



Implementation of obstetric anesthesia service in Chinese private hospitals: A new approach by No Pain Labor & Delivery – Global Health Initiative

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Abstract:

The expansion of public medical facilities and health care providers in China has not kept pace with the rapid increases in government health care spending. As a result, patients are willing to pay more for better services and advanced technologies. Therefore, private hospitals have expanded rapidly to meet the ever-growing demands. The recent reversal of China's "The one couple one-child policy" will further contribute to China's increasing demand for maternity hospitals. Currently many maternity hospitals belong to specialty hospital chains which operate under different management models. Neuraxial labor analgesia techniques, the most effective and popular treatment for labor pain, are often refused to pregnant women in China, because of multiple reasons, including poor reimbursement rates and inadequate manpower. The No Pain Labor & Delivery – Global Health Initiative (NPLD-GHI) is an organization that focuses on promoting utilization of neuraxial labor analgesia and improving patient safety in China. It has demonstrated numerous successful implementations of obstetric anesthesia services in Chinese public hospitals. Private maternity hospitals request similar assistance to establish obstetric anesthesia services for their patient population. The NPLD-GHI explores a new option to help private hospitals to establish obstetric anesthesia service.

Key Words: Obstetric anesthesia, hospital, pain management

The Chinese government ended "The one couple one-child" policy and will allow all married couples to have two children. The new policy can result in a baby boom. There is an increasing demand for maternity

hospitals. Private maternity hospitals have expanded rapidly. No Pain Labor & Delivery – Global Health Initiative (NPLD-GHI) focuses on reducing the high cesarean delivery rate and the underutilization of neuraxial labor analgesia in China. NPLD-GHI has successfully helped many public hospitals establish obstetric anesthesia. Private maternity hospitals request assistance from NPLD-GHI. The organization explores different approaches to assist private hospitals. The goal of this manuscript is to review the history of private hospital development, the management model of private hospitals, and the successful impact of NPLD-GHI in China. The article also describes the NPLD-GHI's new approach to assist private hospitals with establishing successful obstetric anesthesia service.

Development of private hospitals in China

Health care expenditures in China are growing quickly. The government's annual expenditure is estimated to rise at an average rate of 11.8 percent per year in 2014-2018 (1). In 2013, health care expenditure in China reached RMB 3.2 trillion (1). It has continued an annual growth rate of 17.2% over the past 9 years (1). According to the *National Health and Family Planning Commission* (NHFPC) "Healthy China 2020" report, health care expenditures were planned to reach 6.5-7% of GDP (2), therefore health care expenditures would total RMB 6.7 trillion by 2020.

However, the growth of medical facilities and health care providers did not keep the pace with the rapid increases in the government healthcare spending. Between 2004 and 2013, the number of medical facilities has grown by only 20% and the number of healthcare professionals by 50% (1).

As China grows to become the world's second-largest economy, Chinese people have gathered more wealth and gained more health care knowledge. They demand an increase in personalized care. They are willing to pay for better services and advanced technology. Therefore this patient population has become the driving force behind the growth of privatized health care.

In 1985, the State Council issued the Report on the Regulations of Reforming of the Health Work, which proposed "to loosen up policy control, simplify administration and release administrative authority, raise funds through multiple channels and pave the way for the development of the healthcare sector." (3) The State Council's 12th Five-Year Plan clearly advised that patient volume in private hospitals should account 20% of the total volume by 2015 (4). Private hospitals in China in recent years have grown at about 17% per year. According to the annual report, the number of private hospitals has reached 11514, which comprises 46% of total hospitals in the country (5). The number of private hospitals visits was 145.81 million and the number of discharged patients from private hospitals was 8.66 million in the first half of 2014(1). Yet the number of visits and the discharged patients in private hospitals only accounted for 10% of the total patient volume, which failed to meet the State Council target of 20% by 2015 (1). Public hospitals remained the absolute majority health care providers in China. The Chinese government listed public hospital reform as one of its top priorities. The removal of drug mark-ups forced public hospitals to overhaul their revenue streams. Hospitals lost their largest revenue source: in 2012 drug revenue made up 39.7% of total income, while government subsidies accounted for only 7.5% (1). Under these reforms, public hospitals lost both health care providers and patients. Therefore private hospitals expanded rapidly. Most private hospitals are relatively small. About 86% of the private hospitals have fewer than 100 beds. Only 1% of private hospitals are qualified as level III hospitals. The service capacity of private hospitals is also very limited. The medical income of all private hospitals is less than 7% of total medical incomes in the country. Therefore they are unable to compete with public hospitals.

