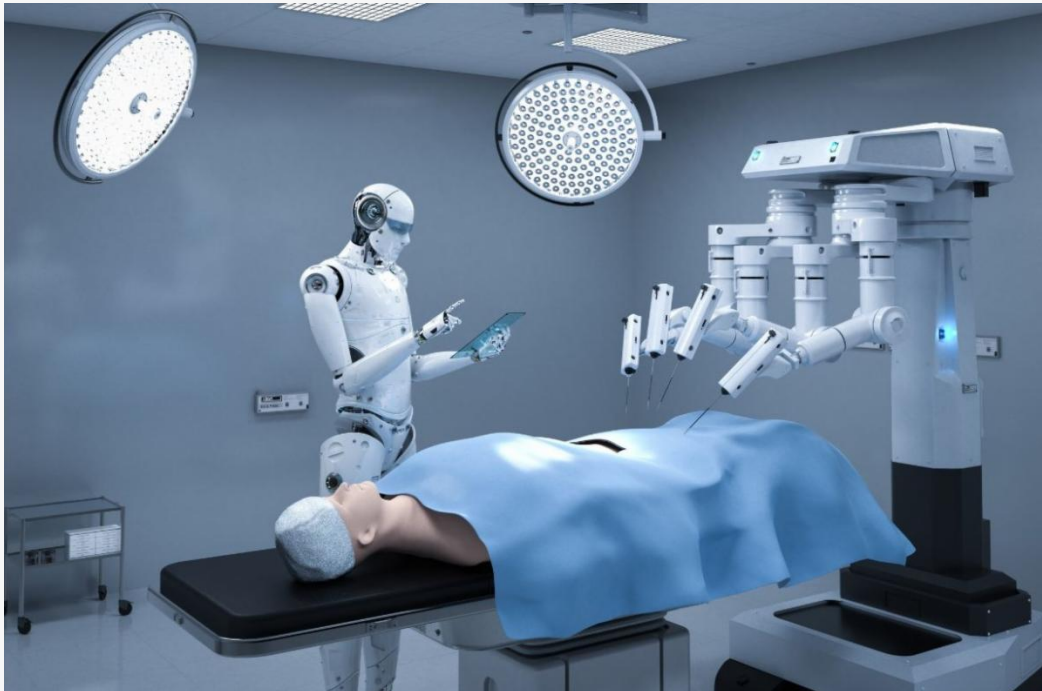




MICROSCOPIC COLITIS NEWSLETTER

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Healthcare, and How It Will Surely Change in the Future.

In today's healthcare system, in the U.S., and many other countries, the diagnosis and treatment of microscopic colitis (MC) leaves a lot to be desired, to say the least. Most MC patients find that their journey from the onset of symptoms, to an accurate diagnosis, and eventually, to the resolution of their symptoms (if indeed, their symptoms are resolved), typically takes an unacceptable amount of time, and is marred by one frustration after another.

The Covid 19 pandemic added to the delays.

Most patients have felt that getting a diagnosis of MC has always taken way too long for a disease that often has such debilitating symptoms that we're afraid to leave the bathroom. And after the advent of the Covid 19 pandemic, diagnoses take even longer in most cases, as appointment wait times have increased worldwide. Some countries have experienced a mass exodus of doctors and nurses, due to burnout and dissatisfaction with the way the system is headed, causing even more appointment delays.

In the US, for example,

many doctors are increasingly becoming disillusioned, as they've slowly lost control of their ability to perform their work as they see fit, due to restrictions dictated by insurance companies, pharmaceutical companies, hospital administrators, boards of directors of hospitals, government regulatory agencies, and the constant threat of lawsuits.

They're left with precious little discretion when diagnosing and treating patients. Their role has diminished almost to the point where they spend most of their time updating patient files and government-required records, and even the rules governing those functions are rigidly regulated by someone else. And they don't dare take a chance on thinking out of the box when treating difficult cases, because far too much of their income already has to go to liability insurance.

