"Diagnosing"

Contribution to Expansion of Advanced Medical Care in Emerging Economies

—Mongolia's Example in Construction of Diagnostic Imaging Environments

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OVERVIEW: Hitachi Medical Corporation has been contributing to the improvement of medical facilities in Mongolia and other emerging economies by using ODA plans to equip healthcare center with facilities, supplying medical diagnostic imaging systems such as MRI systems, X-ray imaging systems, X-ray CT systems, and US systems. In recent years, along with improvements in the economic strength of emerging economies, there has been a focus on the introduction of cutting-edge Japanese, American, and European medical equipment and technology into clinical practice.Although the state of medical services differs from country to country, the example of Mongolia, which has constructed a diagnostic imaging environment that gives both health care professionals and patients peace of mind, is being applied to the approaches taken by other emerging economies as well.

INTRODUCTION

WHAT comes to mind when one thinks of Mongolia? Majestic steppes and Mongolian sumo wrestlers, perhaps? As of 2007, although Mongolia's population was approximately 2.63 million people, and its GDP (gross domestic product) was approximately 4.0 billion dollars (amounting to approximately 1,500 dollars per person), its GDP growth rate was 9.9%[(1)], and it is a vast country with a total land area that is approximately four times that of Japan (see Fig. 1) . Mongolia's abundance of coal, copper, gold, uranium, and other mineral resources is attracting the attention of Japan, as well as Europe, the USA, China, South Korea, and other countries (see Table 1). The country's total coal reserves amount to as much as 150 billion tons[(2)], and as major projects such as the representative Tavan Tolgoi coal deposit and Oyu Tolgoi copper-gold deposit are set in motion, the GDP growth rate is predicted to reach as high as 30% in 2010.

Mongolia's population has enjoyed a relatively high number of doctors since the socialist period, with approximately 28.3 doctors per 10,000 people[(3)]

Fig. 1—Mongolian South Gobi Scenery.
The South Gobi region, which is located in the southern half of Mongolia, has a low population density and is mostly covered by desert. The scenery pictured here features the lifestyle of the region's nomads, who travel by two-humped camel across the majestic desert of South Gobi.

TABLE 1. Mongolia's Main Economic Indicators[(1)]
Mongolia has a population of approximately 2.63 million people (as of 2007) and an area of 1,564,100 km^2. The main industries are trade, mining, stock farming, and light industry.

	2000	2004	2007
GDP (in billions of dollars)	0.94	1.78	3.89
GDP growth rate (%)	3.9	10.9	9.9
Direct investment (in millions of dollars)	90.3	237.1	500.0
Foreign debt/GDP (%)	80.3	85.4	38.0
Treasury budget/GDP (%)	-7.6	-1.1	2.2
CPI	8.1	6.0	15.1

GDP: gross domestic product CPI: consumer price index

CT: computerized tomography MRI: magnetic resonance imaging

Fig. 2—Taking Images with Hitachi's Multislice CT.
The Friendship Naran Diagnostic Imaging Center operates Hitachi's multislice CT, as well as Hitachi MRI and X-ray diagnostic systems.

(Japan has approximately 20 doctors per 10,000 people). After the country became a republic in 1992, the healthcare system continued to offer free medical care as it did during the socialist period, through a combination of national funding and health insurance. Even after democratization, however, the healthcare system was not reformed, and Mongolia's doctors, having received their medical education from the former Soviet Union (USSR: Union of Soviet Socialist Republics) or Eastern Europe, have not been able to provide satisfactory medical services due to financial problems and insufficient medical facilities and equipment. As a result, Mongolians have had to rely on the physical support and human resources contributed by foreign health professionals for procedures requiring advanced medical treatment, or have had to travel to countries such as China and South Korea for treatment, which places an economic burden on patients.

This article discusses the example of Hitachi Medical Corporation's efforts in creating an environment for diagnostic imaging in Mongolia that gives both health professionals and patients peace of mind, as well as efforts in other emerging economies (see Fig. 2).

Fig.3—Exterior of Mongolia's Third National Hospital.
The city of Ulaanbaatar boasts 15 specialized hospitals and major general hospitals, including the First National Hospital, the Second National Hospital, the Third National Hospital, the Cancer Center, surgical hospitals, and others.

Fig. 4—Mongolia's Second National Hospital ("Sakura Hospital").
Hitachi's CT scanners, radiographic systems, and ultrasound scanners are installed.

Fig. 5—X-ray Diagnosis Using Hitachi Radiographic systems.
X-ray diagnostic systems are in use at Mongolia's Second National Hospital.

