Feature 1

The 4th Stakeholder Dialogue

Toward Better Home Oxygen Therapy

Now 25 Years after Home Oxygen Therapy Became Eligible under Health Insurance: What the Teijin Group Will Be Able to Do

Having "Human Chemistry, Human Solutions" as our brand statement, we are engaged in the home healthcare business, one of our typical solution businesses. Amid the aging of the general population in our society, the Teijin Group is making a sincere effort to support social issues with medical care. This year's stakeholder dialogue took place with a focus on improving the quality of life (QOL) of patients. We invited such medical practitioners as physicians and physical therapists, and representatives of patient support organizations to express their opinions.

History of the home healthcare business

One of the factors that led to the start of the Teijin Group's home healthcare business was research into "film making technology" that began early in the 1970s. In those days, Teijin was engaged in "seawater filtration using membranes" as part of its research project in polymer chemistry. The idea was that if you could use membranes to separate out water, you could use them to separate out gases. With this expectation, our researchers concentrated their energy on developing a new type of thin film. After many days of repeated experimentation, a researcher succeeded by chance in creating a thin film that formed when dissolving a polymer in a solvent that had oxidized spontaneously to considerable extent and then dropping the solution on the surface of water.

These investigations resulted in the grant of our process patent for "Method for Gas Separation" and the birth of Mildsanso® TO-40, Japan's first membrane type oxygen concentrator. Later, the oxygen concentrator was improved from the thin-film type to the type using an adsorbent.

In those days, the compressed oxygen cylinder was the main device in home oxygen therapy in Japan. However, the situation has changed dramatically since the launch of our Mildsanso® TO-40. We will continue to improve our oxygen device with a focus on further enhancement of "safety and relieability" in response to the needs of patients and medical personnel, and the development of devices taking into consideration "environmental consciousness and energy conservation."

It was early in the 1980s that home healthcare came to be emphasized in Japan, when the prevalence of chronic diseases rose with the increase in the elderly population, and a shift of medical practice from Cure to Care attracted attention. In that situation, the zeal of all members of the patient organization and the research achievements by physicians belonging to relevant academic associations together came to fruition; home oxygen therapy (HOT) became eligible for health insurance coverage in 1985. Later in 1988, Teijin invited Professor Thomas L. Petty, known as "the father of home oxygen therapy," from the United States to promote the significance and practice of HOT in five cities throughout Japan. After that, we held "Home Respiratory Management Nursing Training Sessions" on HOT care for nurses throughout Japan in several subsequent years. These activities established a firm foothold for the spread and formalization of home oxygen therapy. Currently, we jointly hold some 150 study workshops nationwide in Japan with the guidance of specialist physicians.

In the 1995 Great Hanshin-Awaji Earthquake Disaster, we quickly supplied oxygen cylinders to victimized patients on home oxygen therapy. Making use of the occasion, we formulated our "Manual for Countermeasures against Disasters."

Currently, we are working to ensure more accurate quick responses via a network making the best use of information technology. We have the largest network in the industry in Japan with 12 branches and more than 80 offices to handle sales throughout the country. This large network allows us to provide support for our patients to ensure that they are able to carry out home oxygen therapy at ease. Based on our domestic know-how focusing on safety and trust, we also implement HOT business in the US, Spain, and Korea.

Making the best use of the know-how we have complied as a pioneering operator in the home oxygen therapy business during these 25 years, the Teijin Group, as a component of team-based medicine, will build a system of "safety and trust" with patients and medical institutions. Specifically, we will continue to develop new devices in the context of hardware, and our non-hardware, or soft aspects, will include improvement of our round-the-clock services, emergency actions and post-disaster responses, and implementation of measures to protect personal information.

