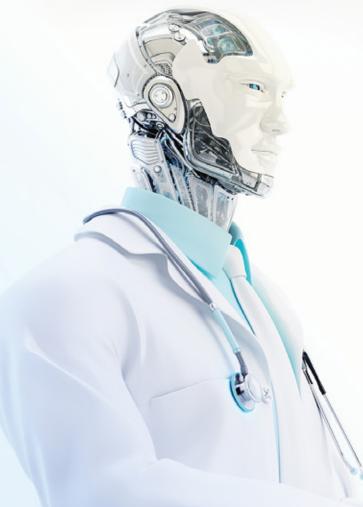# OF AI AND EI

Text by Dr Daniel Kwek, Teaching Faculty,
SMA Centre for Medical Ethics and Professionalism

At the rate things are moving, patients may one day be greeted by a Robo-Doc in the consultation room. Since the day Deep Blue beat Kasparov on a chess board, the handwriting has been on the wall! The capability of artificial intelligence increases by leaps and bounds, and even if one subscribes to the idea of evolution, the human brain will not be able to catch up with the techno-revolution. Today, the chess-playing machines are clearly in the lead against any human chess player.

Most would not doubt that even in the realm of medicine, machines could potentially do a more thorough evaluative job than a human mind, and at a faster rate, considering its ability to process tons of data in micro-seconds. Already, the doctors doing their daily rounds are relying on information technology systems for all sorts of built-in prompts. One might surmise that with time, and with sufficient input, machines might hold sway in robotic surgery theatres as well.

But many, including both doctors and patients, would have much concern about an aspect of care: the human touch, especially in this era of patient-centred care.[1]

Society has much regard for the profession exactly because we are expected to care and comfort while providing treatment to unfortunate human beings who fall prey to ailments and diseases. The world over, apart from the actual medical treatment, patients look for compassion and empathy when they are rendered vulnerable by their medical conditions. They expect a healer who can feel their plight. Even now, there is a trend towards patients having a good technical outcome

(thanks to the vast improvement in medical treatment, aided often by technology), but a poor service experience when they go through the hospital doors.[2]

The role of EI

To frame it accordingly: *Would Artificial Intelligence (AI) be capable of Emotional Intelligence (EI)?*

EI (not a new concept) is a measure of a person's ability to manage emotions – one's own and others'. It comprises five basic abilities:

1. Self-awareness
2. Self-regulation
3. Self-motivation
4. Social awareness
5. Social skills

Articulated in the 1990s,[3] it quickly found its application in the business world. As healthcare professionals often have to deal with very emotional situations, EI has its intuitive place in medicine.

If a clinical interaction is understood as comprising two main tasks for the doctors, one being the technical aspect of evaluating, diagnosing and treating, and the other the caring, supporting and healing, then EI lies at the heart of the consultation beyond the technical aspect of things. The doctor interacts and emotes, then responds with compassion in his management of the patient's condition. He is therefore mindful of the patient's and his own emotions and manages the situation to the comfort of his patient and fulfilment of his role. This is EI in action.

Research[4] has explored the impact of EI on patient satisfaction, doctor-patient relationships and physician burnout. Patients are generally happier with doctors who have a higher EI, just as in the business world, customers are more satisfied with counter/service staff who have higher EI.

Beyond that, it is also a significant factor affecting clinician burnout.[5,6] Clinicians who had lower EI scores appeared to be more at risk of

burnouts, a syndrome of disillusionment commonly affecting workers involved in "human work".

Interestingly, there is also research to show that there are external factors that can predispose a person to have lower EI. For example, Tomar (2016) found that practising in the private sector is associated with better EI than in the public sector, and the length of service also positively influences the EI scores of the doctors.[7]

Arguably then, perhaps the machines, if imbued with EI, would be immune to such external factors and are incapable of being fatigued emotionally, and hence are more predictably "caring" in their behaviour?

That said, even if we assume that we can pour into the machines myriads of algorithms in terms of human emotional responses permutated to match the countless clinical scenarios, the question would still be: can the machine genuinely feel the feelings of and empathise with the patients? As we understand it now, the machine fundamentally detects a sign of a certain emotion, and then picks a most likely response that has proven to yield the best outcome based on Big Data evidence.

At some stage, the true communication of care involves the interaction between two human souls, rather than a machine (albeit very intelligent) performing charades with a human. A large part of the exchange depends on "one sensing the other's sensing".

Concluding thoughts

So the ultimate question is:

Can a machine be implanted with a compassionate and sensitive soul that is the source spring of the five capabilities outlined above?

And the flipside question:

When the doctors are so well rehearsed with the behaviour associated with EI, but are devoid of the compassion and empathy, does it make the EI artificial? ◆

References

1. Stewart M. Towards a global definition of patient centred care. BMJ 2001; 322:444-5.

2. Eisenberg L. Good technical outcome, poor service experience: a verdict on contemporary medical care? JAMA 2001; 285(20): 2639-41.

3. Salovey P, Mayor JD. Emotional Intelligence. Imagination, Cognition and Personality 1990; Vol 9, Issue 3:185-211.

4. Arora S, Ashrafian H, Davis R, et al. Emotional Intelligence in medicine: a systematic review through the context of the ACGME competencies. Med Educ 2010; 44(8):749-64.

5. Weng HC, Hung CM, Liu YT, et al. Associations between emotional intelligence and doctor burnout, job satisfaction and patient satisfaction. Med Educ 2011; 45(8): 835-842.

6. Satterfield J, Swenson S, Rabow M. Emotional Intelligence in Internal Medicine Residents: Educational Implications for Clinical Performance and Burnout. Ann Behav Sci Med Edu 2009; 14(2):65-8.

7. Tomar R. A study of emotional intelligence among Doctors. International Journal of Innovative Research and Development. 2016; 5(6):303-8.

Dr Daniel Kwek is a senior consultant with the department of Psychiatry at Ng Teng Fong General Hospital. He deals with staff stress issues and has an interest in clinical communication.