

# Shanghai Neuromedical Center and Zhongshan Hospital: Two Examples of Hospital System in China

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*As reported in the last edition of our magazine, thanks to the partnership with Reed Sinopharm, Infomedix International has the opportunity to take part to the fourth edition of The Health Industry Summit (THIS) in Shanghai, focusing more on the 79th China International Medical Equipment Fair (CMEF Spring 2018). On the third day of our stay we visited Shanghai Neuromedical Center, to learn more about private hospitals in China, and Zhongshan Hospital, the only public hospital to be rated as Model Unit in Shanghai for 28 consecutive years and awarded with other important honorary titles too. We are reporting such a memorable and very interesting experience at Chinese clinics in the following article.*

The Chinese medical system has both private and public hospitals and in a lot of cities there are hospitals which are specifically for foreigners where all doctors speak English.

Most Chinese hospitals are run by the government. As a matter of fact, many physicians were previously quasi-government employees with little freedom in the choice of the hospital to work with. Decades of planned economic policy discouraged physicians from opening their own clinics, and the practice of medicine was generally non-private.

Nowadays, physicians are encouraged to open private clinics or hospitals and those who have been practicing medicine for five years, after receiving national physician licenses, can open their own clinics. China has 16,900 private hospitals as of April 2017, accounting for 57.2% of all hospitals in China.

**The number of private hospitals in China has doubled since 2011, according to China's National Health and Family Planning Commission (NHFPC).** The number of private health institutions also rose to 444,000, accounting for 45% of all health institutions, said the NHFPC.

The country's healthcare authorities have been relaxing policy controls and encouraging the private sector to build health institutions, said Jiao Yahui, an official with the NHFPC. To continue to encourage private investment, the NHFPC released a series of policy changes to stimulate market vitality, including inviting foreign investment to join the competition.

Hospitals in China are organized according to a 3-tier system that recognises the hospital's ability to provide medical care, medical education, and conduct medical research. Based on this, hospitals are designated as **Primary, Secondary** or

**Tertiary** institutions.

A primary hospital is typically a township hospital that contains less than 100 beds. They are tasked with providing preventive care, minimal health care and rehabilitation services.

Secondary hospitals tend to be affiliated with a medium size city, county or district and contain more than 100 beds, but less than 500. They are responsible for providing comprehensive health services, as well as medical education and conducting research on a regional basis.

Tertiary hospitals round up the list as comprehensive or general hospitals at a city, provincial or national level with a bed capacity exceeding 500. They are responsible for providing specialist health services, perform a bigger role with regards to medical education and scientific research and they serve as medical hubs providing care to multiple regions.

Further, based on the level of service pro-



vision, size, medical technology, medical equipment, and management and medical quality, these 3 grades are further subdivided into 3 subsidiary levels: A, B and C (甲[jiǎ], 乙[yǐ], 丙[bǐng]). This results in a total of 9 levels. In addition, one special level - 3AAA (三级特等) - is reserved for the most specialised hospitals.

**This system is hence referred to in Chinese as 三级十等 (sānjí shíděng), 3 grades and 10 levels.**

In China, public hospitals are considered the most important health facilities, providing both outpatient and inpatient care. They also bear major teaching, training and research responsibilities.

However, several problems posts challenges to accessible and affordable hospital healthcare. To begin with, prices for medicine are set unreasonably high to make up for low service price. Doctors are also dissatisfied about their income. Secondly, great tension in patient-doctor relationships sometimes causes conflicts or even violence against doctors (yīnào 医闹). Furthermore, patients are not distributed by seriousness among hospitals and lower health facilities, which leads to over-consumption of high-level medical resources in hospitals.

The aim of hospital reforms is to maintain the social welfare nature of public hospitals and encourage them to perform public service functions, thereby providing accessible and affordable healthcare services for the people.

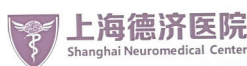
**Reforms started as pilot in 2010 in 16 cities.** In 2015, a new version of guidelines came out with extra attention given to county-level hospitals. In 2017, public hospital reforms expanded with focus on eliminating drug price difference between hospital pharmacies and wholesales.