HOT: Home Oxygen Therapy
COPD: Chronic Obstructive Pulmonary Disease
QOL: Quality of Life

Developmental themes for home oxygen suppliers

- Top priority goes to "pursuit of safety"
  Energy conservation, operating noise reduction, size and weight reduction, higher flow rates, ease of handling

History of Home Oxygen Suppliers

From the Viewpoint of Caregivers and Physicians

Make Efforts to Provide Services Demanded by Ultra-old HOT Patients

Shoji Kudoh, Director
Japan Anti-Tuberculosis Association Fukujuji Hospital

Professor-Emeritus of Nippon Medical School, ex-president of the Japanese Respiratory Society, former managing director (general affairs) of the Japan Society for Respiratory Care and Rehabilitation Medicine. Graduated from the University of Tokyo School of Medicine. Served for the Third Department of Internal Medicine at the University of Tokyo Hospital and Tokyo Metropolitan Komagome Hospital. Appointed a professor at Nippon Medical School. Since retirement, he has been in his current position. Author of "Blood Gas Textbook" (Bunkodo), "Practice in Home Oxygen Therapy" (Bunkodo) and other books.

Teijin is a pioneer of home oxygen therapy in Japan, and still occupies a firm position as a leading company in the relevant field. The circumstances around home healthcare have changed dramatically during the past 25 years. I hope that you will continue to keenly respond to these changes as you advance your business.

First, there have been two noticeable changes on the care recipient side. The key target of HOT (home oxygen therapy) has changed from tuberculosis sequelae to chronic obstructive pulmonary disease (COPD). From the viewpoint of physicians, the focus should be set on how to reduce the number of patients who are likely to suffer from COPD necessitating HOT, that is, the ability to detect the disease as early as possible while the patient remains asymptomatic. Accordingly, the Japanese Respiratory Society has proposed an index known as "lung age", and there are expectations for the spread of a device that enables simple determination of lung age.

Second, an ultra-aged society is coming. Elderly HOT patients are likely to experience a broad range of unforeseeable events, such as acute exacerbation of the condition. Nowadays, it is important that regional, comprehensive, team-based medical services be promoted in a broader sense, rather than in hospitals or care facilities, so as to ensure that the patients receiving home healthcare are supported well.

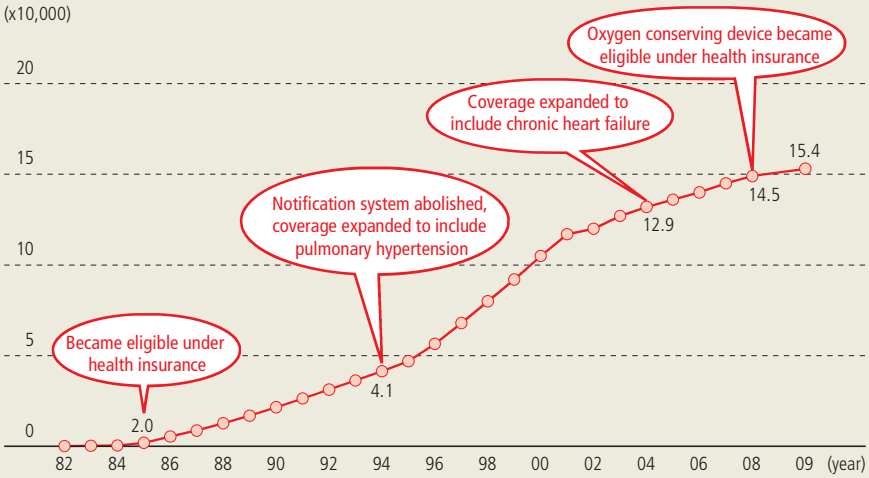
You have been engaged in developing advanced technologies, including oxygen suppliers of lower weight and respiratory synchronizers that allow longer use of portable oxygen cylinders. It is my hope that you continue to endeavor to match the delicate needs of the patients to the development of new products.