Development of Private Women Hospitals in China

Chinese government ended "The one couple one-child" policy and allowed all married couple to have

two children. This new policy will boost the birth rate. There is increasing demand for maternity hospitals. Private maternity hospitals have been leading the *growth amongst the private hospital* market. The number of maternity hospitals increased more than twenty fold between 2003 and 2012 with a compound annual growth rate of 39% (1). Private maternity hospitals overall account for over 64% of women's hospitals in China (6).

Management models of private hospitals in China: *Comprehensive hospital*

Some private hospitals have progressed from specialty hospitals into comprehensive hospitals. A good example is United Family Hospital (UFH), which was initially created as a women hospital. The leadership of UFH realized that patient conditions were often complicated and required multidisciplinary care. In order to provide good maternity service, the hospital was expanded from single specialty into multispecialty. It has also collaborated with public hospitals. According to UFH annual report, surgery accounted for 19.6% of their total incomes, obstetrics and gynecology for 13.9%, and pediatrics for 8.2% (6). The hospital incomes also came from internal medicine, dental, emergency, family medicine and other supporting medical services. UFH has become a comprehensive hospital. Cooperation with the public hospitals has also helped UFH establish a medical service platform to connect patients and doctors.

Specialist Hospital Chains

These hospitals chains are expanding from city to city and remain specialty hospitals by adopting strategies to ensure uniform management and care. They continuously strengthen their IT systems, which establish a powerful connection among their branches. They set up a strong quality control group at the corporate level. These quality control groups create and enforce the principles and practice guidelines for all the hospitals that they supervise. The quality data of each hospital are regularly sent to the corporate quality control center for assessment. A representative will routinely visit each hospital to assess medical quality, patient satisfaction, etc.

An example of a specialty hospital chain is Fuxing Maternity Hospital in Fuzhou, China. Fuxing Maternity Hospital is a branch of the private specialty hospital chains which is managed by Fujian Yi Sheng Medical Investment Group. Fuxing Maternity Hospital was built in 2004 and is now the second busiest maternity hospital in Fuzhou. The hospital leaders

have established the hospital practice guidelines ever since the hospital was built. These practice guidelines are strictly enforced.

Standardized practice: The hospital leaders require their employees to follow all legal requirements, comply with the standardized management guidelines and standardized procedure protocols. They believe that standardized practice can ensure patient safety and quality of care.

Trust: The trust between patients and physicians establishes the basis for the physician-patient relationship. The hospital leaders prohibit their members from providing unnecessary care for patients, for example unnecessary testing, medications, and procedures. The patients should be charged reasonable fees. Without honesty there will be no trust.

Care: The hospital leaders believe that a health care organization should provide excellent care for both their patients and own staffs. The hospital leaders advocate that medical professionals should treat every patient like their own family member, and every colleague like their own brother and sister.

Epidural analgesia in China

Neuraxial labor analgesia techniques are the most effective and popular treatment for labor pain. In Canada, the use of neuraxial labor analgesia varies from 30% to 69% (7). The use of epidural analgesia in the US has tripled between 1981 and 2001, with 60% of women using neuraxial labor analgesia in large hospitals (8). However, in China, the epidural rate is very low. There are several reasons why the utilization of labor epidural is low in China.

1. **Insufficient public awareness and education:** The majority of pregnant women wish to have vaginal delivery, but they do worry about labor pain and infant safety. The patients do not know that neuraxial labor analgesia is the least damaging to the neonate and the most effective technique for labor pain relief.

2. **Insufficient knowledge of obstetricians:** The majority of Chinese obstetricians do not have experience with neuraxial analgesia. They are concerning about its safety, impact on daily obstetric practice, and possible complications (9).

3. **Shortage of anesthesiologists:** OB anesthesia requires teamwork among anesthesiologists, obstetricians, nurses, etc. The shortage of anesthesiologists in China makes this teamwork

almost impossible. Anesthesiologists are overwhelmed with the operating room workload. There is not enough manpower for OB anesthesia.

4. **Billing problems:** There are no billing codes for OB anesthesia. The government has not adjusted the billing system for 10 years. Without a billing code, patients cannot be billed for the medical service. Without an adequate revenue stream, it becomes difficult for hospitals to hire additional manpower and purchase new equipment and supplies.