Various studies have shown mixed results on the effectiveness of the results. Case survey found that reforms in compensation systems increased service quantity and quality but caused drastic drop in management efficiency. Regional evidence showed that total out-of-pocket expenditure actually increased, despite

the decrease in inpatient medications. Health staff's job satisfaction increased while exposed to higher pressure and overtime working.

The first hospital we visited in our tour was the Shanghai Neuromedical Center, a proprietary hospital in Shanghai specialised in clinical neuroscience.

### Shanghai Neuromedical Center



Shanghai Neuromedical Center was founded in 2013 and has been noted as a key livelihood project of the 12th Five-Year Plan of the government of Putuo

District and one of the designed public healthcare hospitals in Shanghai. In addition, it's the largest emergency center located in the northeast of Shanghai.

**Equipped with 350 beds, it is a specialist hospital built on the scale of tertiary specialized hospital standards and excels in several comprehensive key areas, especially clinical neuroscience.**

Shanghai Neuromedical Center receives patients from all over China, since not so common diseases are treated in this hospital.

In 2017, Shanghai Neuromedical Center became the Shanghai Clinical Medical School of Qingdao University (the Ninth School of Clinical Medicine).

It is the only one of the proprietary hospitals in Shanghai to recruit postgraduates







and post-doctoral students, and to realize the key university teaching hospital from undergraduates – postgraduates – post-doctoral training.

Key areas of Shanghai Neuromedical Center include functional neurosurgery, neurosurgery, internal neurology, neurorehabilitation and emergency intensive healthcare. But it is not just a specialist hospital. In accordance with the standards of general hospitals, Shanghai Neuromedical Center has set up key departments such as cardiology, general medicine, general surgery, triage, orthopaedics, pain rehabilitation, TCM orthopaedics & traumatology, medical imaging and medical nutrition.

**Its performance results for brain and spinal cord tumour operations rank among the top in the country, and epilepsy surgery operations have reached**

**internationally advanced levels.** More than 1,200 spinal cord operations and more than 1,500 operations concerning neuromuscular diseases have been performed successfully in Shanghai Neuromedical Center.

First among Shanghai hospitals in providing a ketogenic diet for the treatment of refractory epilepsy in children and malignant tumors. It also possesses Asian's largest nerve electrophysiology center. Introduced the **first neurosurgery operating robot-ROSA** in Shanghai and other six provinces of east China. All directors of departments in Shanghai Neuromedical Center are from tertiary hospitals.

Patients suffering from epilepsy are controlled 24h/24h thanks to electronic stations. The more seriously ill have a per-

sonal video monitor directly connected to the consulting room.

Along the hospital corridors there are many **red banners with gold writings** hung on the walls, donated to Shanghai Neuromedical Center by patients who wanted to thank doctors and hospital staff for their caring.

At present, among the leaders of all disciplines there is 1 current national director; 1 former national director; 6 national committee members, and 3 shanghai Municipal committee members. Among them, 8 deans enrol postgraduates and 3 deans recruit post-doctoral students.

**In our visit we have been accompanied by Dr Guo Hui who is founder, chairman and director of Shanghai Neuromedical Center.** He decided to establish this new clinic to enhance the Chinese



public hospitals situation, since they are in a dreadful state. At the moment his purpose is to buy and improve another public hospital in Henan. Dr Guo Hui, who is post-doctoral of medicine, professor, chief physician and graduate tutor, won the Shanghai "Top Ten Doctors" nomination award in 2015. After obtaining a PhD degree from the School of Medicine at the Shanghai Jiaotong University, he moved to the United

**Key areas include functional neurosurgery, neurosurgery, internal neurology, neurorehabilitation and emergency intensive healthcare.**

States to pursue a postdoctoral degree at the University of California in San Francisco. He served as an assistant professor of neurosurgery at New York University Medical Center after graduation. He decided to return to China due to the "outstanding overseas talent introduction plan" launched by the State Ministry of Education. Since then, he served as director of neurosurgery, leader of functional neurosurgery and director of the wards & laboratories at Beijing Hospital and Shanghai Tongji University Affiliated Hospital of East China in succession. Dr Guo Hui has been engaged in neurosurgery treatment and research for more than 20 years, since 1993. He is especially adept at the treatment of functional neurological diseases, such as: epilepsy, Parkinson's disease and cerebral palsy

as well as other neurosurgical diseases. The operation quantity and clinical therapeutic effect of epilepsy surgery performed by Dr Guo Hui, ranking the leading position in Shanghai, have reached internationally advanced levels. In the afternoon we continued our visit to Zhongshan Hospital, a public clinic where Dr. Zhu Chouwen led us in the various departments of the hospital.







