Considering Medical Technology Use, Ethics and Litigation

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ABSTRACT

Medical resources such as technology are generally limited and should be used in such a manner as to benefit not only those in private healthcare but all individuals requiring ‘good quality’ healthcare. Patients are generally passive users of technologies and trust both the technologies and their medical practitioners. It is, however, often the case that things go awry and litigation follows the use of a certain technology. The result is a large amount of increases in claims made to medical schemes for medical technology usage, a situation which is untenable. Any decision to introduce new medical technology necessitates that it not only increases the chances of patient survival and/or quality of life, but that it should also be economically viable and necessary to fulfil objectives that are not attainable through existing technologies that may cost less. Trust is a central aspect of doctor patient relationships and the use of technologies can augment or reduce that interpersonal relationship. This is a trust that should not be abused, be it wilfully or unintentionally. Medical device users include medical practitioners such as inter alia clinicians, patients and carers and each of these must be confident about the use of technology and be ethical in its application. Thus, a principle-based approach should be adopted in medical technology use. Part of which are doing the right things for the right reasons, becomes the mantra.

KEYWORDS: technology, litigation, increases in claims, ethical, principle-based approach

INTRODUCTION

There is no doubting that huge strides have been made in medical, scientific and technological innovation. Medical technology includes a wide range of apparatuses available to help diagnose, treat, or manage a patient’s health. Medical equipment, especially, is of interest in this article. One cannot dispute the fact that there have been and continue to be technological advances in medical equipment and that, for the most part, it greatly improves a patient’s quality of life and may also extend life. Nonetheless, medical practitioners still face ethical challenges when they opt to use medical technology. The motivation for its use must be focused on the patient’s wellbeing and not the bottom-line. Where the latter dominates, the use of such technology can have severe negative long-term results. In addition, technology use may severely escalate patient costs, based upon the research and financial resources needed for its marketing.

A wide variety of new and important changes continue to manifest in virtually all areas of medical science and research. New medical devices particularly, as well as information technology usage, are impacting on patient treatment. In addition, a host of moral and ethical issues are constantly emerging in healthcare, related to technology use. Technological innovation will continue to transform healthcare. However, although new technologies affecting, for example; devices, drugs and treatments, will propel innovation, the human factor cannot be ignored. It will remain one of the stabilising limitations of both discoveries and inventions. There have been efforts made by certain researchers to improve the level of awareness and general understanding of the new technological advances in healthcare as well as concerning the diffusion of new technologies and product characteristics and their scientific efficacy. Technology use in medical care may also carry values that may challenge the dominant moral principles or rules in a society in which it is used.

Doing the right things for the right reasons
We should not at any point forget that patients are the ‘raison d’être’ for healthcare. Subsequently, it is they who should be central to it. Thus, any technological inclinations and motivations in healthcare need to be focused on a patient-centered perspective. While the cost and effectiveness of technology are important considerations. Medical practitioners should not lose sight of the moral significances of its use or of the justification for prescribing it to patients. The care provider is an intermediary between the patient and the technology that is prescribed and the relationship between the two is based on trust. Patients usually have great faith in their medical practitioners. They consider them to be empathetic and reliable partners that can be depended on to alleviate a health condition. There is a strong association between a medical physicians’ inclusive knowledge of patients. This will include their trust in a particular physician and outcomes such as adherence and contentment, which also includes the technology that is prescribed. Some important questions need to be raised prior to use of new medical technology. Does the new technology supplement existing treatment for example, or is it a full or partial substitute for current approaches? Do these changes result in higher or lower health spending for each patient treated? When looking at the impact on cost per patient. Consideration needs to be given to whether the direct costs of the new technology include any effect on the use or cost of other healthcare services, such as hospital days or physician office visits. A second factor is the level of use that a new technology achieves (i.e., how many times is the new technology used?). Does the new technology extend treatment to a broader population? Examples could be “innovations that address previously untreatable illness, diagnose new populations for existing treatments, or extend existing treatments to new conditions.”

