AI and FM – a cautionary tale

Lesley Pocock

medi-WORLD International, Australia

Corresponding author:
Lesley Pocock
Email: lesleypocock@mediworld.com.au ; publishermwi@gmail.com

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Abstract

Education and Medicine are two of the greatest achievements of humankind and this knowledge has been faithfully passed down by generations for millennia. Each generation builds on the knowledge of previous generations.

High technological advances have also brought many advantages to humans but because they tend to be 'owned' by the very few, they have increasingly become commercialised and indeed weaponised.

In a world of identity theft, cybercrime, scams, fraud, war and genocide, humanity needs to be very careful about trusting in the integrity of AI. Particularly, Family Medicine should always be based on the individuality of every patient within their unique circumstances.

The Covid era saw a great change in the delivery of medicine and particularly in remote consultations. Telemedicine has now become entrenched in most countries, despite some limitations, and has added to the growing use of ICT in medicine.

With a computer on most doctors' desks globally, family doctors are able to take advantage of so many online facilities and sources of information. ICT has made the job easier but has also added levels of complexity and the need for added security.

We already have 'software' as the 'AI' supporting many diagnostic choices. This software is a tool however, not a decision maker and the educated physician can access that tool for speed of diagnosis and recommended care. Asking a machine to make that diagnosis however is a totally different matter.

Certainly national health authorities need to provide guidance and oversight of the resources doctors are using to ensure ongoing accuracy and safety. In the bigger picture should we be entrusting the world's most valuable knowledge to competing tech platforms when the cyber world is already riddled with divisions and crime. Should not human health always be in the hands of humans, our well educated, trusted doctors who have insight into the intricacies of each individual patient's life.

Keywords: Artificial intelligence, family medicine

Introduction

While birds and some animals train their young in the art of survival the outstanding feature of humans has always been tool making and the passing down of knowledge through the generations. Today up to a third of our lives can be spent in formal education.

Each generation builds on the knowledge and skills of the past and we have made stunning advances in architecture, design, technology, medical care, art, literature and music.

In hand with these advancements however, we have also been plagued, by wars, genocide, political dictatorships, and crime. These blots on the landscape of human existence are generated by humanity's baser side. Arguably the disease and plagues we have also endured over the millennia have also been spread, if not caused, by humanity's worst habits. Many have been caused by the disrespect and cruelty we show toward the other creatures on earth as well as our fellow humans. To date however, we have avoided global monopoly and coercion. That time has ended.

70% of people of the world now live in cruel, autocratic dictatorships and those who don't, live under threat of the same.

On the other side of the scale, we are under attack by fake news, wars and cybercrime and greed and monopoly. The digital age has lessened that divide and the tentacles of evil and division can now reach into most homes and businesses on the planet. The purveyors of fake news and prejudice already use this web of deception.

AI is general knowledge already within the public domain. This knowledge is in ICT format however and is gleaned from multiple sources online. Not all sources are necessarily accurate or true however and AI is 'literal'. It does not necessarily question the veracity or nuances of such knowledge.

Proper AI has the power to overcome the dilemma of often deliberately false or misleading (marketed or malicious) information and to contribute to and universalise it. The success or failure of AI is tied strictly to the protocols and the integrity of the purveyors (technology companies) and the messages within their offerings. I suggest it will be an endless cycle of excellence and corruption as it has always been with humans. For that reason it is imperative that the use of "AI" is strictly governed, particularly in vital areas such as medicine. The purveyors should never 'own' the Intellectual Property they distribute as it is not theirs. They can own the software and algorithms which they use to deliver it and be judged in that.

AI has become the seeding ground for some of the big techs to flex their muscles and to pretend they are offering great services to humanity. They are not. 99% of AI currently and arguably is just software and algorithms – in some cases inglorious search engines. This is also the opinion of most of the purveyors of technology. We all need to watch very carefully and to constantly evaluate what is being served up to us as ingenuity and ensure it is not a complex trap.

Family medicine is primary healthcare that provides continuing and comprehensive medical and sociological care for the individual and family across all ages, genders, diseases, and parts of the body.