复旦大学附属  
**中山医院**  
ZHONGSHAN HOSPITAL

## Zhongshan Hospital

Located in 180 Fenglin Road in Shanghai, Zhongshan Hospital, a Budget Management Unit under the National Health and Family Planning Commission, is a comprehensive teaching hospital affiliated to Fudan University.

Founded in 1927, the hospital was the first large-scale general hospital managed by Chinese people. Previously affiliated to Shanghai Medical College, the hospital was first named Sun Zhongshan Memorial Hospital to commemorate Mr. Sun Yat-Sen, pioneer of the Chinese democratic revolution. It was later renamed Zhongshan Hospital. The hospital has been called Zhongshan Hospital affiliated to Shanghai First Medical College and Zhongshan Hospital affiliated to Shanghai Medical University in post-liberation China. It started using its current name from 2001. In December 1991, Zhongshan Hospital was approved by the Ministry of Health as one of the first top tertiary hospitals in Shanghai. **With nearly 80 years of development, the headquarters of Zhongshan Hospital now cover an area of 96,501.6 square meters, while the total construction area of the hospital reaches 326,955.28 square meters.** It has 2,005 regular hospital beds and 52 clinic divisions. In 2017, the hospital handled 4,152,700 outpatient and emergency visits, discharged 153,261 patients and received 98,146 hospitalized patients for surgery. Among the over 4,345 hospital staff, there is 1 academician of Chinese Academy of Sciences, 2 academicians of Chinese Academy of Engineering, 1,633 doctors, 1,770 nurses, 584 technicians, 574 professors and associate professors and nearly 400 staff members of management & other staff.

The hospital possesses a wide range of specialties and subspecialties with strong comprehensive strength. Diagnosis and treatment of heart diseases, liver cancer, kidney and lung diseases are the main and featured services of Zhongshan Hospital, taking the lead in the specific fields at home. The hospital has 18 specialties under National Construction Projects of Key



Clinical Specialties, namely, Gastroenterology, Clinical Laboratory, Anaesthesiology, Cardiovascular Medicine, Endocrinology, Thoracic Surgery, Major Coronary Artery Surgery, Clinical Nursing, Traditional Chinese Medicine Encephalopathy Section, Respiratory Medicine, Nephrology, General Surgery, ICU, Oncology, Medical Imaging, Organ Transplantation, Emergency Medicine and Neurology; 3 Clinical Centers (top priorities) for Cardiovascular and Kidney Disease and Liver Cancer and 8 attached Clinical Quality Control Centers of Shanghai Municipality for Nosocomial Infection, Ultrasonic Diagnosis, Respiratory Medicine, Cardiovascular Medicine, Cardio-Thoracic Surgery, General Surgery, Traditional Chinese Medicine Work of General Hospitals and Haemodialysis. The hospital has several advanced medical

equipment, including Tomotherapy, PET-CT, 320-row and 640-slice high speed spiral CT, tablet-style DSA, linear accelerator, 3.0T MRI, DVSS, SPECT, DR, ICU, Distance Medical Education System and so on.

**Since they daily receive a lot of patients from all over China – and from other counties as well, especially from South Korea and South East Asia – fast and accurate equipment is indispensable: GE Healthcare, Siemens, United Imaging are the most used brands in the radiology department, which receives every day 500/700 patients from 7 a.m. to 10 p.m.** In a medium-sized hospital we can find 1 or 2 x-ray machines, whereas Zhongshan Hospital has 10 x-ray machines available to output more than 1,000 x-rays every day.







**Diagnostic Radiology Department** was founded by Prof. Rong Dushan, who was one of the founders of radiology in China. With the joint efforts of Prof. Rong Dushan, Prof. Lin Gui and Prof. Zhou Kangrong, the department has developed into a well-known imaging department with leading techniques in China. The department boasts strong technical strength. It has 118 medical staff including 40 physicians and 78 technicians. The department is equipped with advanced devices and equipment, such as dual source 320 slice CT; 7 sets of MRI, including 4 sets of 3.0T and 3 sets of 1.5T; 14 sets of DR (for gastrointestinal, IVP and bedside examination); 2 sets of digital mammogram machines, 3 flat panel digital subtraction angiography (DSA) machines, and 2 bone density scanners.