**TECHNOLOGY AS A METHOD**

The aim of technology is its utility. But it nonetheless needs to take into account a range of elements, including people who use it, how it is administered and controlled, and the socio-cultural environment in which it is used. Its use should serve to transform a situation so that its application based on existing knowledge is put towards a useful end, which implies an improvement in a situation. The motives for using technology should be based on an impartial concern for others, and the value it brings, inasmuch as it promotes humanistic ends. Its use should be based on conscientious actions which have ethical value and which themselves are based on virtue ethics.

Technology affects medical systems as “new technologies frequently substitute for older technologies in the therapy of established patients – called the “treatment substitution effect”, and they lead more people to be treated for disease – termed the “treatment expansion effect.” Technological advances do generate opportunities for errors in diagnosis and also treatment, and the upshot of such errors may be supplementary visible, and produce even more severe injuries.

A doctor should identify a problem faced by a patient, define the problem and then analyse it. He or she should then seek to identify desired objectives in treating the patient and what the likely constraints are. After careful reflection by both medical practitioner and patient desired path of action should be considered with a range of options that the patient can agree to. Once this happens, a plan can be implemented so that a patient can then begin to use a particular medical technology. Integrating technology into medical care will always pose a challenge to medical practitioners. This is especially so in a world in which new technological knowledge is growing at an exponential rate. While a practice can leverage technology to create new opportunities for itself, it should nonetheless maintain an ethical stance. The implication is that using technology must be a collaborative exercise in which there is a sound inter-relationship between a caregiver and the patient. Globally, health policymakers are increasingly arguing that new technologies should be evaluated before they permeate into what is usually routine clinical practice. Once technology has been procured, it needs to be preserved to maintain its technical operability.

The challenge is great and will become even greater in the foreseeable future. The quest for ever-greater profit has led many medical practitioners to prescribe the use of technology in healthcare, even when it is neither required nor financially and practically feasible. The problem is exacerbated in both poor and wealthy nations, where healthcare affordability for the average citizen is diminishing. The rising costs of healthcare pose a severe challenge, even without the use of technology, which, when prescribed unnecessarily, has a further and very negative impact. In some nations, healthcare is viewed as a privilege and not as a right and many patients need to provide for themselves. Unfortunately, many are burdened through what is often the unethical prescription of medical technology based on ignorance or greed, which is a very unfortunate state of affairs.

**TECHNOLOGY IN MEDICAL USE**

Western medical ethics can be traced to the advice on the responsibilities of physicians in ancient classical Greece, as found in documents such as the Hippocratic Oath. Such ancient codes allude to the idea that medical practitioners need to consider the social and ethical implications of technology use. From the early 1970s, ethics has grown in medicine and its related areas. This shift is evident in the aggregated use of institutional Review Boards. They evaluate technology used, hospital ethics committees and experimentation on human subjects, as well as the incorporation of ethics courses into medical school curricula. Medical technology advancement is, nowadays, an accepted way of life.

“Medical technology is so uniquely powerful that its impact is felt not only in daily life, but also in the way life is viewed… While Americans might decide to limit “halfway” or exotic, science fiction inspired technologies, such as artificial hearts or brain transfers into robotic bodies, it would appear unlikely they would ever approve limitations on medical research whose focus is to discover technologies… which not only maintain qualitative existence, but extend life.”

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The Journal of Medical Laboratory Science & Technology South Africa | 27
Health technology requires careful assessment prior to use and its thrust must always be the idea of improving healthcare. There must be strong evidence for all technology use decisions and this must be transparent for all stakeholders to be able to access. All possible outcomes of its use must be explained to a patient on the receiving end. Technology use in the medical sphere needs to be well understood and all the information that is disseminated relating to it needs to reveal its likely impact on the sector and the people who use it. What is critical is that ethical, legal and social aspects be carefully considered by medical practitioners before they recommend or use it.

Studies have demonstrated that doctors can be greatly influenced by company inducements, including gifts and food, to use certain items, and it is also the case that industry-sponsored Continuing Medical Education (CME) programmes encourage certain prescriptions to be made. While technology is often essential in healthcare, the industry often falls short in terms of the level to which it incorporates the myriad of possible benefits of using technology. Healthcare is also plagued by the incapability of supposedly top-notch electronic medical record systems to proficiently share data between health providers and health systems. It is often the case that patient data repeatedly gets locked up in one system, making access to that data difficult or even impossible. This really is a moral and ethical issue because it not only affects quality of care, but it may even impacts on patient safety.

