

Profile

Shengshou Hu: leader of cardiac surgery and health reform in China



For **Fuwai Hospital** see <http://www.fuwaihospital.org/News/Main?siteId=527>

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“Wise man finds pleasure in streams”, says an old Chinese saying. Being at one with water has always been part of Chinese cardiac surgeon Shengshou Hu’s life, from the wide waters of the Yangtze river to the swimming pool close to his professional home today in Beijing, where he is President of Fuwai Hospital, affiliated with the Chinese Academy of Medical Sciences. “As a young man, swimming across the Yangtze river with its strong currents seemed a good metaphor for life, and even today I find swimming a good time for reflection and relaxation, especially after surgery”, he says.

Brought up in Wuhan city in China’s Hubei Province, Hu saw the effect that surgery had in treating rheumatic heart disease of a young girl in his neighbourhood, and vowed to become a heart surgeon. After spending 2 compulsory years after high school working in a factory (under the Mao Cultural Revolution), he started undergraduate training at Tongji Medical College in 1977, and in the early 1980s joined Fuwai Hospital to begin surgical training. “There were few hospitals in China with cardiac surgery departments at that time”, Hu recalls. “China was way behind the western world, with relatively few coronary artery procedures and transplants done across the country. Most cardiac surgery encompassed simple procedures, such as atrial or ventricular septal defects.”

Hu’s training was enriched by time in Australia. St Vincent’s Hospital Sydney became a fertile learning ground, and was where he did advanced cardiac surgery training after gaining a scholarship in 1994. “In the early 1990s, coronary artery bypass surgery in China was only done by a few cardiac surgeons, with disappointing results”, Hu says. “My time in Australia was transformative for my career and my approach to cardiac surgery in China.” This was evident in Hu’s remarkable surgical activities after returning to China: he developed minimally invasive procedures for coronary artery bypass surgery, which were standardised and implemented nationally; he did China’s first off-pump coronary artery bypass procedure; he led the first video-assisted thoracoscopic coronary artery bypass grafting in China; and he introduced hybrid coronary artery revascularisation to China, with the aim of improving outcomes and providing incremental benefits to patients through integration of interventional and surgical technology. Hybrid cardiac surgery has been extended to cover congenital heart disease, valvular heart disease, and great vessel disease, and has become an established procedure in China. Hu also pioneered double-root translocation for ventricular-septal defect and ventriculoarterial dysfunction. The procedure is now recognised globally and is a standard component of Continuing Medical Education in paediatric cardiology.

Since the turn of the millennium, Hu has increasingly immersed himself in his passion for research and training, epitomised by his work to help create China’s National Centre

for Cardiovascular Diseases (NCCD) in 2010, which is located at Fuwai Hospital and is affiliated with China’s health ministry, the National Health and Family Planning Commission. The NCCD has become renowned within China and internationally with its contributions in areas including quality control of medical treatment, cardiomyocyte regeneration, heart transplant, and artificial heart development. Within academic medicine in China, Hu has transformed the culture to one more akin to a western medical academic environment. “Historically, the Chinese medical education system has often trained doctors, and especially surgeons, to carry out their work as if they were just technicians”, he explains. “My vision is for China’s medical professionals to become clinical scientists, and for cardiac surgeons to have an academic training programme to equip them with an understanding of related aspects of patient’s health and quality of life.”

Yet it is Hu’s directorship of the NCCD that ultimately can make the greatest difference to health in China. “The direct link between the NCCD and the Ministry of Health means that the research we undertake can have a powerful impact on the way health policy is formulated at a national level”, Hu says. “In line with my directorship at Fuwai Hospital, a major element in health policy work is to be able to formulate cost-effective policies, which is vital in a country as vast and diverse as China”, he says. A key part of Hu’s research and policy work in the past few years has been in the NCCD defining the rapid rise of cardiovascular disease in China’s ageing population, and in setting out priorities for how clinical cardiovascular services should be increased and prioritised across the country, which he detailed in a 2015 *Lancet* Review.

Harlan Krumholz, Professor of Medicine (Cardiology) at Yale University in the USA, first worked with Hu in 2008 on initiatives to improve clinical care and in the strengthening of research infrastructure in China, and says, “How is it possible for one person to be such an accomplished surgeon, productive researcher, and visionary leader of a top health care institution and such an important influence on the direction of the future of medicine in China? Professor Hu is a remarkable individual whose intellect, dedication, ideas, skills, and compassion enable him to accomplish so much for China and the world—and inspire those around him.” Hu, quietly spoken, spends most of his time at work, occasionally finding time to exercise and study Chinese calligraphy. “One is movement and the other is tranquillity, they help me relax physically and emotionally”, he says. Despite heavy administrative duties at Fuwai and with the NCCD, Hu says he still helps out with two or three complex procedures a week: “At heart I am, and always will be, a cardiac surgeon.”

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