

**azbil
FIELD**

Amari Watergate Bangkok

**azbil
MIND**

**Moving Ahead To Expand Business Overseas
Focusing on Safe, Reliable, Proven, and
Durable Technologies**

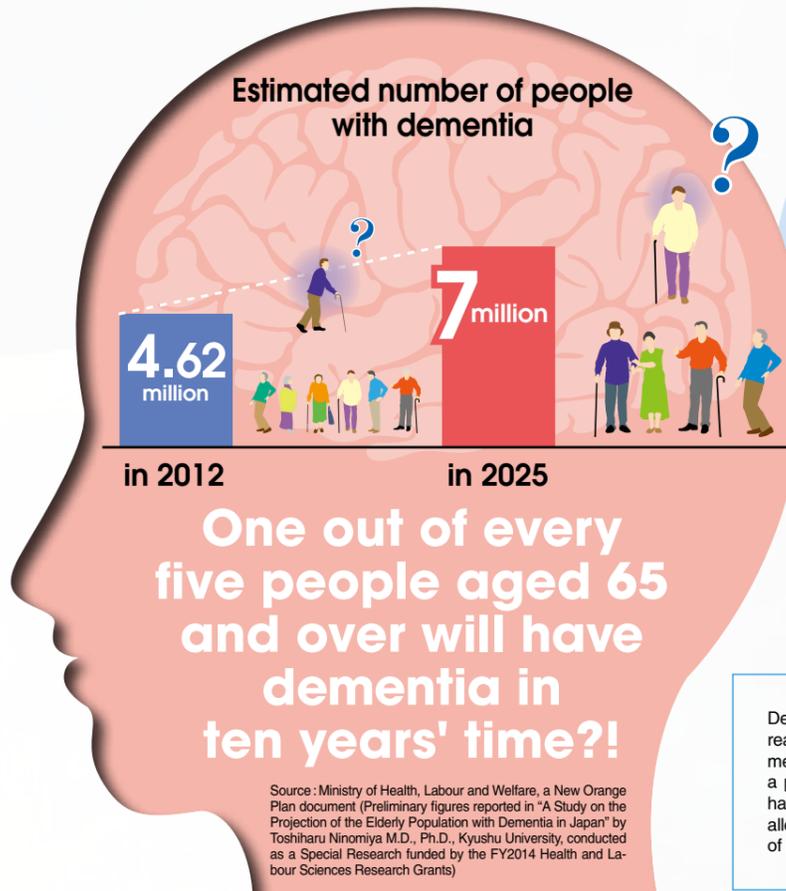


Special Feature

**The most advanced medical care and
research taking on the challenge of
ever-increasing dementia**



The most advanced medical care and research taking on the challenge of ever-increasing dementia



The number of dementia patients in Japan is forecast to exceed seven million in 2025. This means one out of every five people aged 65 and over will suffer from dementia. The National Center for Geriatrics and Gerontology (NCGG) is a leader in the research and treatment of dementia in Japan. NCGG's advanced dementia research and treatment efforts and activities, such as a collaborative medical approach transcending the boundaries of professions and departments and long-term, large-scale research activities, are drawing attention from the world over as they form the basis of the longevity country that is Japan.

What is dementia?

Dementia is caused by damage to brain cells that occurs for some reason and results in the loss or degradation of their functions. Dementia decreases the ability to think and remember, thus affecting a person's daily functioning. Because curative treatment methods have not been developed as yet except for a very few symptoms, alleviation of symptoms or suppression of progress are the purposes of present treatment and medical care for people with dementia.

Japan's approach to dementia care attracts great attention from all over the world

NCGG is a world-leading medical and research institution in the fields of longev-

ity science, gerontology, and geriatrics. NCGG is composed of the National Hospital for Geriatric Medicine and the Research Institute. The National Hospital for Geriatric Medicine addresses the treatment of diseases particularly prevalent in older people and also strives to establish model cases of dementia patient nursing care, regional home healthcare cooperation, and terminal care, with its sights set on the standardization of treatments in the future.

The Research Institute, on the other hand, promotes advanced research activities to elucidate mechanisms of aging and geriatric generation, develop and apply new diagnostic methods and treatment techniques, and promote developments in the geriatric and gerontologic engineering (nursing robots and others) field.