It should treat each patient as an individual in the context of family, locations/geography, socioeconomic condition and affordability of care prescribed.

Equally the rapport between doctor and patient greatly affects compliance with proper use of therapeutics and lifestyle modifications like diet, rest and exercise.

Psychological aspects of patient care also rely specifically on a range of personal issues of each individual patient's life. Often these considerations are also pertinent to individual family structures e.g in cases of domestic violence.

While there are many practical shortcuts that can be provided by AI across the sciences and humanities is it wise to rely on AI for the diagnosis and care provided in family medicine. Rapport between doctor and patient is built on trust developed over years. AI cannot pick up visual or verbal clues.

Doctors are making huge decisions every day based on physical, emotional, practical, financial, and familial aspects of a patient's life. Family medicine encourages the patient to divulge their concerns within an atmosphere of trust.

Who is going to protect the integrity of family medicine in the age of Artificial Intelligence: humans? machines? AI itself?

AI is general knowledge not patient specific knowledge or borrowed knowledge. It is not Applied knowledge. Commercialism and marketing and fake news are rife in the entire business world, particularly the big tech world is becoming a haven for commercial monopolies and increasingly taken over by dictators trying to re-write history to their own story and platform, and reap money from national coffers.

Nearly half of the world's entire wealth is in the hands of millionaires (Credit Suisse Global Wealth Report).

Add to that cybercrime for fraudulent and malicious purposes and sadly what was once the promise of global parity and equity for all humans now actively works against them. Scams, identity theft, revenge content, propaganda, harassment, the child sexual assault trade, human trafficking, targeted bullying etc are now some of the biggest players.

Many of the big techs are focused on money and are difficult to bring into line when it comes to social issues and values and norms and anything that affects their profits.

Shelf life of medical education, Language, dialects and terminology.
As a global medical educator and ICT publisher I find the 'shelf life' of medical education and information is 3 months to 3 years depending on the topic .Technical and medical advances happen all the time and more than often an old practice or recommendation becomes debunked due to a new study finding a better approach.

An obvious example is the recent Global Covid pandemic. It would not have got a mention in AI initially and in the ensuing months when little was known about it; information changed often. Also many details were withheld for political and medical reasons. Even today scientists do not have the full picture.

Currently AI seems to be English centric. Additionally there are different medical terms for the same condition globally e.g. oedema (also spelt edema) vs anasarca. Oedema is still used in some countries to represent all severities of oedema.

Even in the same country terms like FBC and CBC are used for the same tests in different states.

On a highly successful global medical education project I produced for several NGOs we had to have the education suitable for every doctor in the world. This meant we could not assume ethnicity, geography, any level of undergraduate medical or general education, gender, age, culture, religion, or standard medical terminology, availability of affordable tests etc. The learning was in the doing and we worked with 26 countries to get to our final international tertiary program. It was the first ever internationally accredited tertiary course. There were hundreds of thousands of anomalies and cross-meanings and considerations required.

I also found up to 30% missing medical education in later global work – mostly due to poverty (what is best practice when doctors cannot afford expensive diagnostic equipment and patients cannot afford prescribed medicines or tests) but also cultural, religious, geographical and climatological issues.

In one such project I then re-delivered/customised with an NGO my QA&CPD produced for Australian doctors to make it suitable for low income nations' doctors. We had successful national trials in Nepal validating our 'localisation' approach. And it was not just a patient issue. We were also aware of the poverty of doctors who did not have modern diagnostic equipment in their office and the psychological impact of that.

What is AI?
"AI" currently is general knowledge already within the public domain. This knowledge is mostly in ICT format however and is gleaned from multiple sources online. Not all sources are necessarily accurate or true however and AI is 'literal'. It does not necessarily question the veracity of such knowledge.

Most technology experts see AI as another name for software/a software application/an algorithm which is applied to so many useful tools for modern living. "True AI" which should draw logical conclusions on data in the domain is rare.