When using technology, there is at times a sad pretence that clinicians know all there is to know about a disease or about a technology that is best-suited to combat it, and so it is the patient who ultimately pays the price for unethical conduct. While doctors are the first who should know about germ theory and antiseptics, it is not uncommon to visit a practice where a doctor is seen failing to observe even the most rudimentary hygiene practices, such as washing his or her hands before and after examining a patient. Many doctors nowadays have become overly reliant on technology and this is crippling their ability to think for themselves when making a diagnosis. It seems that jumping from the patient’s chief complaint to a host of tests and procedures has become virtually a routine. And when that approach fails, the physician typically orders more tests and seeks numerous consultations. By integrating ethical considerations into patient care, and by improving the medical practitioner’s knowledge on the uses and also the relevance of available technology, healthcare can be greatly enhanced.

One often falls into the trap of believing that technology is always needed and “great.” In truth, it does not always have an agenda of serving healthcare. It often develops because of the desire of medical practitioners to lower costs of production and it is not always driven by the notion of making people well. Its primary motivation is often merely profit driven. There is also the issue of status, where a target market of innovators is often a hospital or medical practice that is willing to spend vast amounts of money for what is considered to be impressive equipment, such as PET and magnetic resonance imaging (MRI) scanners and linear accelerators.

Doctors are tending to become deficient in clinical skills due to their reliance on technology and are by inference growing ill-equipped to render good patient care. Consequently, it is an indictment on the profession that many: “Cannot take an adequate medical history, cannot perform a reliable physical examination, cannot critically assess the information they gather, cannot create a sound management plan, have little reasoning power, and communicate poorly. Moreover, they rarely spend enough time to know their patients. And because they are quick to treat they learn zero about the natural history of disease.” Many send patients for a multitude of test procedures, but do not always know when to order them or even how to interpret them and unwittingly acquire a laboratory-oriented rather than a patient-oriented mindset.

What is even more important is the assessment of technology used in medical care and the ethical basis for such analyses. Health technology per se could conceivably challenge the moral or cultural values and beliefs of people, and its application could also have a substantial impact on a patient as well as other stakeholders. Health technology assessment (HTA) is a process that is both morally and ethically critical. How is technology assessed? And using whose values? For example, through the application of an ethically driven modus operandi, the use of technology assessments in healthcare can be more meaningful and add genuine value. Despite the advantages of technology in healthcare, there will always be numerous issues to consider during its implementation in any medical practice. The medical and care value should always be the first consideration, followed by economic issues, and each should ultimately be placed under ethical scrutiny.

Beauchamp and Childress developed a collective framework which is used in the analysis of medical ethics. It is comprised of key basic moral principles postulated in their work Principles of Biomedical Ethics. They state that the four principles need to be evaluated in tandem with one another and how they are applied in a given situation. First and foremost, in terms of the notion of respect for autonomy patients should be able to decide if they wish to undergo inter alia, any treatment or use of technology or not. In terms of beneficence, a medical practitioner should always strive to act in the best interests of his or her patient. This should also be in a spirit of non-malefice where the patient is caused no harm whatsoever. Thus, the efficacy of medicine, technology or treatment should promote greater value than promote harm. It is also critical that justice prevail in the issue of the distribution of limited health resources. The decision as to which patient gets which treatment must be based on a strict sense of equity. Consequently, the implication is that medical care decision-related issues must be based on a joint knowledge base and that patients must be the ultimate decision-makers.