Seeking causes of geriatric diseases and developing preventive care

Japan is faced with an urgent need to advance the medical and nursing care as



The National Center for Geriatrics and Gerontology (NCGG)

the aging of population is accelerating. Particularly important is to gain understanding of the aging process. Spearheading those efforts is the National Institute for Longevity Sciences-Longitudinal Study of Aging (NILS-LSA) conducted by NCGG.

The main objectives of NILS-LSA are to discover the causes of aging and generation of geriatric diseases such as dementia, osteoporosis, and presbycusis and to develop methods to prevent them. To those ends, not only medical professionals but also specialists in a broad range of fields including psychology, kinematics, and nutrition science are collecting and analyzing data pertaining to aging.

In 1997, an NILS-LSA survey began with randomly selecting 2,300 local residents of both sexes aged between 40 and 79. Once every two years, detailed full-day medical examinations were conducted to check more than 1,000 items, including a nutrition survey, psychographic survey, and motor function tests. This large-scale survey project ended in 2012, and it led to the announcement of more than 600 research results.

For instance, one of the survey results indicated that the intake of an appropriate amount of DHA, which is contained densely in blueback fish oil, might help prevent the decline of cognitive function in both men and women. A two-year follow-up survey conducted with people of middle and old age showed that people who read books in their free time had higher capabilities to accumulate abilities stemming from knowledge or experience and to adapt to new issues.

Seamless medical service from first medical examination to terminal care

The Center for Comprehensive Care and Research on Memory Disorders established by NCGG became a model case of a realistic medical setting in Japan and has drawn a great deal of attention. The Center provides long-term medical treatment and social care through interprofessional collaboration of doctors, nurses, pharmacists, nursing care staff, social workers, and others. It also collaborates

Cognicise

A coined term combining "cognition" and "exercise." This exercise program is designed to simulate the brain function by promoting thinking while exercising. Needless to say, healthy lifestyle with proper daily diet, ample sleep, and adequate exercise is also very important.

Stamping

- Stamp rhythmically.
- Clap hands once every three times.

Multi-stepping

- Stamp by moving the stamping foot in the following order: right foot forward, left foot forward, right foot to right, and left foot to left.
- Clap hands once every three times.

with various medical departments in the hospital to provide seamless medical treatment and healthcare to patients from the time they were diagnosed with dementia to the terminal phase.

Needless to say, the Center is focused on maintaining the healthy brain function of patients. In addition to this, it pays close attention to physical diseases, vital functions, behavioral and psychological symptoms of dementia (BPSD), and alleviation of the burden on caregivers. Reducing the burden on caregivers is especially important because if caregivers become excessively tired from working too hard, they will not be able to provide effective care for dementia patients. The Center regularly holds classes for families of dementia patients and provides them with opportunities to learn about dementia and various stages of dementia development.

The Center is also aggressively addressing the prevention of dementia. Degradation of muscle strength leads to a decline of cognitive function, although their relationship has not been clearly identified yet. When the cognitive function decreases, the person tends to stay home and the amount of bodily movements reduces. This further degrades the muscle strength, thus falling into a vicious circle. In view of this, NCGG encourages people to actively exercise for the prevention of dementia. One of such exercises is called "cognicise." This exercise program is designed to stimulate brain activities by promoting

participants to think while moving the body. It is expected to help prevent dementia and improve the symptoms of mild cognitive impairment (MCI) before the onset of overt dementia.

Establishing a system to help dementia patients live comfortably in their familiar surroundings

To enable people with dementia and their families to continue living in areas familiar to them, proper diagnosis and treatment at the early stage of dementia is essential. To that end, the Japanese government has initiated a program to develop and foster dementia support doctors. Dementia support doctors not only diagnose and treat dementia but also respond to consultations from patients' private doctors and care workers and provide cooperation to them, and also conduct awareness raising activities such as holding of seminars for local residents. The Japanese government aims to increase the number of dementia support doctors to 5,000 by the end of 2017.

Such a regional collaborative system formed with dementia support doctors at the core can be seen in no other countries in the world. Thus, the initiative taken in Japan can be a model case for other Asian countries where the population is also aging quickly. European countries and the United States are also showing great interest in this system.

