For the fourth consecutive year, Stony Brook Medicine was invited to participate in the “NO Pain Labor N’ Delivery” Global Health Initiative (GHI) to mainland China this past August.

BACKGROUND

Founded in 2006 by Dr. Ling Qun Hu, a Chinese-Canadian anesthesiologist at Northwestern University – Feinberg School of Medicine, the goal of this ALL volunteer initiative “NO Pain Labor N’ Delivery” is to increase awareness of neuraxial labor analgesia in China while simultaneously improving the safety and delivery outcomes of the mothers and newborns.

From its inception, the challenge for the “NO Pain” project has been how to change the current neuraxial labor analgesia practice in China, whose estimated population is around 1.34 billion and whose yearly birth rate is estimated to be 16 million. For 15 years, there was an effort to introduce epidural labor analgesia into China’s OB practice, but as of 2006, it was being utilized less than 1% of the time. By merely analyzing China’s current demographic statistics, one can easily see that if there were an increase by as little as 10% in the administration of neuraxial labor analgesia, the results would be staggering --- over 1.6 million laboring Chinese women would have safe pain relief during childbirth! This simple change could cause a huge impact. Then there is the possibility of a domino effect occurring -- that as awareness and acceptance spreads, the increase administration of the epidural labor analgesia may subsequently cause a reduction in the number of cesarean sections performed in China. The current overall rate of cesarean sections is stated to be >46% (12% without any medical indication).

From his medical mission work prior to 2006, Dr. Hu realized it is better to “teach a man to fish rather than give him a fish.” So the cornerstone of his “NO Pain’ project became using medical education as a translational tool. He felt that if local healthcare providers of a community were taught to provide high quality care then it would result in a broader, a more effective, and more a permanent solution.

With emphasis on advanced training for the Chinese medical personnel, obstetric anesthesia conferences/symposiums are presented at every site during the mission. Additionally, Dr. Hu established a website that Chinese practitioners can access to obtain additional information, to pose questions or to carry on discussions. For laboring parturients, perinatal education is offered during the mission, including distribution of the Chinese edition of “Easy Labor: Every Woman’s Guide to Choosing Less Pain and More Joy During Childbirth” written by Dr. William Camann, director of OB Anesthesia at Harvard University’s Brigham Women’s Hospital.

As part of Dr. Hu’s 10 year plan (2008-2018) for “NO Pain Labor N’ Delivery” the goal is to establish at least ten (10) dedicated academic obstetric anesthesia training centers across mainland China.

THE 2012 TEAMS & HOSPITALS

The 2012 contingent was the largest “NO Pain Labor N’ Delivery” group to-date, comprised of 59 volunteers – anesthesiologists, OB/GYNs, neonatologists, delivery nurses., prenatal educators, pediatricians, translators and IT personnel. Group members included medical personnel from the university affiliated hospitals of Northwestern, Harvard, Ohio State, Texas, Tufts, John Hopkins, Duke, Rush, Michigan, and Stony Brook. Chinese student volunteers from Hangzhou Dianzi University, Taishan Medical Univeristy and Guangzhou Medical University.
also participated. The contingent was divided among three (3) pre-selected university maternity hospitals across GuangDong province in the cities of Guangzhou, Foshan and Shenzhen.

The Stony Brook team was assigned to the Bao’an Maternal and Child Health Hospital in Shenzhen. In recent years, the birth rate at this hospital has been around 7,700 per year and it is steadily increasing. Plans are already in the works to build a larger maternity hospital in the Bao’an district by 2014.

Joining me for this 7-day, 24-hour coverage, multi-disciplinary, one-on-one, “learn and use” obstetric anesthesia training experience was Stony Brook medical student (MS-2) -- Yuchen Liu. Yuchen, who already has his eyes set on becoming an anesthesiologist, was chosen not only based on his medical knowledge and his life experiences, but also because of his fluency in Mandarin Chinese and his skills with medical translation. During his 12-hour shifts, he was consistently energetic and worked tirelessly to assist all of his teammates when called upon to translate. Yuchen was an extremely valuable asset to the team’s success at Shenzhen. His efforts were personally recognized by both Dr. Hu and Dr. Hua Zhou, the hospital president.

Another volunteer was my wife Nancy (a retired scientific programmer/analyst). She assisted the mission’s Chinese IT personnel with testing and debugging, as well as, performing data entry for the re-designed and updated web-based patient information system called “Baby on Board” (aka “BOB”). To assist in data collection for evidence-based medicine, as well as, translational medicine, Dr. Hu designed and developed this automated system specifically for his “NO Pain Labor N’ Delivery” project. For the 2012 mission, the redesign and programming of the software was out sourced to Chinese IT volunteers from Hangzhou Dianzi University.

SHENZHEN

One might wonder, where is Shenzhen, China? First, let me ask: “Do you own or use an iPhone, iPad, iPod, Kindle, PlayStation, Xbox 360, HP Laptop or a cell phone?” If you do, then most probably your device was made in Shenzhen. This emerging megalopolis is the epicenter, where all these consumer electronics are being produced and/or assembled, thus earning this modern city the designation as China’s “Silicon Valley”.

