Machine M.D.
The Hype, The Hope & The Law

Colleen M. Flood
@ColleenFlood2
University of Ottawa
Image Analyses

• AI outperforming humans in terms of speed
• AI outperforming humans in terms of accuracy
• AI does not need a bathroom break and does not get bored
First FDA Approval For Clinical Cloud-Based Deep Learning In Healthcare

**Skin cancer**

Computer learns to detect skin cancer more accurately than doctors

Artificial intelligence machine found 95% of melanomas in study compared to 86.6% for dermatologists

![Image of skin cancer detection](image-url)

*An computer that was taught to distinguish malignant moles from benign ones outperformed dermatologists.*

Photograph: Dan Himbrechts/AAP
Although overall likely to be more safe than now AI medical applications will (sometimes) harm patients.
Reality
How AI Perceives It
• Clauses in contracts limiting the liability of manufacturers/programmers – but at the same time permitting “adjustments” etc. to AI devices that are now part of a patient’s body

• How physicians can oversee AI when an evolving “black-box” of decision-making

• Liability for harm from **not** using AI

• What to do when there is disagreement between the AI and a clinician or clinicians

• Wide-spread employment of AI outside traditional health-care settings and not under the umbrella of safety measures taken within hospitals or even under the auspices of physician oversight

• Entrenching and deepening existing discriminatory practices in treatment
A Digital Psychiatrist
Digital Twins
Privacy & AI
Patient Data Collection & the Internet of Things
• “Privacy should have a deeper purpose than the one ascribed to it by those who treat it as a currency to be traded for innovation, which in many circumstances seems to actually mean corporate interests. To protect our privacy, we need a better understanding of its purpose and why it is valuable.”
  - Jathan Sadowsky, University of Sydney

• A US innovator stresses the “need to advance without fear”.........”We should move towards a place where donation of data is treated in the same way as we think about donation of organs or blood, something to be encouraged and supported as an altruistic venture.”
  - Daniel Kraft M.D. of Singularity University

• How can we make sure that investments by Canadians in public medicare and data find a return for Canadians and not sold back to them in the form of exorbitantly priced innovations?