Amari Watergate Bangkok



The Amari Watergate Bangkok hotel is located in a downtown area called Pratunam in Bangkok, the capital city of Thailand. The hotel was selected for a model energy conservation project proposed by a Japanese company. It has implemented a series of energy-saving measures, including a BEMS, and as a result of optimal air-conditioning and heat source equipment operation it has saved a large amount of energy. The system implemented at the hotel has also made it possible to visualize energy performance. The hotel now receives much attention as a leading example of energy efficiency in Thailand.

Chosen for a Japanese company's model project, Amari Watergate Bangkok redoubled its energy-saving measures

Amari Watergate Bangkok, a five-star hotel, opened in 1994 in Thailand's capital city of Bangkok, and is conspicuously situated in a 34-story modern building on Petchburi Road, which is lined with shopping malls. In addition to the view of the city from its luxurious rooms, the hotel provides various facilities such as restaurants and a fitness center. Many foreigners who visit Bangkok for sight-seeing and business purposes choose to stay at the hotel.

Today, Thailand is faced with a skyrocketing demand for electricity as its economy continues to grow. It is imperative for the nation to find ways to use energy efficiently, and so Amari Watergate Bangkok is also making efforts to save energy, with both cost reduction and environmental policy in mind. "We have always taken measures like adding thermal insulation film to the hotel windows and introducing a water recycling system and cleaning system for the air-conditioning cooling tower," explains Udom Srisanit, engineering director at the hotel.

In 2009, the Chugoku Electric Power Co., Inc. (Chugoku EPCO), a Japanese firm, drew up an energy-saving plan for Thailand in cooperation with the Metropolitan Electricity Authority (MEA), a Thai company supplying power to the capital city area, and submitted the plan to a competitive subsidy program arranged by NEDO.*1 The plan was accepted, and after examining the possibilities for implementation, Chugoku EPCO selected Amari Watergate Bangkok as its Thai recipient company because of its enthusiasm for energy efficiency. The hotel was judged to have the potential for large energy savings.

NEDO is pushing forward with its project of supporting the implementation of energy-saving measures in foreign nations in order to promote Japanese "green" technologies around the world. For participants in the project, NEDO entirely covers the equipment costs necessary for implementation, with the facility owner paying only the construction and renovation costs. Therefore, the plan was very attractive to Amari Watergate Bangkok.

Hotel remains open during renovations, with no guest complaints

Chugoku EPCO determined the specific ener-

gy-saving measures to be implemented for the facility in areas such as air-conditioning, hot water supply, and lighting, and selected Japanese manufacturers for each area. Azbil Corporation and its local affiliate, Azbil (Thailand) Co., Ltd., were selected to install the BEMS*2 and the controllers for air-conditioning and heat source equipment. As the only Japanese company that has a local office in Thailand and provides solutions in the area of energy conservation for buildings, Azbil has proven its performance through one-stop provision of a range of services including design, construction/renovation, and maintenance.

"I have known about Azbil for quite some time, because it is a Japanese manufacturer



Azbil installed savic-net FX in the central control room as the BEMS. Operating status and the amount of energy use for the heat source equipment can now be checked at a glance.



An ACTIVAL control valve with flow measurement controls the flow rate of the air-conditioning cooling water.

with abundant experience in the automation industry. We were relieved to hear that Azbil was put in charge of implementing the BEMS and HVAC control, because these systems were an essential part of the renovations," says Mr. Srisanit.

Renovation work began in the latter half of 2011. Despite the considerable effects from the flood that hit Thailand in the fall of that year, the entire renovation project was completed in March 2012.

Azbil installed its savic-net™FX building management system as the BEMS. Working together with equipment such as the PARAMATRIX™III digital controller for the heat sources and ACTIVAL™ control valve with flow measurement, savic-net FX accumulates data and stores it in the PARACONDUCTOR™ heat source optimization controller. The building management system provides easily understandable visual data on the operating status of all air-conditioning and heat source equipment. This allows comparison of the figures obtained before and after implementation of the energy-saving measures, so the amount of energy saved by each piece of equipment is now clear.

Variable speed drives were added to the water condenser pumps and coolant pumps in order to control the flow rate and consequently to optimize the amount of power consumption. They were also added to the cooling tower fans in order to keep their power consumption to a minimum in accordance with the operation of the chillers.