The "AI functions on the various browsers seem to just elevate their own searches above the usual search functions in a browser. They provide summaries of information from the regular searches below the "AI response". Most of these summaries are quite facile. Fine for the homework assignments but not scientists. They are essentially search engines, an electronic encyclopaedia, a research tool. As such it is more refined than a search engine which does not VALIDATE the data it presents but there are already some glaring problems with it.

It may be useful for completing school assignments but is it a safe substitute for the knowledge and empathy of a family doctor who uses all his/her senses; sight, sound, (insight?) knowledge, and memory.

So who pays?
We used to pay a heavy sum for Encyclopaedias before ICT put most of this data online. The pay principle then became advertising driven revenue based on targeted advertisements on the topics users researched or viewed online.

While most pharmaceutical companies and device manufacturers are reputable they are highly profitable commercial entities and currently have their representatives visit doctor surgeries globally to push their own products. This commercial aspect hopefully will not enter the AI decision making systems. But where there are choices of competing therapeutics there will be attempts to influence prescribing.

How and when is AI updated?
Users should be given a time scale of original information source and the various updates to be able to verify the written material. The world keeps turning ....

Oppression dictatorships and fake news
With cybercrime abounding, all forms or business and health activity need to be carefully guarded. Hospitals around the world have been targeted by cybercrime, and for 2 reasons:
1. The corruption and destruction of systems of other countries by subversive governments
2. Identity theft to allow international crime to access bank accounts and other capital

Measurements show that closed autocracies have increased from 25 to 30 countries globally. Dictatorships are on the rise around the world. Today, 5.4 billion people, 70 per cent, live in dictatorships.

Dictators have 2 weapons – violent repression and fake news/propaganda from taking over the media outlets in 'their' countries. There have already been many such global examples of democracies being attacked by rogue governments.
https://worldpopulationreview.com/country-rankings/dictatorship-countries

In non-dictatorships the big media tech companies have their own commercial agendas and can involve monopolistic activities. There have been attempts to break their monopolies but they are still all pervading.

Malevolence – and the era of Cyber Warfare and Fake News
These electronic advances could have been like Bill Gates Microsoft Word. As a Publisher I blessed him and my main activity as a postgraduate medical educator using ICT/multimedia has not only seen ICT a great time and work saver it also had the potential to bring parity and equity to the world. Sadly that world is bedevilled by cybercrime, identity theft, fraud and exclusion. The 'dark web' has set itself up and befouled the global system to such a degree many globally feel it is not safe to use ICT at all. Children are urged not to go online. My dream of parity and equity of healthcare for the world is now a lonely and unprofitable road. Education is the way of human advancement and we need to be very careful in whom we put our trust.

Who pays?
Currently the tech giants are saying 'they won't charge us for AI' (our own collective knowledge garnered over millennia). I would be very wary of any such statements. Okay, we pay for education and have paid for encyclopaedia sets in our analog past but the re-housing of data does not mean the storage unit owns the data. Indeed my own and other's evaluation of the AI purveyors agree it may speed up the search for data but its offerings do not go far past the 'search engine' fare. And to a degree the element of trust has diminished. I suggest for a flawless and honourable system, all data should come free for all the world. Only in that way came we be sure of its non-malevolence. That data also needs to be highly protected.

This includes free availability of education systems in all countries. Why cannot we have a good dream every once in a while. Once it was a scandal if there were errata in a published document. Now there are deliberate attempts to obfuscate. About a third of the world (me included) misspelled dilemma as dilemna due to an error in a text book. There was a typo from 1842 in the book 'The Mirza' by British diplomat James Justinian Morrie. We can tell that it is a typo because he spells the same word 'dilemma' in six other places within the same book. The misspelling seems to have then gained currency and been transmitted within theological papers for the rest of the century, and half way into the next. During this time the same misspelling also found its way into the German language. The earliest example of this was from 1843, just one year after Morier's typo. It is suggested th reason 'dilemna' came into mainstream English usage and the core curriculum, was its appearance in Twain's Huckleberry Finn in 1884.

Will we just faithfully believe anything we are told online?
With big countries like the US and China in particular spilling out filth that is destroying land, sea and air and ICT being used to track and spy on law abiding citizens who speak up on these issues, to control and repress them, can we ever trust these systems again. These are the real challenges. The system needs to be fixed and flawless before we can put human lives in the hands of potential malfeasants. Corrupt governments have come and gone in most countries ad nauseum.