Less than 32 years ago, Shenzhen, which is lies just north of Hong Kong on the Pearl River was a quite, rural fishing village of approximately 30,000 inhabitants. In 1980, it became China’s first – and most successful – Special Economic Zone (SEZs). [The SEZ was created to be an experiment for the practice of market capitalism within a community guided by the ideals of Chinese socialism – aka “communist capitalism”.] Today, Shenzhen’s population is estimated to be over 11.5 million making it one of the fastest growing cities, as well as, the largest manufacturing center in the world. Even more amazing is that it is estimated that 6 million of its population is composed of migrant workers, who live in factory dormitories during the week.

CHALLENGES to CHANGING CLINICAL PRACTICE in CHINA

NO Pain Labor N’ Delivery’s primary focus is to change practice methods-ideology as opposed to performing direct patient care service. To quote Dr. Hu: “Providing epidural analgesia is more than just the procedure itself.” Provisions need to be made for a 24/7 obstetric analgesia support service to ensure safety for both mother and baby. This requires all sub-specialists to work together – obstetrics, anesthesia, neonatalogists, L&D nurses, and patient educators. This is not the current practice in Chinese hospitals.
The major challenges that were known prior to beginning this 2012 initiative in China included:

- Labor analgesia rate <1% after a 15 year effort
- C-section delivery rate > 46%
- 24-hour anesthesia services available in < 5 hospitals in all of mainland China
- While billing code changed in early 2012 to pay for epidural services, there is no insurance reimbursement; everything related to pt’s labor analgesia costs are paid for directly by the patient
- 70-75% of obstetricians and 45% of anesthesiologists believe that neuraxial analgesia is NOT the first choice for labor analgesia

The GHI begins first with a review of the clinical documents that have been developed over the years in both Mandarin and English for the “NO Pain” missions including but not limited to protocols, guidelines, medication lists, equipment list for anesthesia cart, clinical duties for obstetrics, anesthesia, and L-D nursing staffs, admission record of the OB, H&P forms for the anesthesia team, analgesia record sheets, and L-D nursing flow sheets. By 2013, most of the paper documents/forms will be phased out as they will have been integrated into the web-based patient information system -- “Baby on Board” – executed in both English and Mandarin.

To have our Chinese colleagues incorporate and utilize these documents, and/or the “BOB electronic record, as part of their daily clinical practice required every medical specialist on the team to utilize every aspect of his/her medical knowledge and personal experiences to initiate these changes. Expert skills in listening, communication, organization and collaboration became paramount. Each incremental change required heightened communication across teams – both hospital and mission staffs – with consistent, gentle re-enforcement and then evaluations by both teams. Fundamental to all GHIs is professionalism, flexibility and adaptability of all persons involved, as well as, an understanding of the cultural traditions and differences in medical practice.

A few observations from Day 1 regarding the clinical obstetric and anesthesia practices in Shenzhen definitely highlight the differences in medical practice between China and the West:

- 100% episiotomy rate for vaginal
- Must C-section ALL pre-eclamptics
- Must C-section ALL meconium stained amniotic fluid
- Tocolytics are not used after 34 weeks of gestation
- After 4 cm, mother has 4 hours to deliver before she has a mandatory surgical delivery
- Allowable second stage delivery time for primips is 2 hours; multips is 1 hour
- Parturients often found lying supine during labor even though special wedges are available for uterine displacement
- Laboring patients often found eating and drinking
- No emergency anesthesia cart available; no difficult airway cart available
- No pediatric emergency airway equipment in labor room
• No dedicated OB operating room – shared with other surgeons; also no dedicated OB emergency OR
• Inconsistent use of monitors, recording of vital signs, and performing H&Ps
• Discrepancies with documenting of APGAR scores; ex:10 at 1 min, 10 at 5 mins, 10 at 10 mins and 10 even before the baby is delivered

It is because of these observations, as well as others, that achievement of the “NO Pain Labor N’ Delivery” goals are so critical and important to the GHI’s success.

By Day 2, we were able to put all the issues of documentation and charting to rest and focus on educating the hospital staff as to why we do what we do. By using clinical teaching sessions – either one-on-one or in small group sessions -- we were able to introduce many changes into the host team’s obstetric and anesthesia practices.

Of note, on Day 4 of this mission, we performed our first ever mock STAT C-section drill with a large group of hospital staff present. Resource utilization and transfer of the patient to the OR were observed, followed by a debriefing and a dynamic Q&A session that was constructive and added great value to both the mission and hospital staffs. The event was video taped by the hospital for future use. From this first ever drill, it was recommended that not only the hospital staff continue performing mock crash C-section drills on a quarterly basis, but also the mission team learned what a beneficial asset the drill was. Subsequently, this drill will now be added as a requirement to future missions.