"Our hotel operates 24 hours a day, 365 days a year, so we had to be particularly careful in renovating the air-conditioning system, since it has much to do with a comfortable guest experience. Renovations were completed without a single guest complaint, thanks to Azbil's thorough planning and thoughtful consideration, which were what we expected from a Japanese company. We are now oper-



PARAMATRIX III optimizes the operation of chillers.

ating the hotel as usual with no changes on the surface, but in actuality we are saving a great amount of energy," Mr. Srisanit explains.

Whole-building energy consumption cut by 15%, resulting in large reduction in power costs

Since the energy-saving measures were implemented, the energy consumption of the whole building has been reduced by about 15%. This reduction is equivalent to about 700 kiloliters of oil consumption per year. "We spent 4,500,000 THB (approx. US \$128,000) for electricity every month before the project, but that has now been reduced to 3,300,000 THB (approx. US \$94,000). I am very satisfied with this result," says Mr. Srisanit.

The effects of the energy-saving measures implemented at the hotel have attracted attention as one of the leading examples of green technology in Thailand, which is committed to nationwide energy conservation. The hotel offers walk-through tours of its facilities, such as the air-conditioning system and the central control room where the BEMS is installed. Many people who are interested in energy conservation and who work for government agencies, educational organizations, and commercial facilities such as hotels and shopping malls have taken the tour.

Amari Watergate Bangkok is moving forward with better equipment management for saving even more energy by analyzing data that is "visualized" and stored by the BEMS. "Amari Hotels & Resorts Group is also think-



The heat source machine room has been modified for tours. Guests can learn about the energy-saving measures by observing equipment like chillers and pumps.



Calorimeters for monitoring the operating status of 4 chillers.

ing about implementing energy-saving measures at its other hotels in Thailand. Azbil provides us with considerable support in managing the renovated systems, and I expect that Azbil will continue to provide reliable support for our future endeavors in energy conservation," says Mr. Srisanit.

Amari Watergate Bangkok



Location	847 Petchburi Road, Bangkok, Thailand
Founded	1994
Business	Hotel, restaurants, fitness center, etc.



Udom Srisanit
Engineering Director

glossary

- *1▶ **NEDO**
New Energy and Industrial Technology Development Organization. This is a Japanese government R&D organization promoting the development of new energy sources and industrial technologies.
- *2▶ **BEMS**
Building and energy management system. A BEMS uses automation technology to monitor and control power consumption for facilities such as buildings, factories, and district heating and cooling facilities, to minimize the power consumption for the whole facility.

Moving Ahead To Expand Business Overseas Focusing on Safe, Reliable, Proven, and Durable Technologies

Azbil TA Co., Ltd. provides pneumatic components, such as lubrication units that incorporate advanced fluid control technology, dual valves, and high-performance regulators. The company has a large market share in China, specifically in the field of dual valves, which are an essential part of the machine presses that shape metallic parts and products. Growing by means of close partnership with local companies, Azbil TA is aiming at even further growth of its business in overseas markets.

Success in the Chinese dual-valve market results from support for production, reliability, and safety of machine presses

Guided by its philosophy of “human-centered automation,” the azbil Group is developing the Advanced Automation business in the plant and factory markets, and also the Bulding Automation and Life Automation business. As a part of the Advanced Automation business, Azbil TA Co., Ltd. plays an important role as a company with expertise in manufacturing pneumatic devices.

The company was founded in 1955. Based on the advanced fluid control technologies it has cultivated through 60 years of experience, the company is involved in the development, manufacturing, consulting and sales of pneumatic components such as lubrication units, dual valves, and high-performance regulators. Many of its products are used at various types of manufacturing sites such as large-scale power plants, ironworks, automobile factories, semiconductor fabrication plants, and food factories.

Meanwhile, Azbil TA is actively working on expanding its business into overseas markets. Especially in the field of dual valves, which are the central component in presses, the company began entering East Asian markets around the year 2000.

Dual valves are used in presses as a directional control valve to start and stop the air clutch and brake. Azbil TA's products are highly rated for reliability and play a role in ensuring safety where press work is done.