Not surprisingly, many doctors may feel as though they are pawns of the healthcare system, as robots, computers, artificial intelligence (AI) algorithms, and wearable diagnostic devices take over increasing amounts of their work. They continue to lose prominence in a system in which they were once dominant. In the U.S., at least, doctors appear to be choosing early retirement, and making career changes, in unprecedented numbers.

U.S. patients are tired of being overcharged for poor healthcare service.

In fact, earlier this year, Time magazine published an article detailing why Americans are "burned out", and rapidly losing faith in the U.S. healthcare system (Ducharme, 2023, February, 27).¹ As the article points out, it appears that unless drastic changes are made (and no significant changes appear to be imminent), more and more U.S. patients will be abandoning the U.S. healthcare system. According to a 2019 article published in JAMA Internal Medicine, about 1/4 of American adults don't have a primary care provider (Levine, Linder, and Landon, 2019).²



Anger and violence against healthcare workers is at an unbelievable level.

According to a MedPageToday online article, the occupation that accounts for the highest number of nonfatal workplace injuries and illnesses in the U.S., is healthcare (Ho, 2023, September 3).³ At 73% of the total, healthcare workers are exposed to more violence than any other profession, including law enforcement. That unenviable statistic by itself clearly implies that something has gone very wrong with the system. Obviously, MC patients aren't the only ones who are dissatisfied with the healthcare system.

And there appears to be a problem with the care some patients receive.

For example, in a survey of U.S. Mothers, conducted by the Centers for Disease Control and Prevention (CDC), 1 in 5 respondents say they were mistreated during their maternity care (Mohamoud, et al., 2023, August 22).⁴

Why is the U.S. maternal mortality rate during childbirth so high?

The U.S. has the highest maternal mortality rate related to childbirth among the developed nations. And according to the CDC report noted above, the mortality rate is increasing. In fact, according to statistics, it's been increasing for decades.

Opinions differ regarding the reasons behind this problem.

Most medical-based sources claim that this is due to a number of increasing problems, such as teenage pregnancies, or at the other extreme, women postponing having children until later in life. They blame the increase on escalating trends in pre-existing health problems, obesity, hypertension, cardiovascular disease, and various other health issues.

But many private sources point out that many women are simply not receiving an adequate level of medical care, primarily due to racial and ethnic issues. In 2021, for example, black women were faced with a maternal mortality rate that was 2.6 times higher than white women, according to statistics.



Another reason for patient dissatisfaction with healthcare is medications.

In the U.S., medications are progressively becoming unaffordable for anyone who is not wealthy. Many of those who need them the most, cannot afford them. A major problem is inadequate labeling. In the U.S., pharmaceutical product labels are only required to display the active ingredients, and the respective amounts of the active ingredients. Although most manufacturers choose to list many of the inactive ingredients, they are not required to do so. Who's to blame? The U.S. Congress.

Obviously, this can create serious problems for people who have food and chemical sensitivities, because not even the most common allergens are required to be listed. Some medications designed for treating digestive problems, for example, contain ingredients that are known to cause digestive system reactions.

Recent changes in FDA policy are concerning.

In 2017, the U.S. Congress enacted the 21st Century Cures Act, which gave the Food and Drug Administration (FDA) more discretion in applying evidence-based standards regarding the approval of “novel” drugs. Novel drugs are simply new drugs, meaning that they have never existed previously. And of course, that implies that no one has any idea of how they might affect any users' long-term health. Note that this occurred before the Covid 19 pandemic, so the intent was not to speed up the approval of new drugs to treat Covid 19. The law appears to have been passed in order to simplify life for the pharmaceutical companies, rather than to benefit consumers.

And FDA oversight declined, as a result.

Researchers looked at the 37 new drugs that were approved for use by the FDA in 2022 (Kaplan, Koong, and Irvin, 2023).⁵ Only 55% of the trials submitted to the FDA were randomized trials. 65% of the approved drugs (24 drugs), were supported by only a single study. The trend is clearly toward faster approval, based on less evidence, And in addition, less information is being posted on ClinicalTrials.gov, so that consumers now have less information available to them on which they can base their decisions, if they are considering using any of these drugs. How could this be a good thing? And again, in this case, the U.S. Congress is responsible for the decrease in consumer benefits.

