IDC Identifies China's Emerging Healthcare AI Trends in New CIO Perspective Report

Beijing, April 9, 2019 — China is carving out an unique path of healthcare AI development as the nation's hospitals continue to upgrade existing AI solutions and new approaches are implemented, finds IDC's new CIO Perspective report, Insights into the Breakthroughs and Barriers in AI in Healthcare (IDC #CHC46004220, April 2020). Hospital and clinical managers are becoming the driving forces behind the deployment of medical AI applications, enabled by accelerating healthcare digital transformation and increasing AI computing power and resources, the report shows.

Presently, the main AI applications at hospitals can be categorized as follows:

- Doctor-patient interactions: These AI applications mainly comprise intelligent guidance systems for diagnosis and treatment and intelligent follow-up systems that are being used at many hospitals, such as Unisound's intelligent hospital guide system at Peking Union Medical College Hospital in Beijing.
- Diagnostic imaging and treatment: Applications in this category have worked wonders in the treatment of patients infected with COVID-19. For example, Infervision's Coronavirus AI system has been adopted by not only domestic hospitals such as Tongji Hospital in Wuhan but also hospitals abroad, including in Italy and Japan.
- Clinical decision support system (CDSS): After years of development, CDSS is being increasingly applied as part of hospitals' core systems to provide real-time help for doctors. Notable examples include Goodwill Hessian's system that's used for diagnosis and treatment at Peking University Third Hospital, and AnXiang's system that standardized tumor treatment at Peking University Shougang Hospital.
- Healthcare AI-based human-computer interfaces: Applications in this category are integrated with specialized medical equipment for disease monitoring and AI-assisted treatment. Examples include Lenovo Group's smart ECG monitor and remote patient monitoring platform used by General Hospital of the People's Liberation Army, which was also used in the events

such as the celebration of the 70th anniversary of the People's Republic of China.

Chinese hospitals' spending on AI-related IT expanded 88% in 2019 from a year earlier to RMB1.7 billion (US$240 million), according to IDC Worldwide Artificial Intelligence Spending Guide 2019H1.

Hospital managers and medical experts have played a crucial role in driving the development and application of medical AI systems. Hospitals at the vanguard of scaling up AI solutions include Zhongshan Hospital, First Affiliated Hospital of the University of Science and Technology of China, Huashan Hospital and Fudan University Shanghai Cancer Center, where hospital managers show strong leadership in healthcare AI push.

In terms of AI development and applications, innovation is occurring on the following fronts:

- AI is being directly applied in electronic medical records and core hospital systems to cut intermediary data processing and improve the development efficiency and practicality of AI system. Notable examples include Goodwill Hessian's hospital CDSS, which draws on the platform's strengths in electronic medical record products and is tailored to the specific needs of the Chinese market, and GE Healthcare's AI products, which are integrated with its medical imaging equipment.
- Digital healthcare transformation platforms powered by middle-offices are gradually maturing, supporting the development and utilization of healthcare big data and facilitating machine

learning, deep learning and federated learning applications.

- More computing and algorithm resources are emerging. An increasing number of cloud service providers, such as Baidu Cloud, Alibaba Cloud and Kingsoft Cloud, are providing AI development tools that support machine learning and model training. Nvidia’s Clara platform and the EGX system, which are run on the cloud, support hospitals' AI development.

The Chinese government’ push to promote medical AI applications are gradually assuaging hospitals’ concerns about the safety and compliance of such applications. For example, in January 2020, the National Medical Products Administration (NMPA) approved DEEPVESSEL FFR, a non-invasive CT FFR technique developed with AI by Beijing Kunlun Medical Cloud Technology Co., Ltd., as a Class III medical device.

Furthermore, on March 5, 2020, the NMPA Center for Drug Reevaluation issued the Key Points for Review of Coronary CT Angiography Triage and Evaluation Software (for Trial Implementation), a move seen as an ice-breaking policy development that has provided a powerful impetus for the promotion of AI-assisted diagnostic systems.

“Chinese hospitals are building a unique model to launch and improve their AI capabilities, led by hospital leaders, clinical departments and medical technicians, within their respective

functions and duties. They are working together to determine their hospitals' needs for medical AI systems and are building relevant capabilities step by step," said Leon Xiao, Senior Research Manager, Health Insights, Vertical Industry Research and Consulting at IDC China.

"The combination of healthcare digital transformation platforms informed by middle offices, and facilitated by specialized AI development platforms, and rich computing and cloud-based algorithmic resources are providing an increasingly mature set of tools for medical AI application development. Chinese hospitals are partnering with a diverse set of health information technologies and AI technology vendors to carve out a truly unique path of development for healthcare AI applications," he added.

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Figure 1

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