Autonomy in medical care is essentially a response of patients to medical practitioner impositions relating to an approach to treatment. It is about people choosing and not being dictated to and it relates to the rights of a patient to self-determination in accepting or rejecting technology usage based on their informed decision concerning it. It has been the case that many medical practitioners adopt a highly paternalistic approach when dealing with patients and technology use, and they simply impose the use of technology on their patients. Medical practitioners may argue that patient autonomy limits their efficacy, as patients who reject the use of a technology, may be impacted adversely by their choices based on lack of knowledge. It should always be the case that a medical practitioner can propose a
technology to be used in treatment of a condition, and advise on its value. But there should be no coercion applied towards the patient in regard to them making a choice. Such coercion would inevitably be a violation of the principle of autonomy. Clearly, if a patient is incapacitated to such an extent that he or she cannot adequately decide for him or herself on the use of technology a well-informed medical practitioner should be able to step in and do what is considered to be best for that patient.31,32 There will invariably be situations that arise in which decisions have to be taken and in which there are restricted resources, diverse choices and/or other contradictory moral apprehensions. In any such scenario, great care must be taken to ensure that the patient is not compromised and that all available healthcare resources are used rationally and equitably.

Beneficence refers to all activities that support the wellbeing of patients.28,29 It implies that medical practitioners should do all they can to assist their patients in each and every situation, serving the best interests of patients. Additionally and perhaps more importantly, the patient’s family also require that support mechanism. Consequently, any technology recommended must serve the ultimate goal of helping the patient.29 This means that medical practitioners must be fully au fait with the latest technologies and their likely impact, based on tried and tested assessments. Each individual patient’s circumstances must be carefully considered and ultimate healing must be the driving force in prescribing the use of technology, not financial gain.29

Non-maleficence means, “to do no harm.”30 Consequently, it is more significant not to harm a patient than it is to do them some good, and this is also part of the Hippocratic Oath that doctors take.31 A medical practitioner, also needs to consider if not only the patient, but other people or even society, might in any way be impaired by any decision they make relating to technology use. This is even though any such decision they make may be the overall benefit of an individual patient.29 The benefits of technology use must always outweigh the possible risks that may arise. This needs to be carefully balanced as a double effect of consequences that may be created by a single action can be an outcome – thus beneficence and non-maleficence may happen simultaneously and both negative and positive effects may result. It may be the case that a medical practitioner feels that he or she can help a patient only by first bringing into play a bad effect. Arguing in a double-effect reasoning modality in order to validate a decision they may have taken.34 This principle seeks to deliver specific guidelines for determining when it is morally acceptable to perform an action in the quest of a good end, when one fully understands that the action will also likely bring about some bad results.

The principle of justice refers to the moral obligation of a medical practitioner to act on the basis of impartial resolution of a patient’s health issues when viewed amid contending claims.35,36 There must be adherence to the law and fairness in decision-making for patients, and also an equitable distribution of limited resources and new technologies. This is especially true regarding patients, in public hospitals. They should have a sense of fairness and entitlement as citizens or guests of a country, and therefore the notion of distributive justice and respect for patients’ rights is critical.37 Alperovitch et al (2009) asserts that justice is a principle which relates to both equality and equity. Medical practitioners need to make decisions, for example, for those whose dignity is threatened by poverty so that the entire community can enjoy a similar life expectancy and quality of life. This is, of course difficult. Factors such as: age, place of residence, social status, ethnic background, culture, sexual preferences, disability, legal capacity, hospital budgets, insurance cover and prognosis48 play a role in the life expectancy and quality of life of the patient’s concerned.

Medical practitioners need to consider carefully if the use of a particular technology is safe and if it has been proven to have clinical effectiveness. In addition, is the technology in question suited to help with a given health issue and is it still a technology which is widely accepted and used as having the required efficacy? They also need to understand its technical physiognomies and be able to describe it to a patient or their legal spokesperson. Does the technology make economic sense and is it cost-effective in a given practice, considering the socio-economic structure of the community in which it is to be implemented? Is it ethically, socially and legally acceptable to use this technology?19,20 The medical practitioner’s clinical expertise and self-worth may be called into question when using medical technology. He or she will need to be au fait with the efficacy and value of such technology and be able to discuss effectively with patients, and/or their families, the trade-offs involved in its use. It is ultimately a medical practitioner and his or her patient who are the definitive decision-makers vis-à-vis the use of a technology in any given medical case. This is why the medical practitioner needs to assess the technology and provide ethically necessary information about the balance between beneficence and non-maleficence when using it.37