Am I the only person astonished that humans are blithely totally aware that we are destroying the planet's air, water and land and causing growing ecosystem damage which is already causing floods, fires and mass famines and lack of drinking water and nobody is genuinely fighting this? That we have primitive dictators still playing their games of wars and genocide happening across the world and the global population is not standing united against the psychopaths? Is this a time we should be just listening to what machines tell us is correct? Machines do not have morals, or intellect, or decency or loyalty or sacrifice. It is great that we can use them to save so much time in doing repetitive tasks or searching for elusive data but remember who and what we are.

Rather we are being occupied with baubles and AI and 'likes' and video games. The most serious game of life and death is happening on the planet as I write and it is real and those who dare mention it are called 'catastrophists' by the malevolent and greedy few. These are often the same people bringing us the 'miracles of AI'.

AI – does one size fit all?
In my work on global medical education on the Applied Sciences of Oncology some interesting observations came out of the project developed over many years to meet conditions in all countries.

We had to 'educate without teaching'. We could not assume (any common language, medical terminology, undergraduate general or medical education.) There was no ethnicity, no geography, no climate, no religion or culture that we could refer to. Using AI also needs to look at these issues but currently what has been churned out seems to focus on first world culture. Maybe just those with some money still left in their pockets.

From all the data in the ASO project we noticed a course of antibiotics in a lifetime of a person in a developing nation with an untreated chronic condition could have saved longterm cancer and we found that the mind did indeed play a part in the efficacy of cancer treatment. I think these observations were made with love - a caring concern for WHY these patterns emerged.

This is just one small illustration of no matter how much AI is 'out there to be tapped into' the situation in populations around the world are all different and language/dialects are different even within countries. My philanthropic work has found up to 30% missing medical education globally. Much of this has to do with poverty e.g. what is the education for where a doctor cannot afford modern diagnostic equipment and the patient cannot afford the medicines or tests prescribed. Indeed we had to re-write (localise) my first world produced postgrad medical education (QA&CPD) for doctors in each country we worked in and not only cater to medical issues pragmatically but local customs, religions, endemic issues etc. .

Primary care is linked to these differences and is very much a practical consideration in a wide range of human conditions.

Looking at the even bigger picture …
We already have many people globally self-diagnosing from details online – this may be both a good and bad thing. Some advice is often better than no advice but there are obvious concerns of misdiagnosis and or trauma from advice delivered without any form of counselling of patients.

Good family doctors are also proactive looking out for potential harm on an individual basis and screening for disease in cases of local outbreaks. They are aware that each patient is in a family dynamic, that some patients are altruistic and unselfish and may turn down expensive treatment or prolonged life for the economic considerations for families. In family medicine every patient is an individual and should be treated as such.

AI for evil
Even more disturbingly citizens of dictatorships are being tracked and face recognised by universal surveillance – not for their benefit but for their dictators to keep an eye on them so they can stop subversion.

Human DNA is being collected by rogue states as a means of oppression and limiting of movement of populations 'earmarked' for genocide.

These practices are people's worst nightmares already. They always have been and there have been many books and films on these 'dystopian futures'. The reality we are currently facing as a global people is far worse than the literary mind can project as many so called movements are anti-human (apart from those in their dictatorship clique – and even they have to continually watch their backs).

What is next? – your DNA shows you have no right to live. Where and how can you hide when your biochemistry condemns you to death? Is this histrionics? Just a worse nightmare?, look at the current world where genocide is happening before our eyes.

And it is not just the topic of a Compassion Circuit in John Wyndham's short story where an 'over-caring' AI robot decided a frail woman needed a full body transplant, to be cut off at the head. Compassion is not listed in the real problems facing the relegation of care of humans. (The Seeds of Time/The Compassion Circuit John Wyndham)

Will we 'hand over' to machines? After all humans and computers are much the same; we are run by electricity – all atomic matter is electric; indeed we are not much more than electric circuitry ourselves, with a few photons thrown in and a magnetic field.