How will healthcare change in the future?

Medical researchers predict that over the next 50 years, healthcare will incorporate the use of AI and robotics (Mälardalen University, 2023, July 5; Kulkova, et al., 2023).^{6, 7} They predict that global issues such as climate change, hunger, and disease trends will affect healthcare in the

near future, and telemedicine (remote medical care) will be used more often.

Healthcare costs will probably receive closer scrutiny.

In countries where healthcare is the most expensive, hospitals are likely to be funded based on their results. The researchers predict that in 10 to 30 years healthcare will become more personalized as the use of wearable electronic devices increases. Although all their predictions seem to be rather obvious, their predictions for 30 to 50 years in the future don't contain much substance, focusing on rather obvious issues, such as increased antibiotic resistance, for example.

Changes in healthcare will almost surely occur sooner than predicted.

With all due respect to the perspective of medical researchers, technology will leave healthcare systems in its dust, if they don't adopt changes more quickly than predicted. The sudden state of urgency created by the Covid 19 pandemic opened our eyes to the fact that healthcare systems tend to respond far too slowly to chaotic events. In the U.S. alone, probably 1/3 of a million people died unnecessarily because of a slow and inadequate response to the threat imposed by the Covid 19 virus.

Technology is advancing at an increasing rate.

And that includes technology related to healthcare. A huge investment has been made into the study of genetics and genomes. The individual genetics of patients will surely be an important consideration used not only in personalized treatments in the future, but in preventive care, as well (Yehia, and Eng, 2023).⁸



Smart phones and associated accessories (such as smartwatches) are currently facilitating a revolution in the ability to measure, monitor, and report symptoms associated with possible health issues. Smartwatches, for example, can measure heart rate, blood pressure, blood oxygen level, skin temperature, sleep patterns, and a couple of them even incorporate an FDA-approved ECG sensor to watch for atrial fibrillation. When paired with their associated smartphone app, they're capable of providing an electrocardiogram that can be sent straight to a cardiologist, who can assess a patient's heart rhythm, beats-per-minute (bpm) rate, and electrical activity. These smartwatches are available now, at a relatively reasonable price.

During a recent Society of NeuroInterventional Surgery annual meeting, researchers discussed a smart phone app capable of detecting when a patient was having a stroke (Society of NeuroInterventional Surgery, 2023, August 2).⁹ Some of the smart phone apps are using AI, now. And these are only a few of the reasons why healthcare will surely change at a faster rate than predicted.

The weakest link in the chain appears to be medical schools.

They're not properly preparing doctors so that they can do their work. Food sensitivities, for example, have been an increasing problem for decades. Have medical schools changed their curriculums to address this issue? If they have, it doesn't seem to have made much difference, because they continue to turn out graduates who are unprepared to treat patients who have food sensitivities.

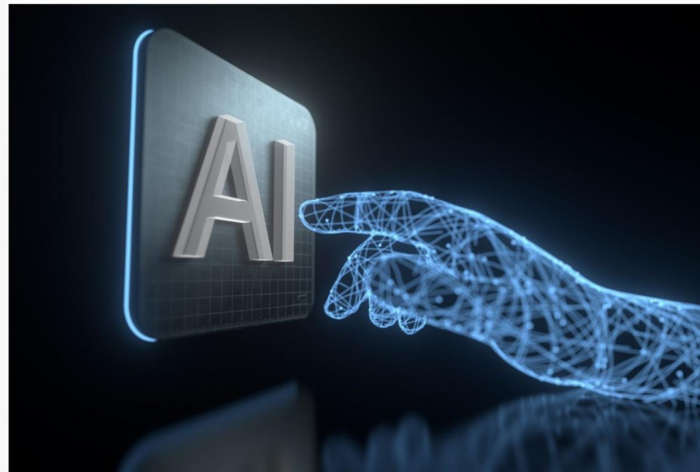
Medical students are skipping lectures.

According to a recent Medscape article, the most recent survey of second-year medical students, by the Association of American Medical Colleges (AAMC) showed that 1/4 of the

students never attended their in-person lectures in 2022.¹⁰ But, of course, that doesn't mean that they're not learning. Today's students grew up using computers, so they're comfortable using online educational methods. Many medical students were using alternative learning techniques long before the pandemic came along. And, most medical school faculty members appear to be on board with this approach to medical student training.