As on prior “No Pain Labor N’ Delivery” GHIs, a **Difficult Airway Workshop** was presented to the hospital’s anesthesia department. I lead this workshop with assistance from Lance Patak (Anesthesia Resident CA-3, University of Michigan) and Yuchen Liu (MS-2, SBU). The ASA Difficult Airway Algorithm was discussed along with a walk through of various airway tools we use in the U.S., including “bougie”, LMA, intubating LMA, airway exchange catheter, fiberoptic scope, fiberoptic scope with guide wire through suction port. The presentation included hands-on training and a variety of airway scenarios including: rapid sequence intubation, difficult intubation, “cannot intubate cannot ventilate” bridging technique, needle “cric’s”, and extubation of difficult intubation techniques.

Also during this mission by using my BlackBerry Smartphone, I was able to temporarily break through China’s Internet firewall to downloaded a “YouTube” video produced by the ASA titled “Labor and Delivery and Pain Medicine”. *(The Mandarin Chinese version of this video was just released in April 2012!)* The first group of OB nursing staff that viewed the video were excited and impressed. Unfortunately, because “YouTube” is banned in China, the breech was discovered in less than 30 minutes and our access to “YouTube” was abruptly terminated. However, a few days later, one of the Chinese IT personnel was able to bypass China’s restrictions and uploaded this educational ASA video clip to the Chinese website “youku.com” thus allowing anyone, including the hospital staff to view this video.

On the final day of the mission, an 8-hour conference was held entitled; “Bao’on Shenzhen – US No Pain Labor N’ Delivery & Pregnant Women Treatment Symposium”. This conference was
open to the entire hospital staff and was very well attended. Several members of the mission team presented and lectures were given in both Mandarin and English (with translation).

By the end of this week of intense education and training, the Chinese medical professionals astonished the mission team by not only how quickly and willingly they adapted to the new concepts presented, but also, how skillfully and efficiently they incorporated the new protocols and techniques into their practices providing a 24/7 epidural anesthesia service for labor and delivery patients.

OUTCOME

The essential question is: By utilizing medical education as a translational tool, is the goal of “NO Pain Labor N’ Delivery” able to provide SAFE and EFFECTIVE neuraxial labor analgesia for ALL parturients” being achieved?

Recently published data from a study done by Shijianzhuan Gynecology and Obstetrics Hospital in Hebei Province near Beijing – one of “No Pain Labor N’ Delivery” sites -- followed nearly 20,000 labor and delivery patients using 24-hour labor anesthesia services from 2009-2011 and showed that the use of neuraxial labor analgesia not only reduced the pain during labor by 60%, but also showed a reduction in the rate of cesarean section by 20%!

Additionally, the data shows that the implementation of obstetric anesthesia epidural service for labor reduced postpartum hemorrhage and decreased the rate of episiotomy and forceps deliveries. A significant decrease was also observed in the rate of neonatal distress, admissions to the NICU, and the neonatal mortality rate within the first week of life. All these positive statistics have greatly influenced the Chinese hospital administrators to incorporate and to offer epidural labor anesthesia service at their maternal district hospitals that have been visited by the “NO Pain” mission teams.

Within four (4) years of its first mission, the “NO Pain Labor N’ Delivery” global health initiative is beginning to gain recognition and support. In April 2012, Dr. Ling Qun Hu presented his project, along with its details, logistics, implementations and results at the annual Global Health & Innovation Conference (GHIC) held at Yale University. He then presented this overview at both the annual SOAP meeting and the annual IARS meeting during May 2012. Finally, in October 2012 at the annual ASA meeting, it was showcased at the ASA’s scientific press release conference as a major accomplishment for decreasing pain and suffering of women in the global health arena.

Another measure of the project success is the large number of medical professionals with ties to Romania, Pakistan, India, Korea, Japan, Philippines, Malaysia, Kuwait and Zambia that have recently contacted Dr. Hu and the “NO Pain Labor N’ Delivery” Foundation expressing their desire for guidance to conduct similar global health initiatives in their native or ancestral countries.

CONCLUSION

Dr. Ling Qun Hu is true visionary: he saw the need for change in how laboring women are treated in China’s hospitals and decided to bring long overdue “modern” obstetric concepts to his homeland. He is accomplishing this task in a very structured, intelligent, and non-threatening manner through emphasis on EDUCATION. Dr. Hu is a consummate diplomat for Western
medicine in China. His “NO Pain Labor N’ Delivery” GHIs have had a long term impact on both mother and baby in the Chinese hospitals that have adapted these “new” concepts. I am honored to be a participant in these impressive global health initiatives.

Francis S. Stellaccio, MD

Associate Professor

Department of Anesthesiology

Stony Brook Medicine

The author wishes to express his appreciation to:

Yuchen Liu, Medical Student (MS-2) of Stony Brook University, for allowing him to use some of his photos for this article

Lance Patak, Anesthesia Resident (CA-3) of University of Michigan – School of Medicine, for keeping a detailed diary of the mission’s daily events and accomplishments in Shenzhen and for sharing it with his mission team members.