These days it is argued (How the Universe Works) by theoretical astrophysicists and quantum physicists– that all atomic matter is consciousness – we in the known universe are all made of the same stuff – and we are also all electricity which should have made 'true AI' really interesting, but again what is churned out just deals with the same old topics out there that we already know about. We are holograms that have made holograms. We are intelligence that has made some clever technology. Sadly it is still mostly primitive technology. We are AI (with a sprinkling of EI) using 'AI'.

I suggest that EI (Emotional Intelligence) is the crux of the matter
EI is our biggest human asset in our brutal and unjust world and lack of EI is our greatest danger.

With the current geopolitical state of the world it is far too dangerous to put any vital information online in ICT or 'AI' format - it will just provide temptation for degenerate actors to attack populations.

While I have never come across another life form, plant or animal, that was evil, there is a huge variety of 'human nature' – some are peaceful, gentle and caring, but some are evil and brutal and cruel, war mongers and mass murderers. Indeed there seems to be no end to the way humans can cause harm. The two greatest forces working against a cohesive society are lust for money and lust for power.

All electronic information sources which can be used by the malfeasant are already being exploited.

Of all life in the known universe, humans are the only ones known to be greedy (take more than they need) or deliberately malicious. Yes, most of us are vacuous creatures and need good advice but I suggest we need to work out who and what we are and our standards along with our limitations before we get to the ridiculous stage of putting all we have learned over the millennia in the hands of a few.

The ego and ethical shallowness of some humans shows no bound along with greed and lust for power. They in effect already 'rule the world'.

We all 'know better' but we don't 'do better' – that will never change.
Ai is already being used politically to create fake news and fake images - as with many aspects of IT, organised crime is making it difficult to trust any communication online and its costs ordinary people $1.026 trillion globally, equating to 1.05% of the global GDP, per year. This amount reflects the impact of scams and identity theft on individuals and economies around the world.

I would have thought that finding a totally safe environment for the world's knowledge to be housed and dispensed from, would be the first and most important aspect to be considered before looking at its distribution.

As the world becomes more corrupt and overtaken by misers and dictators, medicine too will be devalued - music artists and actors are currently losing work to AI. You don't have to pay a machine and you can make it do whatever you want. AI may be the final knife in the back of civilised humanity, NOT because AI it is in itself corrupt but because of human greed and lust for power.

What a great market human health is - we already have gross national players in certain nations harvesting people's organs for sale, convincing vacuous people to change their look with very questionable and health destroying and disfiguring plastic surgery techniques while children in other countries need basic healthcare to survive. And this is being condoned by governments in the most autocratic states and in democracies. The 'victims of plastic surgery' are victims of AI already – wanting to look like images that are already faked.

And take pity on the animals that are being slaughtered worldwide for fakery and profit.

How long before AI consulting rooms online?
You think you are talking to a doctor and getting personal advice but the 'creature' before you does not have a heart and mind, does not have sympathy and empathy, does not 'think out of the box' – literally!

Certainly AI will be the buzz word and the basis of marketing in the next decades and we will see a multitude of re-naming of old products that never thought for themselves in the first place. AI is already becoming boring in its self-labelling and self–aggrandising. What was once a clever algorithm or software will now have a trendy name.

Various technology company leaders also question what is being served up as "AI":

AI according to the technology experts:
Open AI calls Elon Musk's lawsuit 'frivolous' and 'incoherent' in legal filing.

The Tesla CEO's suit says the company abandoned the founding mission of openly sharing its technology to better humanity.

What to make, then, of the explosion of supposed-AI in media, industry, and technology? In some cases, the AI designation might be warranted, even if with some aspiration. Autonomous vehicles, for example, don't quite measure up to R2D2 (or Hal), but they do deploy a combination of sensors, data, and computation to perform the complex work of driving. But in most cases, the systems making claims to artificial intelligence aren't sentient, self-aware, volitional, or even surprising. They're just software. (Hauser, Larry, Alma College, U. S. A.)

