

The top half of the page features a stylized ECG (heart rate) waveform in white and light blue, set against a dark blue background. The waveform is centered horizontally and spans most of the width. Below the waveform, there are three horizontal bands: a thin light blue band, a thin lime green band, and a thin dark blue band.

# Implantable Cardiac Devices in China

**White Paper on Barriers and Inhibitors to Market Growth**



**Emerging Asia Inc.**

[www.emerging-asia.com](http://www.emerging-asia.com)

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# ICDs in China: Barriers and Inhibitors to Growth

*The Chinese market for high-end medical devices is expanding rapidly, but remains small in comparison to developed markets because of outdated medical facilities, the inability of the vast majority of Chinese to afford treatment, and corruption in the distribution and sales channels. While our findings are drawn from a study of implantable cardiac devices, they are broadly applicable to other high-end medical devices as well.*

## I. Background

In 2005 China became the 3rd largest national market for medical devices, with a value of \$4.5 billion. In 2006, the overall medical device industry in China saw 15.3% growth – which is expected to continue in the near to mid-term. The market for high-end devices, particularly implantable devices such as pacemakers and other cardiac devices grew even more quickly, at about 25%.

Although the industry is seeing rapid growth, the size of the current Chinese market is still relatively small. China accounted for only 2% of 2006 global medical device sales, whereas the U.S. accounted for 40%, EU for 30%, and Japan for 10% of sales. Moreover, on a per capita basis the Chinese market appears even smaller, given that China's population is almost double that of the other three markets combined.

*While there are a number of obvious growth drivers attracting global medical device players to China, there are also a number of barriers and growth inhibitors, which should be taken into account before unrealistic expectations about the near-term business opportunity in China lead to disappointment*

Emerging Asia was recently engaged in an in-depth study of the implantable cardiac device industry in China. This brief white paper, an excerpt from our larger study, examines some key findings related to growth barriers and inhibitors.

## II. Medical Facilities Need to Catch Up

In China, more than 70% of the population lives in rural areas, and their access to high quality hospitals is very limited. Most hospitals in such areas lack appropriate facilities and doctors experienced in implanting medical devices. Even in urban areas, only selected hospitals and doctors have the ability and the authorization to provide advanced care. Emerging Asia's study identified three main components of this problem:

- I. Low Diagnosis Rate
- II. Obsolete Medical Facilities
- III. Lack of Qualified Doctors



## II.A. Low Diagnosis Rate

The lack of appropriate facilities and medical personnel leads to a low diagnosis rate for diseases and disorders that can be treated or contained by the use of medical devices. For example, approximately 60 million Chinese suffer from heart disease, but only half have received a proper diagnosis of their condition with recommendations for care or treatment. We estimate that about 85% of urban residents have access to the types of medical facilities capable of diagnosing heart disease that can be treated with implantable devices, but no more than 40% of rural residents have access to such facilities.

## II.B. Obsolete Medical Facilities

It is estimated that 10% of the medical equipment and tools used in Chinese hospitals are of late 1970s vintage, while 50% are from the 1980s. Their low replacement rate means that most hospitals in China cannot conduct implantable device procedures. In general, only Level 3, Tier 'A' hospitals – the highest possible category – are able to conduct such procedures. According to the 2006 government survey, there were 647 such hospitals. However, many of these hospitals hesitate to conduct implantable device procedures due to the complexity of the surgery, and fear of blame if the procedure is unsuccessful. It is estimated that only 20 hospitals are conducting over 1000 device implants per year each.

## II.C. Lack of Qualified Doctors

Those doctors who hold the Vice-Senior title or above, and who work in the Cardiovascular department of Level 3A hospitals or specialist cardiovascular hospitals are allowed to conduct cardiac implants. However, not all of them have experience with such procedures. The number of doctors who can lead such surgical procedures is estimated to be fewer than 1000. This is a key bottleneck, because gaining the necessary training and experience takes longer than an upgrade of the physical infrastructure in a hospital that would otherwise enable such procedures.

## III. Affordability Remains an Issue

The comparatively low – in US\$ terms – Chinese incomes and savings impacts the ability to afford high-end surgical procedures involving imported implantable devices. Health insurance reimbursement rates are also more unfavorable than for example, the U.S. The price tags are also impacted by the costly distribution networks that enable sales to hospitals & doctors.