*Care providers must be well-trained in how to use the technology and must understand the “total system” concept, in which they have a key role. They must trust that they are prepared to interact with the technology in the system. This includes making sure care providers’ capabilities and limitations are well considered in system design, which is also the purview of designers. Patients must have indications (i.e. feedback) that the system is functioning well. This includes an absence of moments creating uncertainty, such as false alarms or providers displaying usability issues with the technology.59

*Technologies must be designed for the factors of trustworthiness such as accuracy, reliability and consistency; what is usable for providers may also be usable for patients. It should be recognised that surrogate metrics for reliability such as modernness and cleanliness exist as well. Patients will benefit from education and information about the technology and its use. When asked about education and the technology, most patients said that they were given little or no information about how the technology worked or would be used on them. The hospital tour showed them what technologies might be used, but this information was often brief and not necessarily useful.59
“Patients see themselves as the products of these work systems and perhaps outside stakeholders, rather than members of the system. While patients have relationships with both providers and the technologies, it is how all entities work together that influences trust in the technology. For providers, trust in the technology is essentially rooted in their trust in the system, which includes themselves.”

When viewed from a South African context, there is a “duty of informed consent”. This is a statutory duty imposed by the National Health Act 61 of 2003 as amended National Health Amendment Act 12 of 2013 – specifically Chapter 2.19 The duty of informed consent explicitly covers the path which every healthcare provider must inform a user of including inter alia:

(a) the user’s health status except in circumstances where there is substantial evidence that the disclosure of the user’s health status would be contrary to the best interests of the user;

(b) the range of diagnostic procedures and treatment options generally available to the user;

(c) the benefits, risks, costs and consequences generally associated with each option; and

(d) the user’s right to refuse health services and explain the implications, risks, obligations of such refusal.

Thus, from a South African perspective, there is a defined duty to the doctor who could either be using a new technology or referring a patient to a specialist who is using such technology.

THE MEDICAL DEVICE CODE OF ETHICAL MARKETING AND BUSINESS PRACTICE

The South African Medical Device Industry Association (SAMED) developed the Medical Device Code of Ethical Marketing and Business Practice in 2017. This was promulgated to offer leadership and unequivocal direction to medical device companies to empower them to uphold the ethical standards expected of companies in the healthcare sector. The Code is binding on all SAMED members and is intended to work towards a sustainable medical device industry. SAMED believes that the industry has a social responsibility that extends beyond the customers to patients and to society in general.20

SAMED maintains that all members of the industry, healthcare professionals, civil society ‘watchdogs’ and the general public have a role to play in ensuring the Code becomes an effective instrument for ethical conduct. A complaints process is the engine of Code enforcement. It is implemented jointly by the members of the industry, independent experts and the SAMED office.20

The medical device industry is extremely commercialised, very competitive and innovative. However, sometimes the profit motive undermines responsiveness to patient needs. SAMED is averse to perverse business practices and imposes penalties on companies and individuals that engage in unethical practices.20

Some medical device companies are putting increasing effort into ethical business practices as a core part of their long-term sustainability strategies, while striving to deliver optimal economical results. Friedman (1993), known for his profit maximisation theories, emphasises that business conduct must conform “to the rules of society, both those embodied in the law and those in ethical custom.” This holds true for an industry that deals in products directly affecting the health and wellbeing of the community it serves. Industry intensely supports a legislative framework that safeguards all. As an example, South African patients have a right to medical devices that are safe, effective and of good quality and the endorsement of regulations that are suitable for the South African market. Ethical acquiescence consciousness and official ethical conduct training is a main concern at most MDI companies.