Over the past 5 years, the number of patients received in the department has increase by an incremental 10% every year.

The Diagnostic Radiology department has advantages in the following aspects:

- cancer imaging diagnosis of hepatoma, tumour imaging with small hepatocellular core carcinoma and early diagnosis and post treatment assessment of pancreatic cancer, renal cell carcinoma, breast cancer, gastric cancer, colorectal cancer;
- non-invasive imaging diagnosis of coronary heart disease and other vascular disease;
- imaging diagnosis and functional assessment of early hepatic fibrosis and cirrhosis;
- assessment of organ transplant before and after operation with combined imaging technique.

The establishment of the Diagnostic Radiology Specialist Outpatient Clinic fundamentally changed the old work model of only reading images without contact with the patient. Specialists now directly communicate with patients, investigate patients' medical history and perform examinations. Combined with rich imaging diagnostic and clinical experience, direct patient contact enables our physicians to individualize clinical imaging diagnosis and improve the accuracy of the diagnosis.

Additionally, the department also provides senior specialist outpatient clinic. The nationally renowned radiology professors Prof. Zeng Mengsu and Prof. Jiang Lin provide quality, convenient and focused VIP consultation to patients.







As Shanghai's first HIMSS EMRAM certified Level-6 hospital, Zhongshan Hospital endeavours to build up and improve the clinical information system based on electronic medical records and independently create a "Digital Hospital". Another department worthy of attention is the **Outpatient Pharmacy**. There are 10 Outpatient Pharmacies in Zhongshan Hospital, we visited the one located at the hospital entrance. **Every day more than 2,000 people receive assistance in this pharmacy and 6,000 kinds of drugs are available – for liver and cardiovascular diseases above all.** Since Zhongshan hospital pharmacists must deal with a lot of people and medicines, the hospital has purchased an **automated drugs delivery machine**, which processes 50 prescrip-

tions in 1 hour. One of the pharmacists has the delicate and not easy consulting role, recommending patients on the best medication or specifying how to use it, whereas the others just provide medicines according to the doctor's prescription. In addition to outpatient pharmacy, the **Department of Pharmacy** includes a pharmacy of traditional medicine, an emergency pharmacy, an inpatient pharmacy, a transfer pharmacy, an operation pharmacy (a three-level drug administration center), a drug storehouse, a warehouse for infusion and disinfectants, pharmacy intravenous admixture service (PIVAS), a clinical pharmacy room, a hospital preparation room, a drug analysis room, a pharmaceutical research laboratory and other divisions. There are 182 workers in the department, 7 with senior professional

titles, 1 with doctoral degree, 17 with master's degree, 78 with bachelor's degree and 68 with college degree. They provide comprehensive professional services in various aspects of pharmacy. Prof. Lyu Qianzhou is the director and academic leader from 1998, and Associate Chief Pharmacist Zhang Jianzhong is deputy director.

Finally, after being accurately clothed with white coats and medical face masks by the department staff, we visited the **Department of General Surgery**.

The Department of General Surgery of Zhongshan Hospital was founded in 1946 by the renowned professor of surgery Shen Kefei. General Surgery is now



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a Key Constructive Discipline of Project 211, a National Key Subject of the Ministry of Education as well as a National Key Subject of Health and Family Planning Committee. After over 60 years of development and dedication, the department enjoys a national reputation with its advanced technology, rigorous work style and selfless work ethics. Many world-famous surgeons have worked here, including Cui Zhiyi, Feng Youxian, Wu Zhaoguang, Meng Chengwei, Wang Chengbei, Wu Zhaohan and Qin Xinyu. The department has 198 beds. It handles 130,000 outpatient visits, 12,000 emergency room visits and performs 8,000 medium or major surgeries yearly. The overall level of the department's medical treatment, teaching and research has been in the national forefront. The department is, in particular, characterized by its research in the field of clinical nutrition, gastrointestinal surgery, biliary surgery, pancreatic surgery and gastroenteric motility, among which studies on gastrointestinal cancer and minimally invasive surgeries have reached the international advanced level.