The problem resides in how to reconcile the ease of use by the elderly and the safety of the equipment. For example, it is quite difficult for elderly patients to remove the tube once it has been inserted into the metal outlet of their oxygen supplier, so there is a demand for a device that can easily be operated like Teijin's. Another requirement is "safety." Although patients with respiratory disease are instructed to refrain from smoking, the risk that a fire breaks out from tobacco smoking is not zero. Therefore, it is necessary to take safety measures, which include the use of a material that does no catch fire easily and the shutdown of oxygen supply upon perception of heat from fire. Nowadays patients on HOT are generally elderly people, many of whom live alone. In this regard, I encourage you to promote improving your products with a focus on safety and hygiene-related issues, which include device disinfection.

Regarding a change on the caregiver side, many companies have entered the oxygen supply business. Although this fact is not to be denied, it should be noted that quite a wide variation exists in the quality of their products and services. Some oxygen providers seem to neglect product quality and do their business merely by importing and selling cheap foreign-made items. I want you to take the initiative in working to minimize the difference. Another point of note concerns how the provision of soft aspect services is to be evaluated. I think that this aspect is to be eventually incorporated in the medical fee remuneration system.

In the latest revision of medical fee remuneration in April 2010, "rehabilitation" and "home healthcare" were newly included as key items. There is a considerable description of rehabilitation for cerebrovascular disorders; unfortunately, however, neither the term "respiratory rehabilitation" nor "home oxygen therapy" appears in the notification. Official discussions on the scheduled revision of medical fee remuneration in 2012 will soon begin. Probably, the listing of "respiratory rehabilitation" and "home oxygen therapy" cannot be achieved unless a request with specific targets for inclusion in the coming revision is submitted by the fall of 2010. It is your Teijin Home Healthcare that possesses the highest ability to conduct the necessary surveys and keeps the largest amount of relevant data and information, so I look forward to your cooperation.

Trends in the Number of Patients on Home Oxygen Therapy (estimation in an industrial journal)



(Source: Gas Medicina Vol.14, 2009, K.K. Gas Review)

From the Viewpoint of Physical Therapists and comedeicals

Expectations for Spread of pulmonary Rehabilitation as Part of HOT Business

Akira Ishikawa, Associate Professor
Department of Physical Therapy, Sapporo Medical University School of Health Sciences

Graduated from the Sapporo Medical College School of Allied Health Professions and the Nihon University Graduate School of Science and Technology. Doctor of Engineering. After working at Teikyo University Hospital, he served concurrently as a lecturer at Sapporo Medical University and a vice-manager of the Department of Rehabilitation in Sapporo Medical University Hospital. Councilor for the Japan Society for Respiratory Care and Rehabilitation Medicine. Author of "Respiratory Care and Rehabilitation for Speech Therapists" (Nakayama-Shoten) and other books.

I became engaged in pulmonary rehabilitation 17 or 18 years ago, when I participated as a lecturer in a workshop program sponsored by Teijin. I acknowledge that your efforts in the HOT (home oxygen therapy) business have made a significant contribution to the nationwide spread of pulmonary rehabilitation.

In the 2006 revision of medical fee remuneration, "pulmonary rehabilitation" was newly included as an item for calculation. Thus we toed the line at last.

The current problem resides in that public awareness of pulmonary rehabilitation is low despite the fact that it is specified in the Global Initiative for Chronic Obstructive Lung Disease (GOLD), an international guideline for the treatment of chronic obstructive pulmonary disease (COPD). The guideline stipulates that oxygen therapy is performed for patients with the pathologic rating "severest", and that pulmonary rehabilitation should be begun when the patient has a 2-grade lower rating of "moderate." Assuming a population of 150,000 patients on HOT, about half of them, namely some 70, 000 to 80,000 are estimated to be COPD patients. I think it is indispensable for the many COPD patients on HOT to start pulmonary rehabilitation before they start oxygen therapy.