Implementations of obstetric anesthesia service in China:

No Pain Labor & Delivery – Global Health Initiative (NPLD-GHI, 无痛分娩中国行) is a non-profit group which is affiliated with the Northwestern University Feinberg School of Medicine. It aims to decrease the high cesarean delivery rate and the under-utilization of neuraxial labor analgesia in China (9). The NPLD-GHI applies a multidisciplinary method to accomplish its goal of increasing the usage of neuraxial labor analgesia by 10% by creating 10 obstetric anesthesia training centers over a 10 year period (9). The organization assists local hospitals to establish self-sustaining obstetric anesthesia systems that will allow them to deliver safe and effective obstetric anesthesia (9). They are achieving their goal by regularly educating anesthesiologists, obstetricians, OB nurses, hospital administrators, and patients. The NPLD-GHI has organized many medical missions to China. The physicians from the United States applied multidisciplinary bedside education, daily goal setting, and daily debriefing. They advocated that women requesting epidural analgesia during labor should not be deprived of this service based on poor reimbursement or inadequate manpower.

Numerous stories of successful implementation of obstetric anesthesia services in Chinese public hospitals have been reported. A clinical research was performed at Shijiazhuang Obstetrics and Gynecology Hospital in China. The result was published in International Journal of Gynecology and Obstetrics (10). Data was collected before and after implementation of obstetric anesthesia. Neuraxial analgesia rate was 0% before the implementation and 33.5% after the implementation. Cesarean delivery rate was 40.5% before the implementation and 33.6% after the implementation. The authors concluded that neuraxial labor analgesia reduced the cesarean

delivery rate and enhanced obstetric and neonatal outcomes (10).

In order to overcome shortage of manpower, and permit the maximum number of pregnant women to benefit from neuraxial analgesia, the American Society of Anesthesiologists (ASA) and the American College of Obstetricians and Gynecologists (ACOG) believe that labor and delivery nurses should not be excluded from participating in the management of pain relief during labor (11). After labor and delivery nurses have been properly trained and have demonstrated current competence, they should be able to participate in the management of epidural infusions, including adjusting dosage and discontinuing infusions (11).

NPLD-GHI experience in private women hospitals

In China, there is growing demand for establishing obstetric anesthesia service in private hospitals. More and more pregnant women are delivering babies in private hospitals and requesting neuraxial labor analgesia. NPLD-GHI explored a new approach to help private hospitals train their health care providers and enhance their clinical skills and knowledge. With the rapid development of new technology, medical teaching has gradually transitioned from traditional media to the mobile audio and video applications via Internet. A brand new approach of online communication, which is called social network services, has become very popular. Social network has been used to interact, socialize, and share information, comments, photographs and videos, as well as communicate with colleagues (12). Social network has become a vital source of information. WeChat has recently become the most widespread communication application in China. WeChat, developed by the Chinese company Tencent, is a free instant messaging service application for smartphones (13). WeChat is the most popular social networking platform in China and has more than 600 million users worldwide.

Tele-education is defined as the application of information and communication technologies (ICTs) in the delivery of distance learning. Tele-education has been used for many years by health care professionals (14). Distance learning is enhanced through applications such as WeChat. A developed web-based intelligent educational program of obstetric anesthesia was delivered by WeChat. The telecommunications technology of WeChat allows

real time interaction between local hospital providers and US physicians. Real time bedside clinical skills training and emergency management suggestions are provided by US physicians. As a result, social networking enhanced collaborative learning. Hospital visit: The US physicians provided well organized multidisciplinary bedside education, daily target setting, and end-of-day debriefing to the local Chinese health care providers. The Chinese colleagues' clinical skills and knowledge were further enhanced through physical hospital site visits by US physicians. The local Chinese hospitals provided lodging, dining, traveling coverage to US physicians to minimize their financial losses. This arrangement assured the sustainability of these medical missions. These new strategies (Tele-education and hospital site visit) were implemented in Fuxing Maternity Hospital. After 3 months of implementation, the usage of neuraxial labor analgesia increased from 0 to 40%, the primary cesarean section rate decreased from 27% to 22%, and the episiotomy rate reduced from 35% to 30%. The success of this strategy has established a new model for NPLD-GHI to apply when it assists private hospitals to implement obstetric anesthesia services in China.

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