

Chronic disease management's digital future

In China, AI is helping users actively manage the impacts of their lifestyle, with multiple chronic health management strategies integrated onto one of **THE COUNTRY'S LARGEST DIGITAL HEALTH PLATFORMS.**

Using personalized digital technology to manage multiple chronic diseases will improve the declining outcomes for lifestyle-related diseases, says Fei Kong, chief executive officer of MIAO Health, one of China's largest digital health platforms. Since 2014, his company has been using artificial intelligence and big data to offer cutting-edge digital services that help streamline medical treatment and drug supply, alert users and healthcare providers to potential future issues, and collect data to improve health risk assessments.

THE AI CAN SPOT 3000+ UNUSUAL INDICATORS, AND PROVIDE SUGGESTIONS TO HELP MITIGATE 100+ KEY RISK FACTORS

New technologies will be crucial to keeping China's health in check, says Qing Guo, chairman of the health management department of the Chinese Medical Association. Digital technologies that virtually track and encourage

health progress can reinforce healthy daily practices for millions of people, he points out. "Our platforms were among the first in China to 'gamify' gradual improvements in lifestyle, ranging from nutrition and sports to psychological effects and sleep, which reinforces positive behaviour," explains Bangchang Liu, MIAO Health's senior vice president. Among the many gamified systems is a motion video recognition engine that uses deep-learning to identify key body points during real-time videostreaming, alerting individuals to poor posture.

Non-communicable diseases are a growing problem and a priority for governments, explains Kong. However, a 2020 study on the global burden of disease published by *The Lancet* suggests that public health strategies are failing to adequately address the lifestyle factors linked to chronic disease.

In 2016, the Chinese government released the 'Healthy China 2030 Action Plan', citing five key aims, one of which is controlling major risk factors. The plan outlines a systematic and ongoing series



The MIAO Health platform builds an individual's digital health record, and evaluates disease risk.

of policy reforms to ensure the fairness, accessibility, and effectiveness of health services across China, and it recognizes the need to incorporate a significant digital health transformation.

BEHAVIOURAL CHANGE

Algorithms that efficiently track chronic disease progress are also produced by MIAO Health's industry-leading 'health knowledge graph', a type of dataset. These tools assist doctors, nutritionists and health managers, easing the caseload burden for a stretched industry.

"Our system streamlines health assessments through our H platform, and interventions through our M platform," explains Xiaobin Luo, MIAO

Health's senior vice president and chief medical officer. He says MIAO Health's AI platforms have been trained on healthy diet recipe data to recognize 13,000+ foods. By incorporating data from roughly 7,000 scientific documents, it can spot 3000+ unusual indicators, supply suggestions to help mitigate 100+ key risk factors, and provide pre-emptive health alerts for 1,300+ diseases.

An analysis of one million users conducted by the company between 2017 and 2018 showed that across the year participants recorded an average 35 minutes more sleep daily, 1.7 times more steps, and a total body weight roughly 1.5 kg lighter. This success, says Luo, has attracted a growing network

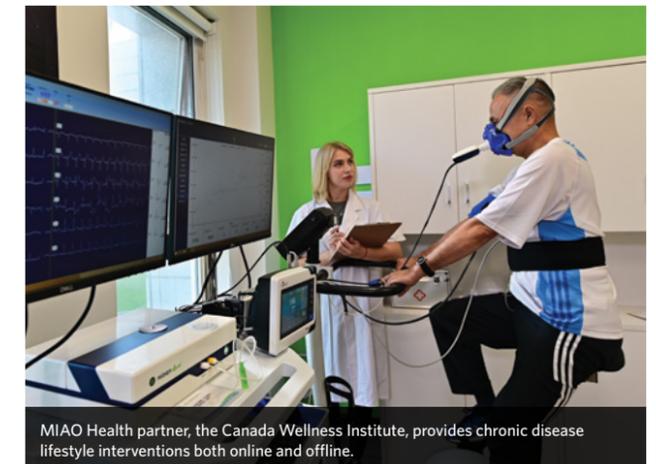
of collaborators ranging from wearable device manufacturers and insurance companies, to clinics and hospitals. "These will enable a smooth transition from a passive medical treatment model to more active health management by individuals," says Luo. They also plan to share their various AI capabilities with other health providers to support industry growth.

For example, their platforms have recently been used to provide data modelling for those being treated at chronic health specialty centre the Canada Wellness Institute (CWI), based at Seven Oaks General Hospital in Winnipeg, Manitoba. Since 2018, this partnership has also expanded to include various sites across China. "We started

working in chronic disease management and intervention 20 years ago, and have built up substantial clinical data on a variety of conditions through the Canadian Chronic Disease Innovation Research Centre," explains CWI's chief executive officer, Carrie Solmundson. "Modelling this data through MIAO Health has significantly enhanced our patient services."

INSURANCE INTEGRATED

MIAO Health's insurance verification and health-data visualization platforms are also optimizing health insurance operation, risk control, and product design. Today, MIAO Health's partnership network encompasses roughly half of the insurance companies in China,



MIAO Health partner, the Canada Wellness Institute, provides chronic disease lifestyle interventions both online and offline.



A Health Assessment Integrated Machine helps insurers assess health risks.

including all of the top 20.

There will be a synchronized growth between commercial health insurance and digital health management, explains Chongguang Jiang, the executive vice president of the China Insurance Innovation Institute. Given the age ratio and size of China's aging population, the high prevalence of chronic diseases, and a relative scarcity of medical professionals, proactively managing risks will amplify the benefits for both insurers and the public, he says. "While preparing digital auditing strategies to ensure timely and fair checks on insurance eligibility and scope, it will be important for us to take to lead in pioneering new technological innovations and benefit

management models."

"Such comprehensive scope must also be grounded in our focus on data privacy," notes Liu. "We understand that the big data on health from hospitals and insurance companies are the best and most accurate sources, but we also want to ensure personalized privacy and care. We are working on key advances through many government-supported pilot schemes and advising on new regulatory standards with government and business bodies." ■



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