Artificial intelligence is cited as a barrier to strengthen an American border wall, but the "barrier" turns out to be little more than sensor networks and automated kiosks with potentially-dubious built-in profiling. ((Hauser, Larry, Alma College, U. S. A.)

Isbell suggests two features necessary before a system deserves the name AI. First, it must learn over time in response to changes in its environment.

For Isbell, "true" AI requires that the computer program or machine exhibit self-governance, surprise, and novelty.

"Whenever someone says 'AI' what they're really talking about is 'a computer program someone wrote.'" bot author Allison Parrish

Stanford computer scientist Jerry Kaplan makes a similar argument: AI is a fable "cobbled together from a grab bag of disparate tools and techniques."

Microsoft's Kate Crawford: 'AI is neither artificial nor intelligent'

Alan Turing asked, "Can a machine think?".

Only rational individuals have standing as moral agents and status as moral patients subject to certain harms, such as being betrayed. Only sentient individuals are subject to certain other harms, such as pain and suffering.

If that is the case then have they thought of the moral issues involved, and in the case of Family Medicine including patient safety and human rights implications of what they 'say'. If used for medical advice do they operate in accordance with the Hippocratic Oath. Can they make medical decisions in palliative care, can they do 'small harm today to lessen longer term harm'. I.e., therapeutic surgery. Have they considered the welfare of that patient in terms if his/her age, family position, religion, social norms, the patient's hopes and dreams or that patient's wish to no longer face every day in pain? Any family doctor will know that these considerations are unique to every single patent. Mostly they come down to individual patient's wishes. Every patient has the right to make their own decisions even if they go against the norm. Palliative Care is the basis of John Wyndham's "AI story" The Compassion Circuit. It was written in 1954. We still have not learned.

Descartes says our intelligence is amply manifest in our speech. Alan Turing suggested that if computers showed human level conversational abilities to a level of other humans we could be assured of their intelligence.

Yes computers can perform extremely complex calculations, but is this intelligent? If it is then a hand calculator is also AI.

MYCIN applies rules culled from interviews with expert human diagnosticians to descriptions of patients' presenting symptoms to diagnose blood-borne bacterial infections. MYCIN displays diagnostic skills approaching the expert human level, albeit strictly limited to this specific domain.

But I suggest MYCIN would be at a loss when it comes to presenting the patient with the diagnosis in relation to the patient's temperament, family situation, economic situation, etc. My company developed the first BMI calculator using ICT as part of an educational package decades ago but I did not call it a GP/FP or doctor. It was and is a tool.

Can AI tell when a human lies, for good or bad reason, not for their own sake, but for the sake of others to save them pain, to save the family from expensive outlay for a medical procedure, to retain their dignify because they put dignity and decency before the value of their own life. That is what makes them intelligent humans - applying reason, not logic. An astute human/doctor may 'know the nature of a man/patient and know family dynamics, an astute family doctor may recognise that dignity can take precedence over the purely practical. We all have a lot to learn.

Human Intelligence (HI) and Emotional Intelligence (EI)

Humans are more than eating and defecating and pill popping and self-hygiene entities – they have memories and tastes and preferences and non-metabolic pain and sad memories and love and hate, heartbreak and fear, and soul and inspiration and duty and loyalty and devotion – those human qualities cannot be quantified and do not necessarily follow any logic.

We need to have faith in the future, stop wars and usury and greed and violence, and save our world – these are all real terms as is the very nature of human intelligence. Leave me with my worries and pains lying with my back on the grass on a sunny day watching fluffy clouds pass by and pondering on the true nature of life and the complexities of the universe.

Of course AI should have been a gift to us all – to help us manage the endless data and knowledge we have discovered and developed over the many millennia we have lived. Putting it all into the hands of the greedy and the malfeasant does not seen a good idea.

The "Hero factor- when an action goes beyond all reason or caution, but a human does it anyway out of kindness and even with a fatal end is NOT good machine logic but would be classified Emotional Intelligence. Perhaps this is the crux of intelligence. A machine needs to qualify its actions and suggestions with Emotional Intelligence before it can lay claim to Intelligence. Without such intelligence it remains as barbarous as the humans who lack the same EI.

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