AI: will the machines save the world (and make me redundant)?

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Your therapist will see you now….

The rise of the machines…?

- Productivity: health inflation > GDP growth – people expensive, machines cheaper
- Quality: machine learning- algorithms able to learn from millions of cases- potential to outperform human practitioners

It's already here…

- **Babylon Health to power NHS 111 with 'AI triage' bot**
- A chatbot will now answer NHS 111 inquiries from more than a million Londoners as the health system looks for new ways to manage the growing health burden.
- NHS England has announced a new deal between health app company Babylon Health and North Central London CCGs, which will be testing an "NHS 111 powered by Babylon".
- The app is essentially an chatbot drive by clinically-based algorithms that will triage patients without human intervention based on reported symptoms, a process that NHS England claims will take as little as two minutes.
- Based on the symptoms and its own algorithms, the app could refer the patient to hospital or recommend a GP appointment the next day.
- *Digital health online*

Declaration of interest

- Co-applicant on a grant application in progress to for a study to evaluate machine learning and avatars in language analysis in memory clinics

But….

- Limitations in AI in general

- Limitations for applicability of AI to mental health in particular

Limitations: Artificial stupidity

- **Uber crash shows 'catastrophic failure' of self-driving technology, experts say**
- Concerns raised about future testing as footage suggests fatal collision in Arizona was failing of system's most basic functions
- *Guardian Online*

- **Breast screening error 'shortened up to 270 lives' - Hunt**
- He said a computer algorithm failure was to blame, which meant, in some cases, women approaching their 71st birthday were not sent an invitation for a final breast scan as they should have been.
- *BBC Website*

- Who regulates? CQC? MHRA? GMC?

Limitations: Big Brother is Watching

- **Google's new Home Mini voice assistant has been spying on some of its users, due to a "phantom" issue**.
- *Independent online*

- **WannaCry impact on NHS considerably larger than previously suggested**
- In total, more than 1,200 pieces of diagnostic equipment were inflected by the ransomware, although further devices were put out of use after being disconnected from IT systems to prevent the infection spreading, the report explained.
- *Digital Health online*

Limitations: Digital Prejudice

- **Google's solution to accidental algorithmic racism: ban gorillas**
- *Guardian Online*

- Decisions on accessing finance, insurance
- 'black box'- info goes in, decision comes out- can't 'interrogate' the process to understand how the AI arrived at the decision

Limitations: Digital Prejudice

- **Researchers Combat Gender and Racial Bias in Artificial Intelligence**

- Companies use AI to predict everything from the credit worthiness to preferred cancer treatment. The technology has blind spots that particularly affect women and minorities.

- *Bloomberg online*

- Can this bias be eliminated? What impact could it have on access to healthcare?

Specific Limitations: Diagnostic Difficulties

- **Against the Stream: Generalised anxiety disorder (GAD) – a redundant diagnosis**
- The diagnosis of generalised anxiety disorder is a distraction of no value. It is highly unreliable, co-occurring with many other disorders of firmer diagnostic status, and has intrinsic connections to personality dysfunction. It is argued that classification would be heartily relieved to rid itself of this unnecessary appendage and for the symptom of anxiety to remain as a descriptive term only.
- *Tyrer P BJPsych Bulletin Volume 42, Issue 2 April 2018 , pp. 69-71*

Specific Limitations: Robotic Relationships?

- **Evidence-based therapy relationships: research conclusions and clinical practices.**

- A panel of experts concluded that several relationship elements were demonstrably effective (alliance in individual psychotherapy, alliance in youth psychotherapy, alliance in family therapy, cohesion in group therapy, empathy, collecting client feedback) while others were probably effective (goal consensus, collaboration, positive regard).

- *Norcross and Wampold [Psychotherapy (Chic).](#) 2011 Mar;48(1):98-102. doi: 10.1037/a0022161.*

A Brave New World?

- Will the machines save the world (by making me redundant...)?
- AI not intelligent enough (yet)
- AI vulnerable to data security compromise
- AI risks being compromised by inherent prejudice
- Maybe advances in technology/ethics will fix

A Brave New World?

- Inherent validity problems with ICD/DSM
- And nature of the therapeutic relationship
- More fundamental limitations

- Role in specific areas- diagnostic support/low intensity manualised therapy
- Not expecting P45 any time soon….

"I'm sorry, Dave, I'm afraid I can't give you leave…"