HITACHI MEDICAL'S EFFORTS IN MONGOLIA

Mongolia's Past Medical Diagnostic Imaging Systems

Due in part to the historic influence of the socialist period, national general hospitals in the capital city of Ulaanbaatar, specialized hospitals, and district general hospitals have tended to install X-ray systems that were manufactured in the former Soviet Union and Eastern Europe. These diagnostic imaging systems are still being used even now, and there are problems such as X-ray radiation exposure and the image quality of radiographs. Facilities are lacking, with problems such as insufficient developing agent causing uneven radiographic density during the process of developing one radiograph at a time in a dark room, extremely small film sizes being used for chest radiography, and so on. For this reason, Mongolia's radiologists and technicians are forced to expend a great deal of effort in both imaging and interpreting clinical images.

Hitachi Medical's Product Introduction History

Hitachi Medical provided Mongolia's National Cancer Center with CT (computed tomography) system in 1986, and Mongolia's Third National Hospital with CT, angiographic system, and other equipment the following year (see Fig. 3). This was the first CT and angiographic system in Mongolia, and when compared to the previously used plain radiographic systems, contributed to an increased diversification in diagnostic approaches, including the diagnosis of malignant tumors in the cranial and abdominal regions through cross-sectional imaging, and catheterizations for vascular diseases. Furthermore, around the year 2000, Japan's Ministry of Foreign Affairs enhanced its ODA (Official Development Assistance) plan for medical equipment, providing Mongolia's major national hospitals with several CT, XR, US (ultrasound scanners), and other equipment.

One of the benefactors of this ODA was Mongolia's Second National Hospital, which was positioned as a healthcare facility for senior government officials and foreigners. Since much of the hospital's CT, XR, US, and other equipment from Hitachi Medical and other sources were provided through ODA grants, the hospital is also referred to as "Sakura Hospital" (see Figs. 4 and 5).

CHANGES IN HEALTHCARE STEMMING FROM ECONOMIC DEVELOPMENT

Limits to Foreign Medical Support

Thanks to the ODA grant support provided by Japan's Ministry of Foreign Affairs, the medical equipment of Hitachi Medical has earned widespread affection among Mongolia's health professionals as equipment that lasts well beyond its expected useful service life. As the result of a shift in the grant support received by the Mongolian government from the medical field to infrastructure development, however, the introduction of medical diagnostic equipment through ODA came to a halt in 2002. For this reason, hospitals face budget deficits and continuous problems securing the funds to pay for parts and other repair costs necessary to operate the medical diagnostic equipment given to them in grants, to the extent that hospital personnel have to repair the equipment for themselves.

Changes in Healthcare Stemming from Economic Development

Given the state it is in as described above, Mongolia has not been able to achieve the same level of medical care as that available in developed countries, and when certain economically advantaged citizens come down with malignant tumors, cardiovascular conditions, or any other disease that might require advanced medical technology, they travel to developed countries to receive treatment. In addition, many doctors who have experienced studying abroad in a developed country still find that they cannot satisfactorily practice medicine after returning to Mongolia due to the undeveloped medical system.

Recently, private hospitals with medical care levels higher than those of public hospitals have been established with the support of doctors who have studied medicine abroad, investors who have received funding, and foreign corporations. These private hospitals serve wealthy citizens and foreigners in the city of Ulaanbaatar with their own separate medical care fees and hospital management systems.

In addition, as Mongolia's economy grows thanks to economic aid provided by developed countries and development of the tourism industry and underground resources, the Mongolian government has been increasing expenditures in order to expand the availability of medical equipment and improve medical education, while moving forward with reform to raise the level of medical care by converting the unpaid medical system to a paid system as a major government policy.

CONSTRUCTION OF RELIABLE DIAGNOSTIC IMAGING ENVIRONMENTS

Provision of Reliable Diagnostic Imaging Equipment and Services Offering Peace of Mind

As changes were being seen in Mongolia's healthcare, from the second half of 2001, Hitachi Medical began considering an expansion of sales in Mongolia. The company conducted market research with a Japanese trading company extremely familiar with Mongolia, and then began expanding sales.

Based on the determination that an agency intimately attached to the local region would be very necessary to carry out sales and service activities, in 2004, a local sales and service company was founded in Ulaanbaatar. Hitachi Medical works with this company to provide products and technical services that meet local medical needs, expanding its business by focusing on products that are highly rated in all countries and regions, and which emphasize "high reliability" and "patient-friendliness."

As a result, Hitachi Medical has provided various equipment to Mongolia, including MR, CT, and XR equipment to private diagnostic imaging centers, and several dozen diagnostic imaging equipment to hospitals as required by the Mongolian Ministry of Health's medical facility installation plan. This has contributed to an improvement in the level of diagnostic imaging in Mongolia.

