, know-how, facilities, and funds, it is expected new business foundations, jobs, job satisfaction and motivation for life will be created, which will further lead to revitalization of the area.

**Topic 5: Efforts by Kochi Prefecture towards Creating a Region of Mutual Support
~ Regional support activities for connections and mutual support by the Attaka Fureai Center ~
(Kochi Prefecture Department of Community Welfare Senior Citizens' Welfare
Division)**

- i Kochi Prefecture is working on the improvement of Kochi Prefecture's unique community welfare base "Attaka Fureai Center (Note 1)" and strengthening its function. Although this center is small, everyone including the older people, disabled, and children can easily gather and receive necessary services. In addition, the prefecture is also working on securing long-term care services in the inner-mountainous area. This article introduces the example of Sakawa-cho in the Togano area where 3,306 people are living as of March 31, 2018 with a population over 65 of 37.3%.
- i "Attaka Fureai Center Tokano" in the Sakawa-cho Togano area is a place where anyone, including the older people and children, can easily gather and associate, and be provided services at no charge on request, such as pick-up services and help for shopping and trips to hospital as necessary. In addition, this center provides "life support" with a basic usage fee of 500 yen, specifically, support for small matters such as drying of futons, garbage disposal, replacement of light bulbs, as well as time consuming work support such as window cleaning. Furthermore, through listening to the requests of local residents, the center is also used for education. Mini-lectures by public health nurses, bag weaving classes, and a disaster prevention course that raises awareness of disaster prevention are provided at the center. Those lectures and courses are organized by local residents as volunteers.
- i Since many of the users are older people, the center is working on "preventive care." "Ikiiki Hyakusai Taiso (Youthful Hundred-year-old Gymnastics)(Note 2)" which is attracting attention around the country, first started in Kochi City. Older visitors also enjoy 3B (Ball, Bell, Band) Gymnastics to move their body while having fun. In addition, the center is raising interest in dementia through the "Alzheimer Café" and a dementia prevention game (The 3A Game). These initiatives help constitute a system that supports Alzheimer patients and their families within the area. On such occasions, a pickup service with "Attaka-go (name of the car)" is provided so that everyone can participate without worrying about transport. Furthermore, the center also visits people, and plays the role of mediator by taking people's problems to the organizations concerned. Thus, diverse needs outside the framework of the long-term care insurance system are handled by the center.
- i "Attaka Fureai Center Tokano" is committed to creating a peaceful community where local residents take the lead role in solving problems and supporting each other. Local residents empathetically feel others' problems as their own, participate in volunteer activities, realize that we all need support, and live together in a community where people are connected beyond generations and fields of profession. Local residents enjoy their activities and consider them as part of their life. In other words, the activities are taking root in the community and deepening people's connections. In the area of creating a community where people can support each other, the center will become increasingly important as a base for community welfare.

(Note 1) "The Attaka Fureai Center" has three basic functions: (1) gathering + α , (2) consultation / visit / connection, and (3) life support. In addition, according to the needs, the center is also expanding functions of preventive care and an "Alzheimer Café" to provide further improved service.

(Note 2) This is Gymnastics performed while sitting on a chair and putting weights on the hands and feet. It has the effect of enhancing muscular strength and balance. Everyone can enjoy it with others, so it spreads all over the country.

Topic 6: Kitakyushu City's Efforts to Introduce Advanced Technology
~ Introduction of advanced technology such as long-term care robots and ICT ~
(Kitakyushu City Public Health and Welfare Bureau Advanced Care System Promotion Office)

- i Kitakyushu City has developed as a city of manufacturing. Furthermore, companies and academic institutions having highly technical capabilities such as robotics and information communication technology are gathered here. Taking advantage of these facts, the city is aiming to create a successful model, “Long-Term Care with Advanced Technology (Note 1),” which uses long-term care robots, with information about the model disseminated throughout the entire country.
- i Kitakyushu City’s initiatives roughly consist of four phases: “demonstration,” “development,” “introduction” and “social implementation (Social implementation means to apply and develop the obtained research results in solving social problems).” First of all, “scientific analysis” is performed through data visualization of the time taken for each conventional long-term care duty to be carried out by hand, and what kind of posture is physically burdensome. Next, based on the analysis and the opinion of the facility staff, robots will be introduced and demonstrated, and based on the needs derived from the demonstration, further development and improvement of the long-term care robots will be done. The city not only introduces the developed and improved long-term care robots to actual long-term care facilities, but also provides know-how and personnel training to master them. Furthermore, after scientific and quantitative evaluation and visualization of effects, social implementation will be performed. By repeating this cycle, “advanced long-term care” will be realized. Since FY 2016, the city has been working on realization of advanced long-term care using advanced technology including long-term care robots, in collaboration with enterprises, universities, and related facilities in the city by utilizing the privileges of the national strategic special zones.
- i In FY 2016, according to a questionnaire to long-term care staff at the demonstration facilities, more than half of the respondents indicated that their physical burden was reduced by long-term care robots. On the other hand, some said that the mental burden increased due to the time required for preparation and operation to use the robots, and anxiety about operational errors, etc.
- i Regarding the residents at the facility, some showed more positive action and motivation and said that they started wanting to walk on their own. Meanwhile, there were also answers suggesting an increase in their mental burden as a result of being held by the robots, with increased tension visible in their hands and feet, as well as their faces.
- i Future issues obtained from the Kitakyushu city’s initiatives are as follows;
 - With regard to the introduction of long-term care robots, it is necessary to eliminate not only the physical burdens of the long-term care staff and persons receiving long-term care but also the mental burdens.
 - It is necessary to properly operate long-term care robots in a way that is suitable for the conditions of each person receiving care.
 - It is necessary to train personnel who can master the operation of long-term care robots. It is also necessary to develop an environment that efficiently and effectively uses the long-term care robots. Combinations of multiple care robots also need to be considered.
 - Adjustment of prices is also important from the viewpoint of cost effectiveness. While considering solutions to such problems, Kitakyushu City will continue to work intensively on the initiatives aimed at realizing advanced long-term care with the cooperation of industry, academia and the government and public.

(Note 1) Long-term care using such advanced technology is defined as “advanced long-term care.” By introducing robot technology, Kitakyushu City is making an effort to realize a reduction in the burden on long-term care staff, improve the quality of long-term care, support the independence of older people, and improve the expertise and work value of the long-term care staff and productivity of long-term care sites.