Pulmonary rehabilitation is gradually spreading among major medical institutions, but there is room for further spread at the practitioner level. In addition, very wide regional differences exist. When I returned from Tokyo to Hokkaido, my birthplace, 13 years ago, I was considerably astonished with the difference between the two regions. Incidentally, the demand valve, which is a valve that supplies oxygen from the cylinder only during inhalation, was beginning to spread. While almost all HOT patients in Tokyo were using devices with a demand valve, it was taken for granted that in Hokkaido the devices were not equipped with the demand valve. I thought these differences must be corrected.

Regarding exercise therapy, the key component of pulmonary rehabilitation, further spread is desired. Currently, only a very limited number of patients receive exercise therapy in hospitalization. Hence, I had long been thinking about proposing exercise therapy that can be carried out at home. In 1998, I was involved in a project sponsored by Japan's Ministry of the Environment, in which I worked with Dr. Kudoh to devise various methods of pulmonary rehabilitation based on exercise at home. Difficult programs are unlikely for patient to continue by themselves at home for a long time. Additionally, the rhythm of respiration is quite important to patients with a disease accompanied by short breath, such as COPD. With these facts in mind, we arranged NHK's radio program exercise, which has a four-four time rhythm, to "Respiratory Exercise for Longevity" in six-eight time rhythm, which can be done by the patient himself or herself at home while watching the video for 5 minutes. Even such a light exercise will be effective if taken as a custom for a certain length of period. A group comparative study of patients in Hokkaido revealed improved motor function and mitigated short breaths in a group who took the exercise in winter compared to a control group without.

As the situation stands in Japan, really a very limited number of people are on HOT with professional rehabilitation. I believe it is necessary to let patients who are unable to receive professional rehabilitation realize the effect of taking exercise, even for 5 minutes, and provide such exercise programs.

Your home healthcare sales staff have been making significant efforts to spread pulmonary rehabilitation, including holding workshops, to the extent that gives the impression that the locations of the Teijin Home Healthcare sales offices overlap the areas in Japan where pulmonary rehabilitation is commonly available. I hope that you will continue to help solve the issues in pulmonary rehabilitation.

History of Teijin Home Healthcare Business

1971	Research into oxygen-enriched membranes was begun
1982	Home oxygen therapy business was inaugurated (Japan's first membrane type oxygen concentrator Mildsanso®)
1985	Home oxygen therapy became eligible under health insurance
1986	Adsorption type oxygen concentrator for medical use (Hi-sanso™)
1989	"Home Respiratory Management Nursing Training Session (~1993)" and "Respiratory Care Study Workshop (~present)" were held
1991	Light portable oxygen cylinder (ULTRESSA®) was launched Respiration-synchronized demand valve (Sanso Saver®) was launched Teijin became the first provider to acquire a service mark certification in medical care sector (Maruteki Mark)
2000	Home-visit nursing service stations were established (7 locations)
2003	Teijin Limited became a holding company; its medical and pharmaceutical business was reorganized to Teijin Pharma (October 2003)
2006	Six sales companies were merged into one company with 12 branches (currently 80 offices) A HOT business joint venture with a Korean company was founded
2008	Teijin turned a home healthcare equipment provider in the US into its subsidiary
2009	Medical equipment joint venture was founded in Spain

From the Viewpoint of Patients

Further Expand Business Activities to Improve QOL of HOT Patients

Kazuko Tohyama, President
NPO: Japan Information Center for Patients with Respiratory Disorder

Founded in 1999 with the objective of improving the "quality of life" of patients with respiratory disorders and their families, the center acts as an information center for linking the three parties: patients and their families, medical and welfare staff, and corporate entities. It collects data and information and provides them for the patients, thus assisting them in daily life. Registered members include about 1,000 patients nationwide.

When I established the non-profit organization Japan Information Center for Patients with Respiratory Disorder 10 years ago, there was low public awareness of the QOL of patients on HOT, and no awareness-raising activities were conducted by the administration, medical personnel or business operators. With this in mind, we have been placing emphasis on raising awareness of the improvement of QOL by the patients themselves since the beginning.