Currently, with the development of subspecialties as its focus, multidisciplinary treatment, endoscopy and minimally invasive surgery as important platforms, **the department is gradually growing into a diagnostic and treatment center for untreatable and critical illnesses in the field of general surgery nationwide and a teaching and training ground for**

#### **standardized diagnosis and treatment.**

The department's academic team is highly qualified and appropriately structured, with more than 10 members taking core academic positions in professional organizations such as the Chinese Medical Association. In the future, the Department of General Surgery will continue to uphold the spirit of Zhongshan Hospital, put patients first, work diligently to accumulate knowledge and experience in order to become Asia's leading center for diagnosis, treatment, education and clinical research of general surgery diseases.

Zhongshan Hospital has 13 National Key Disciplines, 2 Provincial Engineering Research Centers, 4 Provincial Key Laboratories, 2 Key Disciplines of Shanghai Municipality, 2 Key Disciplines of Clinical Medicine of Shanghai, 3 Key Medical Disciplines of Shanghai Municipality, 2 Key Weak Disciplines of Shanghai Municipality, 2 Key Disciplines of Public Health of Shanghai Municipality, 7 of research institutes in Shanghai and 12 of research institutes in Fudan University.

Since 2005, the hospital has undertaken more than 20 projects of Important National Basic Research Program of China (973 Program), National High Technology Research Program of China (863 Program), National Support Plan, and other major programs of specific subject studies, 2 projects of the Program for Innovative Research Team of the Ministry of Educa-

tion, an Innovative Research Group Project of National Natural Science Foundation of China, nearly 500 other projects of the National Natural Science Foundation of China and over 70 Provincial Personnel Training Projects of various types.

The annual research fund has reached 100 million yuan. The quantity and quality of SCI theses have been increasing steadily, with 471 papers published in 2014 and the total impact factor reaching 1,477.777 scores.

**In the recent decade, the hospital has been granted 8 national awards, one of which is first prize and 52 provincial awards, among which 15 are first prizes. Meanwhile, the hospital has applied for 286 patents, with 194 licensed at home and 8 licensed abroad.**

Zhongshan Hospital has set up 18 doctoral programs, 21 master's programs and one mobile post-doctoral station for Clinical Medicine of Fudan University. There are 138 Master supervisors and 91 doctoral supervisors among its staff. The hospital has 15 standardization training bases for residents and 28 standardization training bases for specialist physicians approved by the National Health and Family Planning Commission and the Shanghai Health and Family Planning Commission. It is a demonstration standardization training base for residents and the first demonstration (pilot) training base for general practice teachers approved by the National





Health and Family Planning Commission. Each year the hospital runs the Continuing Medical Education Program for over 60 times, recruiting more than 700 visiting doctors, thus training many senior medical talents for the country.

In recent years, the hospital has been honoured a second prize of National Teaching Achievement Award, a special prize and a second prize of Shanghai Teaching Achievement Award, and as main research institute, a special prize of National Teaching Achievement Award and Shanghai Teaching Achievement Award respectively.

Zhongshan Hospital has been rated as Model Unit in Shanghai for 28 consecutive years, and granted the National

Model Unit, National Labour Award, National Advanced Unit of Hospital Medical Insurance Management, Model Unit of Shanghai Health System, National Most Popular Top Tertiary Hospital, Shanghai Excellent Hospital of High-Quality Nursing Service, Shanghai Advanced Unit of Hospital Transparency and Democratic Management, Shanghai Volunteer Service Base and other important honorary titles.

Adhering to its "patient-centered" spirit and advocating its motto of being "rigorous, pragmatic, united and dedicated", Zhongshan hospital endeavours to build itself into an Asian leading and internationally renowned hospital with its rigorous professional style, exquisite medical skills and strict scientific management.

**Both the visit to Shanghai Neuro-medical Center and Zhongshan Hospital helped us change our perception of the Chinese hospital system, whether private or public clinics.**

Friendly and experienced staff, English-speaking physicians, latest generation medical equipment, clean and tidy rooms: that's the common point between these two organizations and that's what we didn't expect to find in a Chinese hospital.

Especially the award-winning Zhongshan Hospital surprised us with its huge amount of first-rate radiology machineries, various departments that can handle many different diseases, numerous employees and a wide, full bloom garden which makes you forget to be in a hospital.

