Digital Futures and Health Innovation
Social Governance Session One

13:30-17:00, May 27

Chair：
Andrew Greenshaw: Professor, Psychiatry and Neuroscience, Universityof Alberta
Carl Amrhein: Provost, Aga Khan University

Moderator:
Andrew Greenshaw: Professor, Psychiatry and Neuroscience, University of Alberta
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Andrew Greenshaw Professor & Scientific Director, University of Alberta	**Preparedness and potential for Artificial Intelligence applications in health** 1. With wide application of AI, the speed of image diagnosis can be very fast. In addition, artificial intelligence has been applied in diagnosis and treatment of kidney diseases and brain diseases. Now there are some new diagnostic applications that can provide automated diagnosis for patients. Stanford University has also created artificial intelligence applications, primarily to deal with depression. 2. Through collecting patient data, AI provides great convenience both for disease assessment and for health measurement. However, currently there aren't enough experts in artificial intelligence and supporting facilities and policies, making it difficult to fully apply AI, which can only be made full use of with overall digitization and comprehensive understanding. 3. An important obstacle in the application of AI lies in privacy. Human-oriented, standardized and high-quality data should be collected.

Shanghai Forum 2018 Perspective Highlights

Chen Jun
Director, Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine (SMHC)

EMBED: Enhanced Measurement-Based Care Effectiveness for Depression: A Canada-China implementation project

1. Depression is the biggest psychological problem in China, but many people with depression don't go to hospital for diagnosis and treatment.

2. More than 50% of patients with MBC for depression treatment have improved; MBC enables doctors to track patients' data accurately online. But patients are unwilling to and doctors do not have enough time to finish the questionnaire.

3. Establishment of the E-mental health platform can promote the collection of disease data, government health promotion and education as well as advances in treatment technology.

4. Shanghai has coordinated medical committee and hospitals in each district, but doesn't have sufficient general practitioners.

5. Mood temperature, a new mobile application, records users' daily mood and includes self-measurement and public education function as well.

Matthew Brown
Founder, Puzzle Rock Coding Inc.

Recent technical developments in AI potential for health care applications

1. Machine learning can replace human design, and is better than human design in many areas, but it is often unpredictable. It can be applied in automated mail routing, precision agriculture, automated stock education, credit card fraud detection. Machine learning is deep and requires a lot of data. Data inputs can combine data from many different sources and fields.

2. Currently, most academic research focuses on a single patient group and a single health group. The next step is to collect more data.

3. A new skin cancer diagnosis application can automatically diagnose from images of skin diseases, has a high degree of accuracy and doesn't discloses users' personal information.

Liu Lei
PI, Fudan University Institutes of Biomedical Sciences

From Big Data to AI in Medicine

1. Through extracting data from various academic research, an integrated standard corpus is established to help us extract useful information from various literatures more efficiently. A network of human data genes should be built. A large number of samples are studied and the data in the knowledge base is standardized by using a large number of data techniques.

2. Pmap project is a precise medical knowledge base. Data can be downloaded and uploaded in the database. The project is now in its final stage and is expected to be completed in 2020.

3. In addition to the AI image recognition technology, the knowledge in the doctor's mind is also very important, which is the reason why we are committed to combining the two technologies and knowledge to build a technology in which doctors can "teach" computers their own knowledge, so as to improve the efficiency of treatment and to provide convenience.

Shanghai Forum 2018 Perspective Highlights

Linda Woodhouse
Associate
Professor,
University of
Alberta

China–Canada Partnership for Data Driven Healthcare Innovation

1. Medical system in Alberta is an integrated health care system. Alberta spends 1.1 billion dollars in health care, which constitutes a high proportion compared to other countries.

2. Strategic network system get all stakeholders to negotiate, and, through the research of AI techniques, to establish a system effective for the local conditions, rather than a set of general principles that applies anywhere.

3. In a balanced credit card, data are representative and can be refined into a template, through which the efficiency of sickbed turnover and medical efficiency can be improved.

4. An integrated data system should be established so that the data can be applied horizontally to fill in the missing data in medical treatment, and can be analyzed and evaluated in time. In addition, high-quality data should be input and corresponding rules should be established to secure the use of the data in the system and to protect the privacy of patients.

DISCUSSION

1. In order to deal with users' natural resistance to new technology, education should be strengthened to let people know that there are a lot of things they don't know, so that they can actively embrace new technologies. Users will think there is no time to adapt to the new technology, so the first step should be to help them save time.

2. Artificial intelligence, though highly developed, will also make mistakes. No system is 100 percent correct, but artificial intelligence can make fewer mistakes than human, and the AI system can be used to make a useful supplement to future treatments.

3. Though AI technology is advanced, the government application of it is not keeping up. Health is everyone's business, so we should work together instead of relying on a single government.

（Editor: Yuening Wang, Chenjia Shou）