Resolution 18-6

Federation of State Medical Boards
House of Delegates Meeting
April 28, 2018

Subject: Workgroup on AI and its Potential Impact on Patient Safety and Quality of Care in Medical Practice

Introduced by: Pennsylvania State Board of Medicine

Approved: February 2018

Whereas, The Internet can gather large amounts of data from diverse sources that include but are not limited to electronic health records, digital images, and mobile apps; and

Whereas, Technology enables the compilation, storage, and processing of vast amounts of data to help identify clinically significant patterns and provide predictions; and

Whereas, Recent developments propel interest in healthcare AI, whether defined as "artificial intelligence," the ability of a computer to complete tasks in a manner typically associated with a rational human being, or "augmented intelligence," design that enhances human intelligence rather than replaces it; and

Whereas, Healthcare AI has been developed and applied to clinical decision support, treatment protocols, diagnostic recommendations, clinical prognostication, drug development, personalized medicine, patient monitoring, chronic care, and patient flow analytics; and

Whereas, Healthcare AI operates with variable levels of transparency, vetting, and oversight by experts and regulators; and

Whereas, Technology industry leaders and academic institutions have developed and implemented healthcare AI for radiology, pathology, oncology, ophthalmology, cardiology, and dermatology, and further applications are anticipated; [1-13] and

Whereas, Modern machine learning technology in healthcare AI can readily re-identify data sources posing a challenge to confidentiality of protected health information; [14] and

Whereas, Investment in healthcare AI is robust and a recent report from Markets and Markets pins the healthcare AI sector at nearly $8 billion in 2022, accelerating at a compound annual growth rate of 52.68 percent over the forecast period; [15, 16] and

Whereas, State medical boards should have an understanding of AI and its impact on medical practice;

Therefore, be it hereby

Resolved, That the Federation of State Medical Boards will convene a workgroup comprised of relevant stakeholders and subject matter experts including the American Medical Association to provide state medical boards with an understanding of AI and its potential impact on patient safety and quality of care in medical practice.

[1] IBM: *IBM Watson Health Closes Acquisition of Truven Health Analytics*. https://www- 03.ibm.com/press/us/en/pressrelease/49474.wss.

[2] ARS Technica. *IBM's Watson Proves Useful at Fighting Cancer-Except in Texas.* https://arstechnica.com/science/2017/02/ibms-watson-proves-useful-at-fighting-cancer-except-in-texas/.

[3] Xconomy: *Microsoft's Strategy for Finding What's Next in Healthcare AI.* https://www.xconomy.com/seattle/2017/11/08/microsofts-strategy-for-finding-whats-next-in-healthcare-a-i/.

[4] Google Inc.: *Detecting Cancer Metastases on Gigapixel Pathology Images.* https://arxiv.org/abs/1703.02442.

[5] Dai W, et al. *Prediction of hospitalizations due to heart diseases by supervised learning methods.* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4314395/pdf/nihms643126.pdf.

[6] Esteva A, et al. *Dermatologist-level classification of skin cancer with deep neural networks.* Nature (42) 115, 2017.

[7] JASON: *Artificial Intelligence for Health and Health Care*. MITRE Corporation, December 2017.

[8] GulshanV, et al. *Development and Validation of a Deep Learning Algorithm for Detection of Diabetic Retinopathy in Retinal Fundus Photographs.* https://jamanetwork.com/journals/jama/fullarticle/2588763.

[9] HealthIT News. *Google powers up AI, machine learning accelerator for healthcare.* http://www.healthcareitnews.com/news/google-powers-ai-machine-learning-accelerator-healthcare.

[10] Yu KH, et al. *Predicting non-small cell lung cancer prognosis by fully automated microscopic pathology image features*. https://www.nature.com/articles/ncomms12474.

[11] Gibbons C, et al. *Supervised Machine Learning Algorithms Can Classify Open-Text Feedback of Doctor Performance With Human-Level Accuracy.* http://www.jmir.org/2017/3/e65/.

[12] Rajwa B, et al. *Automated Assessment of Disease Progression in Acute Myeloid Leukemia by Probabilistic Analysis of Flow Cytometry Data.* http://ieeexplore.ieee.org/document/7511726/?part=1.

[13] Dai W, et al. *Prediction of hospitalizations due to heart diseases by supervised learning methods.*https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4314395/pdf/nihms643126.pdf.

[14] Osoba O, et al. *An Intelligence in Our Image: The Risks of Bias and Errors in Artificial Intelligence*: RAND Corporation, 2017.

[15] CB Insights. *The Race for AI: Google, Baidu, Intel, Apple in a Rush to Grab Artificial Intelligence Startups.* https://www.cbinsights.com/research/top-acquirers-ai-startups-ma-timeline/.

[16] MarketsandMarkets. *Artificial Intelligence in Healthcare Market by Offering (Hardware, Software and Services), Technology (Deep Learning, Querying Method, NLP, and Context Aware Processing), Application, End-User Industry, and Geography – Global Forecast to 2022.* https://www.marketsandmarkets.com/Market-Reports/artificial-intelligence-healthcare-market-54679303.html