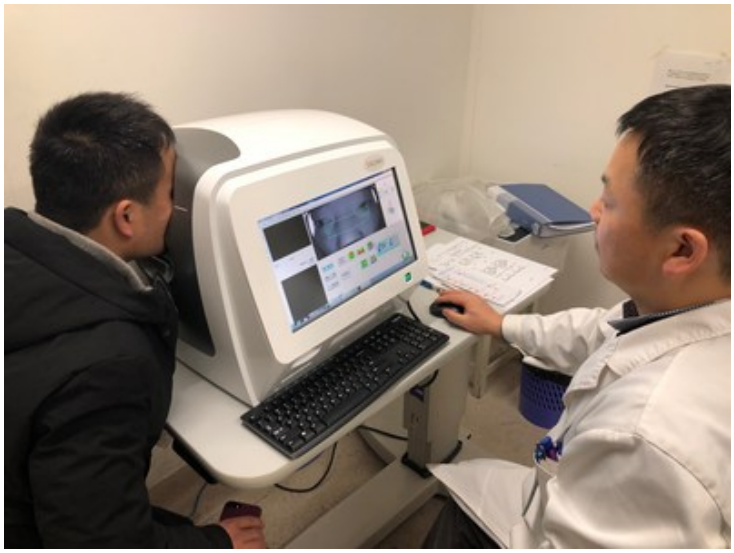
BioSpectrum
the business of Bio & Health Sciences
ASIA EDITION

Ping An completes multi-center clinical trials for world's first intelligent OCT retinal disease screening system

15 May 2019 | News

The screening system is jointly developed by Ping An Technology and US-based Optovue.



Ping An Insurance Company of China has announced that its technology arm, Ping An Technology, has completed a prospective multi-centre clinical trial for the world's first intelligent optical coherence tomography (OCT) retinal disease screening system.

The screening system is jointly developed by Ping An Technology and US-based Optovue, Inc. It is the first artificial intelligence (AI) imaging and screening system in the world that seamlessly integrates an OCT retinal imaging device and AI lesion detection software. The clinical trial was conducted at three well-known research institutions, the Eye and ENT Hospital of Fudan University in Shanghai, Shanghai First People's Hospital of Shanghai Jiao Tong University, and Shanghai Tenth People's Hospital of Tongji University.

Intelligent OCT facilitates disease detection accuracy and speed

OCT is a high-resolution, non-contact and non-invasive diagnostic technique that renders an in vivo cross-sectional view of the retina. As with most diagnostic tests, patient cooperation is a necessity. Moreover, OCT relies on the operator to correctly align the device on the patient's eye for a proper retinal examination.

The intelligent OCT retinal disease screening system developed by Ping An Technology focuses on the integration of an OCT retinal examination device with AI-powered screening software and applies the Generative Adversarial Network (GAN) technique in the model training process. Based on the in-depth technology of Ping An, the intelligent OCT retinal screening system conducts learning and analysis of hundreds of thousands of OCT data. The clinical trial was initiated in December 2018 at the above three research institutions and involved 784 study subjects. From the start of an OCT examination to a patient scan code used to generate an intelligent screening report, the entire process can be completed in three minutes. The

findings suggested that the accuracy of tests on the samples by the system in image quality assessment, lesion detection, and referral urgency assessment were 99.2%, 98.6%, and 96.7% respectively, compared to the ground truth established by experts.

The first-ever multi-center prospective research on AI-assisted ophthalmic medical products

A technical team from Ping An Technology and ophthalmologists from the three aforementioned research institutions jointly designed a rigorous diagnostic test research method to evaluate the performance of the system. An industry-leading multi-center, prospective research approach was adopted for this study. Unlike previous retrospective research methods commonly used in the industry, the prospective multi-center study was conducted with an emphasis towards using samples that were smaller and more efficient, and in strict compliance with medical ethics codes, to make breakthroughs with evidence-based performance for the intelligent OCT retinal disease screening system.

Xie Guotong, Chief Medical Scientist of Ping An Group, said: "This is the first time in the industry at home and abroad that multi-center prospective research on AI-assisted ophthalmic medical products has been conducted. The team of expert ophthalmologists led by the Eye and ENT Hospital of Fudan University, high-quality ophthalmic data and scientific research methods provided vital medical support for the accuracy and safety of ophthalmic AI models. With the strong healthcare ecosystem of Ping An Group, primary medical institutions will be empowered with high-quality ophthalmic AI models to assist in carrying out diagnosis and treatment at different levels."

In recent years, Ping An has continued to advance the "finance + technology" and "finance + ecosystem" strategies, leveraging the leading AI technology and building a strong medical repository to establish a healthcare ecosystem. Based on AI technology, Ping An Technology integrates end-to-end disease whole-process solution matrixes in the fields of intelligent medical quality control, intelligent disease prediction, intelligent triage navigation, intelligent medical imaging and screening, intelligent paramedical diagnosis and treatment. The intelligent paramedical diagnosis and treatment model has covered 1000+ common diseases and it is expected that around 800 million potential patients will benefit from it.