Service System Offering Peace of Mind

Until now, competitors have not had local service companies in Mongolia, and have rather maintained a warranty service system in China, South Korea, or the company's home country, thereby incurring costs in both time and money. Hitachi Medical, on the other hand, has focused most of its efforts on developing its maintenance system. The local sales and service company hires engineers with service experience in Mongolia's medical facilities, and its employees train in the installation, repair, and maintenance of products multiple times at the Hitachi Medical Technical Academy adjacent to Hitachi Medical's Kashiwa Plant. In addition, Hitachi Medical dispatches service personnel to Mongolia in order to provide exhaustive OJT (on-the-job training). Furthermore, the medical facility staff members who work in hospitals are instructed in initial response methods for troubleshooting, in order to contribute to the construction of a rapid service system based on collaboration between the local sales and service company's service personnel and service personnel inside the hospital. These service systems have helped raise the level of comfort with Hitachi Medical products on the part of both the government and hospital personnel.

Support of Domestic and International Medical Exchange

In addition to operational training, users of installed Hitachi Medical diagnostic imaging systems have requested explanations of questions regarding photographic conditions and techniques and training in the interpretation of clinical images, all of which are part of the issue of support aimed at improving the level of diagnostic skill. In response, Japan's radiologists and laboratory technicians have provided a tremendous amount of support through medical

apprenticeships and lectures in Mongolia, in addition to the support provided by Chinese hospitals. In addition, by supporting medical training in China, it has been possible to provide Mongolia's health professionals with the necessary medical exchange assistance, while earning a high level of trust from government and hospital personnel.

With Pioneering Spirit and in Good Faith

Hitachi Medical's efforts in Mongolia are in the same fundamental spirit as the sure and steady activities on the part of the various companies of Hitachi, which has been praised for embodying the Pioneering Spirit in a variety of different markets and product fields. Hitachi's brand image is built by its diagnostic imaging equipment ("things") and its personnel involved in sales and services ("people"), both of which have enjoyed a great deal of appreciation on the part of government and hospital personnel. We intend to continue promoting this Pioneering Spirit while working to develop new markets in good faith into the future.

EFFORTS IN EMERGING ECONOMIES OTHER THAN MONGOLIA

Hitachi Medical's competitors have been making forays into the market as well, starting with Japanese, European, and American general medical equipment companies, and recently including medical equipment companies focusing on X-ray equipment in Spain, Italy, France, and elsewhere, as well as medical equipment companies in countries that have experienced marked economic growth such as China, India, and South Korea. The daily competition for orders is spreading around the world, to every market.

Hitachi Medical is focusing on developing new markets in the emerging economies and regions of the Middle East, Africa, and Central and South America. Hitachi Medical founded a Middle East office in Cairo, Egypt at the beginning of summer 2009 in order to expand sales in the Middle East and Africa, and there are plans to begin further activities.

With respect to Africa, in May 2008, at TICAD IV (Tokyo International Conference on African Development IV) in Yokohama, Prime Minister of Japan announced support including a doubling of ODA, as well as infrastructure development up to a maximum of 4 billion yen. In addition, the next Prime Minister also announced a doubling of ODA to Africa by 2012 at the 2009 Davos Forum.

Starting in 2008, in response to this series of government support programs, Hitachi Medical has also been strengthening its sales expansion framework in a commensurate manner by cooperating with European sales companies and trading companies while focusing on the selection of agencies in Africa.

Central and South America are far from Japan, and as such have not been developed as markets until now. In order to focus as much effort as possible on expanding sales, however, Hitachi Medical has been collaborating with trading companies with local offices, beginning sales expansion activities in 2008. Hitachi Medical has been steadily expanding sales and marketing activities including sales seminars in each region that have slowly but surely started to show results.

CONCLUSIONS

This article has taken up the example of Mongolia, where efforts have been focused on working together with health professions in constructing an environment where diagnostic imaging can be pursued with peace of mind, as well as efforts in other emerging economies.

When compared to Europe, the USA, Japan, and other major markets, the volume of sales in these countries is still small, and a great deal of time and effort is required. Even so, repeated trial-and-error attempts are enabling the construction of sales structures that match each market, and Hitachi Medical plans to continue to provide products while expanding sales further.

The global market for the kinds of diagnostic imaging systems sold by Hitachi Medical continues to grow by more than 5% annually. As society continues to be affected by an aging population, healthcare providers will increasingly demand highly reliable and easy-to-use medical equipment that gives consideration to the patient while enabling the rapid discovery of diseases. Including the research departments of Hitachi, Ltd., more than 200 developers are working day and night to develop next-generation products at the medical system development center Hitachi Medical jointly established with Hitachi, Ltd. in April 2008. We intend to continue aggressively working to install medical equipment and medical information systems with the Hitachi brand in all corners of the globe, in harmony with research and development, manufacturing, and service departments, with an eye on the world market.

REFERENCES

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