The company started doing business in East Asia when its dual valves were chosen by a leading press manufacturer headquartered in Taiwan. At that time China was undergoing rapid economic growth, and in line with that growth, the demand for machine presses was increasing. When a Chinese manufacturer known for its emphasis on safety and research on various kinds of safety devices chose Azbil TA's dual valves, Chinese press manufacturers very quickly began to incorporate the valves as a key component in Chinese presses.

Strong relationships with local partners pave the way for rapid growth in China

One of the reasons that Azbil TA has been able to make substantial progress in Chinese markets for about 15 years is its strong partnerships with local press machine manufacturers. It has built close relationships in particular with two companies, Jiangsu Yangli Group Co., Ltd., and Yangzhou Metalforming Machine Tool Co., Ltd., both

headquartered in Yangzhou City in the province of Jiangsu in eastern China.

The Jiangsu Yangli Group was established in 1996 and has five fully owned or holding divisions: Yangli Machine Tools Co., Ltd., Yangli Heavy Duty Machine Tools Co., Ltd., Yangli Precision Machine Tools Co., Ltd., Yangli CNC Machine Tools Co., Ltd., and Yangli Hydraulic Machine Tools Co., Ltd. It is a major enterprise that deals in machines for punching, shearing, bending, and laser cutting as its flagship products, and is aiming to become “a 100-year company” and a global brand. Yangzhou Metalforming Machine Tool, on the other hand, is a well-established and comprehensive mechanical press manufacturer that was established in 1958. Its flagship products are a variety of mechanical presses, high-speed presses, powder metallurgy presses, and iron-making machines. It is a specialist in press manufacture whose goal is to provide customers with first-rate products and full service.

Azbil TA has consistently made efforts to improve its technology in cooperation with these two companies, which are second to none in the Chinese machine press market. It aims to continue to work together with local companies and to keep its presence strong and stable in the machine press manufacturer market in China.

Jiangsu Yangli Group Co., Ltd.



General Manager Lin Ya Jie (left) and Azbil TA's President and CEO Masashi Hirano



Azbil TA's dual valve in the JF21 Series press

Jiangsu Yangli Group Co., Ltd. develops a variety of mechanical presses for the automotive, household appliance, and semiconductor industries. Its products are used in China and other nations in South America and Southeast Asia. “We are planning to expand our market share abroad. To do so, we need to make products with high added value. Azbil TA's dual valves have good quality and we already have a good relationship, so we are looking forward to even better products and services,” says Mr. Lin.



Lin Ya Jie
General Manager
Director



Jiangsu Yangli Group Co., Ltd.

Location: No. 99 Yangli Road, Hanjiang Economic Development Zone, Yangzhou City, Jiangsu, China

Yangzhou Metalforming Machine Tool Co., Ltd.



Chief Executive Pan Yun Hu (right) and Azbil TA's President and CEO Masashi Hirano



Azbil TA's dual valve in the JB36 Series straight side press

Yangzhou Metalforming Machine Tool Co., Ltd. provides mechanical presses mainly in the automotive and household appliance areas. Its presses for making air conditioner panels have an especially large share of the market. “Using high-quality components to make a product will increase the value of the product itself. Azbil TA provides us with high-quality valves and services that satisfy our expectations. With the help of Azbil TA, we intend to enhance the value of our products and develop our business overseas,” says Mr. Pan.



Pan Yun Hu
Chief Executive



Yangzhou Metalforming Machine Tool Co., Ltd.

Location: No 1, Huangang Rd., Yangzhou High-Tech Industry Development Zone, Jiangsu, China

Focus on business expansion in Southeast Asia through cooperation with equipment Venderors

Azbil TA is advancing its business expansion globally not only in China but also in East Asian and Southeast Asian nations.

Especially in Southeast Asian markets where industrial development is prominent, the influx of presses made by Chi-

nese manufacturers such as Jiangsu Yangli Group and Yangzhou Metalforming Machine Tool is likely to increase in the future, and if so, Azbil TA's dual valves will also spread in Southeast Asian countries as part of these presses. Azbil TA intends to build even stronger partnerships with Chinese machine press manufacturers, including the Jiangsu Yangli Group and Yangzhou Metalforming Machine Tool, in areas of maintenance

and improvement for Chinese presses that are used in Southeast Asian countries, and to support local companies that use the presses for production, as “a long-term partner for customers and society.”

