

By the Numbers: Artificial Intelligence in Health - Trial and Tribulations

Section Editor: The ISPOR Student Network

TIMELINE ON ARTIFICIAL INTELLIGENCE IN MEDICINE

- 1920** Karel Capek, a Czech novelist and playwright, coins the term “robot”
- 1950** Invention of the Turing test to determine a machine’s ability to exhibit intelligent behavior
- 1955** John McCarthy introduces the term “artificial intelligence”
- 1997** IBM’s Deep Blue computer defeats chess champion Garry Kasparov
- 2011** IBM’s Watson computer wins Jeopardy, playing against top champions
- 2013** MD Anderson Cancer Center and IBM announce plans to develop the IBM Watson-powered Oncology Expert Advisor¹
- 2014** Amazon introduces its virtual assistant Alexa, which WebMD and health systems now use to retrieve general health information
- 2015** Google-owned DeepMind Health partners with the U.K.’s National Health Service (NHS) to access their health records²
- 2017** MD Anderson Cancer Center puts its IBM Watson project on hold³
- 2018** US-FDA approves first artificial intelligence device to detect diabetic retinopathy⁴
- 2019** US-FDA announces “Digital Health Innovation Action Plan” to streamline timely approval of artificial intelligence products⁵

References: ¹ MD Anderson Taps IBM Watson To Power “Moon Shots” Mission. Available from: <https://www.mdanderson.org/newsroom/md-anderson-ibm-watson-work-together-to-fight-cancer.h00-158833590.html> [Accessed February 25, 2019]

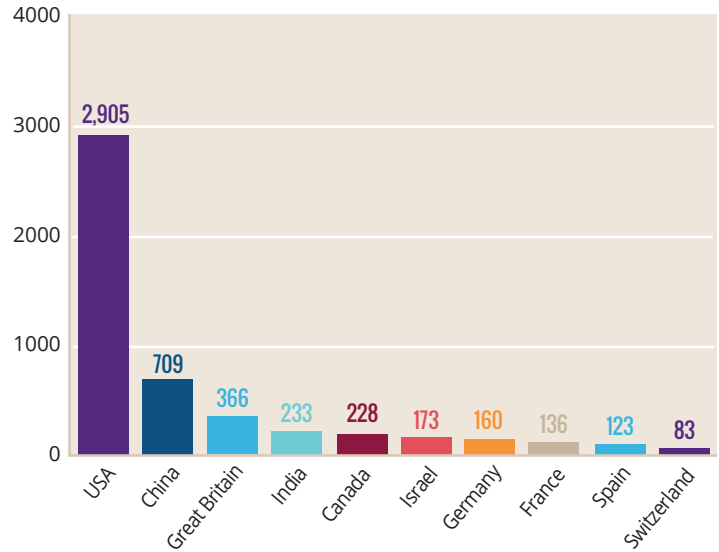
² UK data Watchdog Monitors Google’s Absorption of DeepMind app used by NHS. Available from: <https://www.forbes.com/sites/matthewherper/2018/11/14/uk-data-watchdog-monitors-googles-absorption-of-deepmind-app-used-by-nhs/#45bebab6351c> [Accessed February 25, 2019]

³ MD Anderson Benches IBM Watson in Setback for Artificial Intelligence in Medicine. Available from: <https://www.forbes.com/sites/matthewherper/2017/02/19/md-anderson-benches-ibm-watson-in-setback-for-artificial-intelligence-in-medicine/#3fefb3093774> [Accessed February 25, 2019]

⁴ FDA permits marketing of artificial intelligence-based device to detect certain diabetes-related eye problems. Available from: <https://www.fda.gov/newsevents/newsroom/pressannouncements/ucm604357.htm> [Accessed February 25, 2019]

⁵ FDA In Brief: FDA brings additional efficiency and modernization to regulation of digital health, as part of the Digital Health Innovation Action Plan. Available from: <https://www.fda.gov/NewsEvents/Newsroom/FDAInBrief/ucm605723.htm> [Accessed February 25, 2019]

Number of Artificial Intelligence companies by Country in 2017



Reference: Yu, X., & Jing, M. “China aims to outspend the world in artificial intelligence, and Xi Jinping just green lit the plan.” Available from: <https://www.scmp.com/business/china-business/article/2115935/chinas-xi-jinping-highlights-ai-big-data-and-shared-economy> [Accessed February 9, 2019]

Healthcare Consumers’ Opinion on why (not) to use an Artificial Intelligence-powered Virtual Doctor

REASONS FOR PREFERRING A VIRTUAL VS. A REAL DOCTOR

VIRTUAL DOCTOR	REAL DOCTOR
47% Available whenever needed	29% Liking to visit the doctor
36% Saves traveling time	26% Lack of knowledge on AI
24% Assesses vast amounts of info	23% Don't want to share data

ADVANTAGES OF A VIRTUAL VS. A REAL DOCTOR

VIRTUAL DOCTOR	REAL DOCTOR
54% Reducing costs to patients	64% Providing quality care
49% Accommodating patients’ schedules	60% Patient engagement
43% Providing timely care	45% Diagnosing problems faster

Reference: Accenture. “Meet Today’s Healthcare Team: Patients + Doctors + Machines | Accenture 2018 Consumer Survey on Digital Health.” 2018. Available from: <https://www.accenture.com/us-en/insight-new-2018-consumer-survey-digital-health> [Accessed February 14, 2019]

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