China’s medical robots take on foreign rivals

A doctor uses Phecda, a surgical robot developed by Tinavi, to do orthopedic surgery in Beijing Jishuitan Hospital in 2016. [Provided to China DAily]

Surgeon Tian Wei came across one of the most challenging orthopedic surgeries in his 30-year career in 2015. A 43-year-old patient had complained of progressive numbness in the limbs on his right side for 14 months, caused by a deformity in his upper cervical vertebrae.

The patient was in dire need of surgery to implant a screw to help support his neck bone, but the operation was risky. Any minor mistake could lead to paralysis or a life-threatening hemorrhage. Many hospitals were unwilling to treat him.

But Tian, who also is president of Beijing Jishuitan Hospital, decided to do the surgery – with a little help from another “surgeon”.

The operation was completed in an hour with help from Phecda, a surgery robot with a 3-D high-definition visual system that can “see” the internal orthopedic structure and a “hand” that can guide medical tools to the proper location within 0.8 millimeters.

Developed by Beijing Tinavi Medical Technology Co with the help of Jishuitan Hospital, Phecda is part of the broad effort by Chinese companies to outcompete foreign rivals just as the country’s use of medical robots is set to take off, thanks in part to an aging population.

Medical robots are highlighted in the country's Made in China 2025 strategy, which was designed to promote high-end manufacturing.

"That was the world's first robot-assisted surgery on upper cervical vertebrae," Tian said, describing the 2015 clinical trial. "Phecda is more precise than foreign products and its cost is lower."

Phecda, which is the third-generation surgery robot developed by Tinavi, is ready to be commercialized this year after obtaining approval from the China Food and Drug Administration in July.

Chinese medical robot-makers like Tinavi are working hard to outshine foreign companies in both price and quality as they benefit from ample demand, strong policy support and manufacturing prowess, company executives and experts said.

By 2050, more than 400 million Chinese will be over 60 years old, accounting for more than 30 percent of the population, up from about 11 percent now, official data show.

"The growing number of senior citizens will offer a sizable quantity of clinical cases, and enterprises can leverage a huge database to accelerate research and development," said Zhang Songgen, chairman of Tinavi.

In April, China unveiled its plan to sell more than 30 billion yuan ($4.4 billion) worth of domestic service robots by 2020. Medical robots are an important part of the ambitious goal, Zhang said.

Efforts focus on smog 'routes'

Governments in cities along three pollution "highways" have been told to coordinate their efforts to cut emissions and help prevent the kind of smog that again blanketed the Beijing-Tianjin-Hebei region on Sunday and is expected to persist for five days.

The Ministry of Environmental Protection has identified 20 cities that are required to beef up pollution controls and work to unify emergency response standards.

The cities lie on three routes – western, central and eastern – on which airborne pollutants travel north due to geological and meteorological conditions, according to Xue Wenbo, director of airborne simulation for the Chinese Academy of Environmental Planning.

There are eight such cities in Hebei province, five in Shandong province and five in Henan province, as well as Beijing and Tianjin.

Researchers have said that tackling emissions in cities along the routes will

cut the severity of air pollution in neighboring areas and ultimately help Beijing meet its ambitious target this year. The goal is to reduce the daily concentration of PM2.5 – fine particulate matter that is particularly hazardous – to 60 micrograms per cubic meter, down from 73 in 2016.

The ministry has installed more monitoring stations to facilitate scientific, targeted solutions to the problem posed by the smog highways in the Beijing-Tianjin-Hebei region.

Pollutants discharged from chimneys taller than 45 meters along the routes can reach the capital within hours, according to Chen Jining, the minister of environmental protection.

To address that problem, in 2016, the ministry sent inspection teams to 1,239 factories with 45-meter-high chimneys in the 20 cities to oversee measures to cut the rate of excessive pollutants. As a result, the rate fell from 31 percent to 3.79 percent over the 12 months, Chen said.

In addition, the ministry also limited or halted industrial production and processing of iron and steel and ordered cities to coordinate their smog responses.

“We’ve found that some cities do not make a timely emergency response or do less than is required, to avoid affecting industrial production,” said Liu Bingjiang, head of air quality management for the ministry.

Cities should engage in joint controls instead of waiting for others to act, he said, adding that government officials’ performance will be assessed by the ministry.

The smog across the Beijing-Tianjin-Hebei region is expected to reach a peak on Tuesday and Wednesday in terms of severity and coverage, according to the China National Environmental Monitoring Center.

Twenty-three cities are forecast to experience severe air pollution on Wednesday, including Beijing, Tianjin, Shijiazhuang and Baoding in Hebei province, Jinan and Dezhou in Shandong province, and Zhengzhou in Henan province.

Moms give milk for premature babies

About 500 mothers have called the Shanghai Children’s Hospital to offer breast milk after the hospital said its supplies could run out within a week, a hospital official told Shanghai Daily yesterday.

The city’s first “breast milk bank” was established at the hospital eight months ago for premature babies, for whom breast milk is vital.

The hospital said it has collected more than 470 liters of milk over the past eight months and serves an average 13 premature babies a day at 2-3 liters a day.

But the hospital now only has about 20 liters as the cold discourages volunteers from going to hospital to donate.

“Thanks to positive reactions from the mothers, we believe that the bank will be filled up again very soon,” said a doctor surnamed Pan who is responsible for taking calls from interested mothers.

Pan said first-time donors must undergo a blood test before donating. They can then express milk at home and freeze it. It is also possible to donate fresh at the hospital. Pan told Shanghai Daily that this bank also serves babies born at other hospitals, but so far there has only been one request.

“Parents of babies born in other hospitals have to come to us every day to get fresh milk, which could be a trouble for them,” she said. Interested mothers can call 18017329172 and talk to Doctor Pan.

China to relocate 3.4mln people in 2017 to tackle poverty

China plans to relocate 3.4 million people from poverty-stricken communities to more developed areas this year as part of its poverty reduction drive, according to government sources.

The National Development and Reform Commission (NDRC), the country’s economic planner, said 2.49 million people living in poverty had been relocated in 2016, meeting the target for the year.

By the end of 2016, there were relocation projects in 22 provinces, which include housing, infrastructure and public services, Yang Qian, an official with the NDRC said.

Local authorities are also exploring supportive industries, employment and social security for the relocated people.

China has vowed to lift all of its poor out of poverty by 2020. Alleviating poverty through relocation is one aspect of the strategy.

By the end of 2016, there were 45 million people living in poverty, many in areas without roads, clean drinking water or power.

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Details of hotels in the Buxton area can be found at www.visitbuxton.co.uk

Cost

The cost of this course is £495 per person (includes course notes, certificate of attendance and lunch/refreshments).

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Please note the invoice option is not available within 4 weeks of the course date, or for overseas customers. If you are selecting the invoice option for payment, it will be mandatory to input a purchase order/reference number as we are unable to process booking forms without this.

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