Since the establishment of Respiration Day in 2007, we have been holding the Lung Walk Japan event on May 9 every year with the cooperation of the Japanese Respiratory Society. In the walking event, we call for public support for patients with respiratory disease and relevant organizations, raise awareness of respiratory diseases, mainly COPD, and propose refraining from smoking.

Talking about pulmonary rehabilitation, there are very wide regional differences which pose a major problem, as stated by Dr. Ishikawa. This must be corrected. It seems that the level of awareness is low and the spread is tardy in Tokyo despite the largest patient population in Japan. The city of Kiyose, where Dr. Kudoh's Fukujuji Hospital is located, has long been positive in accepting many patients with respiratory disease and providing them with comfortable living environments. I hope that there will be an increased number of municipalities where patients with respiratory disease can live comfortably as in Kiyose.

We accept a broad range of consultations from patients throughout Japan. As an information center, we hope ourselves to be able to provide them with as much information on convenient use and new products as possible.

For example, they complain, "The cannula, a tube for feeding oxygen to the nose, is likely to detach when I turn over in my bed, so how can I prevent this?" "The tube hurts the portions of my ears in contact with it, so is there any countermeasure?" and the like. The cannula is indispensable for the inhalation of oxygen. Additionally, people who see the patient wearing the device feel strange since the cannula appears in the very center of the patient's face, and this is what the patient is most conscious about. If the patient feels difficulty in using the device, he or she will be reluctant to accept "home oxygen therapy."

Regarding the cannula, there is room for further considerations and improvements. I think it is desirable that you listen to the voices of as many patients as possible and then take appropriate measures, rather than providing the device one-sidedly. Today, patients on HOT have various lifestyles. Many of them are elderly, but some are at work, hence they have different lifestyles. For this reason, I believe that the patient should be allowed to choose the appropriate medical device that befits his or her own lifestyle, just like choosing a mobile phone model and service. They want you to develop a compact, lightweight, and stylish product that will make it easy for them to enjoy traveling.

I want you to develop a medical device that further increases the QOL of patients and improves their ADL (Activities of Daily Living). Other pieces of consultation we receive include a considerable number of cases where patients express angry words: "I had been accustomed to use my device, but I had it replaced with another type without notice when I changed the medical institution."

I suggest you build a system in which the patient is able to choose services that match his or her needs. Referring to an administrative issue, the medical fee burden on the patient is very high. Any patient with a respiratory disease that necessitates home oxygen therapy forces him or her to continue to use the device throughout his or her lifetime, which is a major economic burden and a great annoyance for elderly patients with decreased incomes. Young patients can lose their job. I hope that the social security system will cover the high-cost burden of co-payment medical expenses that is now born by patients.

I have great expectations for your activities as a leading company in the HOT (home oxygen therapy) business.

Response to the Opinions of Stakeholders

Home healthcare is a theme of great social concern, and the Teijin Group positions it as a very important area of CSR to be engaged in with sincere effort in our core business. For this reason, this year's stakeholder dialogue also took place with a focus on this issue, as in the Features section of the 2009 Teijin Group CSR Report. The three participants talked about the national health insurance system, regional differences in the spread of home oxygen therapy , and other topics from a broad range of viewpoints, and we received many valuable opinions on the ease of handling in actual use, further improvements in safety measures, and other aspects. With reference to the opinions voiced, we will endeavor to develop better devices and improve our service. We look forward to your continued guidance and support.

The 4th Stakeholder Dialogue
(venue: Teijin Limited Tokyo Head Office)
Time: 10:00-12:00, March 5 (Friday), 2010
Participants from the Teijin Group:
Hisae Tai (General Manager, Teijin Limited CSR Planning Office)
Ken Takami (Teijin Limited CSR Planning Office)
Ryosei Kishida (Teijin Pharma Limited Home Healthcare Operation Department)