Azbil TA is expected to continue to contribute to customer's business development on a global scale by providing products and solutions produced through synergies within the azbil Group.

When validation is used in connection with the manufacture of pharmaceuticals as a technical term, it refers to the process of establishing scientific evidence demonstrating that the manufacturing system, including processes and equipment, can consistently deliver the expected product quality.

Scientific examination to confirm the soundness of procedures and rules for drug manufacture and quality management

Drugs for sickness and injuries can roughly be categorized into two kinds: over-the-counter drugs sold in pharmacies, and prescription drugs. Both kinds must be manufactured so as to always have quality as intended. What if each tablet contained inconsistent active ingredients (the chemical substances that cause the medicine's effects)? Patients would not feel that the medicine was safe to take.

For that reason, many countries in the world establish GMP* guideline defining the requirements that drug manufacturers must meet in managing manufacturing process and product quality. Such guideline requires the manufacturer to document the manufacturing procedures and to follow them for the purpose of 1) minimizing human error, 2) preventing contamination and degradation of quality, and 3) establishing a system for assuring high quality.

The GMP guideline prescribes an activity called "validation" for assuring drug product safety. Validation in this context means examining each stage of the process, from receiving raw materials to shipping the finished products, in order to verify that all

stages of the manufacturing process meet the predefined specifications. Without collecting objective evidence that warrants that safety of the finished products is assured, manufacturers cannot demonstrate that their drugs were properly made by proper process.

Validation consists of two major activities. The first is to verify "through scientific approaches" that procedures and the equipment used are fit for manufacturing drugs.

Drug manufacturers need to identify all the risks with the procedures, facility, and equipment (potential variables) and eliminate them to achieve consistency.

For example, for the process step to mix multiple ingredients, an ingredient may be weighed wrongly, mixing time may be too short, or the mixer may be contaminated and impurities may make their way into the product. To minimize such risks, the measurement procedures, mixing specifications (including time), and equipment cleaning procedures are tested to verify their appropriateness.

Temperature and humidity control is also essential because many pharmaceutical ingredients are powders that are sensitive to temperature and humidity changes. To prevent the risk from increasing, the control of the air-handling equipment must be verified.

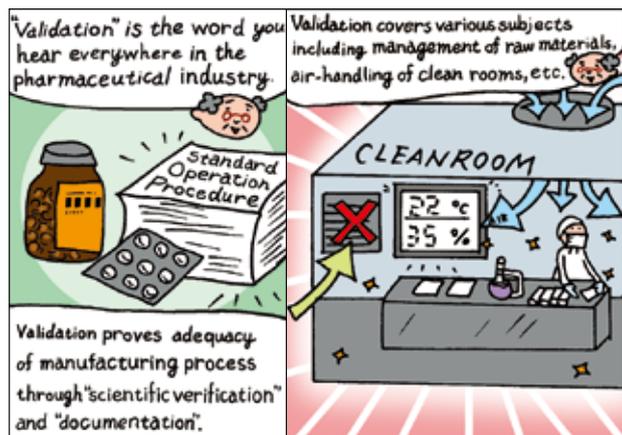
others.

When drugs are manufactured, ingredients, apparatus, equipment, operators, operations, and plant environment (temperature, humidity, etc.) must all be recorded so that the adequacy of the entire manufacturing system can be ensured and, when a problem occurs, the cause can be tracked.

Today, pharmaceutical manufacturing plants are increasingly adopting computers for control of the manufacturing process, product quality, manufacturing equipment, and analysis. Such computers must be validated, and that practice is called "computerized system validation" (CSV).

Patients can take medicine with no fear when these good practices are performed by drug manufacturers. Validation activities, through tireless efforts by the manufacturers, are like an invisible warranty card that comes with a pharmaceutical product.

* Acronym for good manufacturing practices. The Food and Drug Administration (FDA) of the US government was the first to define GMP regulations. Later the World Health Organization (WHO) developed their GMP, and many different countries started to adopt them.



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The control records are used as part of the evidence to demonstrate the equipment is fit for the drug manufacturing.

Documentation is also essential to make evidence accessible to others

The other major validation activity is documentation. It is an activity to record the data and to ensure it is accessible to

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