Online coursework allows more flexibility.

But medical students who skip lectures, tend to be more selective in their studies, and if they choose to ignore certain areas, and medical schools don't adequately test students' competency in all important areas, these loopholes leave gaps in their students' training. So, if students choose to ignore learning about food sensitivities, for example, then they will perpetuate the problem, unless the medical schools step up and make sure that their graduates are qualified to diagnose and treat food sensitivities.



We seem to encounter AI at every corner, these days.

Are med schools properly preparing doctors so that they can correctly use AI algorithms when treating difficult cases? I, for one, would hate to think that my doctor is using AI technology when treating me, if he or she doesn't understand how to properly select AI options, in view of their respective limitations.

A research study done at Mass General Brigham evaluated ChatGPT.

Using all 36 published clinical vignettes from the Merck Sharpe & Dohme (MSD) Clinical Manual, the researchers asked ChatGPT to come up with diagnoses and treatments in each of the scenarios (Rao, et al., 2023).¹¹ They found that the overall accuracy was about 72%, and the final diagnosis accuracy was about 77%. The researchers concluded that this was impressive accuracy. Really? Compared with what?

As time goes on, and it continues to learn, ChatGPT (and hopefully, AI algorithms dedicated specifically to medical issues) will surely improve its performance, but if I knew that my doctor was only correct 77% of the time, I would be disappointed. Or am I just naive — maybe this actually is an impressive result. That's kind of a sobering thought, if true.

Another study evaluated ChatGPT's cancer treatment guidelines.

Researchers at Brigham and Women's Hospital compared ChatGPT's cancer treatment recommendations with accepted treatment guidelines from the National Comprehensive Cancer Network (NCCN) (Chen, et al., (2023, August 24)).¹² They were disappointed to discover that one-third of the treatment recommendations made by ChatGPT were at least partially out of compliance with the NCCN guidelines, and recommendations varied depending on how the question was asked.

AI is not "Google".

One of the biggest problems with AI, is that various AI algorithms are limited by the data on which they were trained. If they were trained on obsolete (or incomplete) data, their usefulness may be limited, or even contraindicated, and in healthcare, that's obviously important. If we do an Internet search using Google, we get results based on current (up to the minute) information. If we make a request using AI (using chatGPT, for example), we get results based on the extent of its training, which is rarely current. In other words, anyone using AI to support their work, should be

familiar with the information to begin with, because AI is biased by its training.

That said, most of us are well aware of the fact that many of the diagnostic procedures and treatments in current use today by many doctors are obsolete, especially regarding MC. In light of this problem, incorporating AI should provide our doctors with an incentive to update their training, and provide them with a relatively easy way to accomplish that.

AI will soon begin benefiting healthcare.

A recent announcement in Gastroenterology & Endoscopy News revealed that the FDA has approved software for use in real time during colonoscopies (Gastroenterology & Endoscopy News Staff, 2023, September 2).¹³ The software was found to increase the detection of adenomas (benign tumors in epithelial tissue) by 26% (compared with current methods) in a multicenter study involving over 950 patients. The software will be available for use in the U.S. this fall.

The rich get richer and the poor get poorer.

And the only suggestion that various elite authorities seem to be able to come up with, regarding the disparity between healthcare in the developed nations, and in the undeveloped nations, is that AI may somehow help, but no one appears to be willing or able to elaborate on that observation.

But the bottom line in healthcare, is quality care at an affordable rate.

The best healthcare in the world is of no use to a patient who can't afford it. And at the other extreme, easily affordable healthcare is of little use to a patient if it can't provide the standard of care required, in a timely manner. Hopefully, as healthcare moves into the future, everyone's healthcare needs will be met effectively, at a reasonable cost, and the problems of today will fade into mere specks in our rearview mirror.

In 1903, Thomas Edison said, *"The doctor of the future will give no medicine, but will interest his patient in the care of the human frame, in diet and in the cause and prevention of disease."*

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