Location	Annual Per Capita Income	Annual Per Capita Savings	Average Price tag for Single-Chamber Pacemaker Implant <sup>1</sup>	Average Price tag for Implantable Defibrillator <sup>1</sup>
Urban Areas	US\$1,400	\$US163	US\$3,330	US\$16,700
Rural Areas	US\$500	\$US50		

Table A. 1. Price includes device and surgical procedure. Sources: China Bureau of Statistics, Emerging Asia Primary Research and modeling



### **III.A. Incomes and Savings are not at First World Levels**

In 2006, the annual per capita income in urban areas was \$1400 and in rural areas it was \$500. Many in rural areas live on less than a \$1 a day. The price of even the lower-cost implantable medical devices could be 2-3 times the annual income of an urban resident, and hence affordability is a significant barrier. For example, only 5% to 6% of the patients who have been diagnosed with, and are eligible for a pacemaker implant can actually afford this treatment.

### **III.B. Health Insurance Coverage is Low**

Ordinary citizens with health insurance are reimbursed based on individual agreements, but generally receive 50% to 70% reimbursement in urban areas while rural residents who are members of rural cooperative medical services receive only 20% to 50% reimbursement. These rates also vary widely by location and municipality. However, insurance alone is usually insufficient in making a cardiac implant affordable because of the low reimbursement rate, and because less than half the population is covered by health insurance. Even though the government is taking steps to make health insurance more widely available, in the near to mid term the impact of health insurance on affordability is expected to remain unchanged.

### **III.C. Distribution Methods are Expensive**

Most of the international manufacturers don't have a direct sales force in China. They rely on distributors around China to expand the market, build relationships with hospitals, and local government officials. This distribution method has a great influence on the end price, with distributor margins running from 30% to 400%. This margin often makes the difference between necessity and luxury for a patient.

## **IV. Corruption**

International device manufacturers are competing fiercely in China, in order to build market share and influence before the market matures. Hospital administrators, local officials, and doctors expect a share of the prize. By using local distributors, international players attempt to establish deniability, and remove themselves from the dangers of engaging in this issue directly. In order to expand market share and build strong relationship with hospitals, many distributors give hospitals, local officials, and doctors 'commissions' on sales. The 'commissions' can account for 5% to 20% of the sales price.

Engaging in, approving, or even tolerating such practices carries a business and reputation risk, in addition to a legal risk due to laws such as the Foreign Corrupt Practices Act (U.S.) or similar EU and OECD laws and conventions. As a result, some major medical device players opt to stay away from the Chinese market, whereas others try to build their own sales force and not rely on local distributors who are harder to police.

## **V. Conclusions**

We recommend a cautious approach, and advise our clients to consider the various barriers and inhibitors before committing to a large investment in entering the market. Some hurdles, particularly with regard to the availability of hospitals and qualified doctors, are getting shorter every year as the country develops and investments in medical infrastructure and medical training bear fruit. Medical device companies are also involved in training programs – an excellent way to promote product awareness



and grow the size of the overall market. However, there are some barriers that will take longer to overcome, particularly the affordability of expensive devices.

As in all emerging markets, some high-level developments have the potential to change things very quickly: days after we completed our study, the Chinese Health Ministry announced a central purchasing program for implantable cardiac medical devices. While this program may not be implemented for another year, this development has the potential to eliminate or vastly reduce corruption in sales at the hospital level, and may also eliminate the advantage of incumbent players and their existing country-wide distribution networks.

### **Research Methodology for this Study**

Emerging Asia's consultants conducted over sixty in-depth interviews as original, primary research across urban and rural China. Interviewees included hospital administrators, cardiologists, surgeons, medical device manufacturers and distributors, government officials, and independent industry observers and analysts. This was in addition to leveraging any existing on-line secondary research, government reports, journals, etc.

### **About Emerging Asia**

Emerging Asia is a specialist provider of professional consulting services related to Asian emerging markets. Emerging Asia provides commercial due diligence services, market strategy advisory, and political risk analysis services. Clients include private equity investors, corporate managers, and U.S. and Europe based consulting firms that require a reliable Asian counterpart for global analyses. Emerging Asia's principals have a number of years' experience in conducting and managing market analysis and strategy development exercises such as the one from which this white paper is derived. For more information about the firm, please visit: [www.emerging-asia.com](http://www.emerging-asia.com)

### **Authors**

Adil Husain is the President of the firm, and the Senior Advisor for China. He is responsible for global client relationships, as well as for leading projects related to China in particular. Prior to founding Emerging Asia in 2006, he worked for several years in the Washington D.C. office of a strategy consulting firm, where he led global engagements for Fortune 100 companies from a variety of industries. Mr. Husain is based in Suzhou, China.

Martin Liu is a Consultant in our China practice. He has worked on market analyses in a number of industries, including financial services, semiconductors, and medical devices.

### **Contact**

Mr. Adil Husain  
President, and Senior Advisor for China  
[ahusain@emerging-asia.com](mailto:ahusain@emerging-asia.com)