Employees receive regular training and guidance on compliance with ethical conduct expectations and legal requirements to trade responsibly. As the industry becomes more regulated, it also becomes crucial to determine whether employees are acting within the set boundaries. A lesson learnt from the Enron scandal is that ethical policies on paper are worthless unless they have been applied practically.26

A MEDICAL DEVICE EMPLOYEE ISSUE IN THE USA

Frequently termed device reps or “healthcare industry representatives”, employees of the Medical Devices Industry are employed by enterprises that make medical devices. “Their presence in the OR, particularly in some types of surgery, is part of the equipment packages that hospitals buy.” For the most part, “they are the real experts on their products.”24 A sequence of court cases has raised questions about their participation in surgeries that went awry from as early as the 1970s when a New York sales manager tried for three hours to fix a prosthetic hip while a surgeon purportedly left the OR. Notwithstanding their role, device reps have been subject to little examination.

The medical devices industry has about $150 billion in annual U.S. sales, combined with concerns about conflicts of interest by doctors who must report industry payments as part of the Affordable Care Act, which has only now resulted in increased scrutiny as hospitals seek to standardise and circumscribe the activities of device salespeople.40 Some hospitals in the USA have principally eliminated reps in orthopaedics, buying implants directly from the manufacturer at a substantial discount and training surgical technicians to take their place. In any event, the very presence of device reps in the OR raises questions about the adequacy of consent, if patients are not explicitly informed of their presence.

Brodman (2016) asserts that “A survey conducted by researchers at New York’s Albany Medical College found that 88 percent of 43 device reps said they had provided verbal instructions to a doctor during surgery, while 37 percent had participated in a surgery in which they felt their involvement was excessive, often because the surgeon lacked sufficient expertise. Twenty-one percent said they had direct physical contact with hospital staff or a patient during an operation, which could violate hospital policy as well as state law.”49
TECHNOLOGY AND LITIGATION

In South Africa’s healthcare system, there is an increasing culture of technology. As in the USA, “Technology has become the symbol of our culture and the symbol of progress.” Technology is developed based on the social issues and similar concerns in society. However, these developments invariably lead to greater national healthcare expenditures which place a huge burden on the national fiscus and also lead to questions about the actual value of a technology. The general public desires to obtain the best possible care and has expectations about obtaining the latest technology, especially when visiting private hospitals and practices. Medical practitioners need to carefully assess the use of technology and should adopt it only once it is suitably entrenched as a valid and effectively working technology. However, technology is often used as a prestige symbol so that, for example, a medical practitioner or hospital often uses it to boost their image amongst their peers and also in order to increase the bottom line.

All medical practitioners routinely use a collection of technologies to diagnose, treat and then assess the care of their patients. These technologies should, however, be used only after considering the medical needs to do so while the issues of social fairness and cost effectiveness should also be taken into account. Clinicians, as experts in their particular fields, should be certain that, before their patients are referred for laboratory tests, a physical examination and medical history should be taken. The patient does not always fully understand how and when laboratory tests are used and the clinician or other healthcare practitioner should take the trouble to explain why such tests are required. This is important since there is often a range of laboratory instruments, procedures and chemicals that must be used to assist in the evaluation of a patient’s physiological condition and such aspects should be disclosed to the patient. Laboratory testing is often reflected upon as being a luxury for the affluent in society. However, using more appropriate technology can lessen the overall costs of medical treatment and improve a patient’s health outcome. It is common in literature to find arguments in favour of the notion that all patients, where possible and legally defensible, should be fully involved in the process of their medical care delivery.

Current trends in healthcare decision-making support the notion that a clinician should sufficiently research whether an existing or new technology is able to provide useful information that will aid in the treatment of disease. In other words, the clinician is duty bound to assess technology use and to determine which technologies are most appropriate. Only then can a clinician recommend a judicious course of action for the patient to adhere to.

Whatever the value, real or perceived, of medical technology, it can result in an inordinate escalation of medical care costs. In addition, patients seek more technological solutions to their healthcare issues, and so a vicious cycle develops. Patients also begin to equate a range of medical tests with quality care, even when these are not called for, and they often pressure doctors to prescribe more tests.

Iligitation over allegedly defective technology or the misuse thereof, demonstrates a problem regarding its application and also places medical technology manufacturers and medical practitioners at risk. In addition, when there are medical malpractice claims, this has the effect of escalating the cost of healthcare. The increased risk of litigation may indirectly prompt medical practitioners to perform supplementary and perhaps unnecessary diagnostic and screening tests, which leads to the rendering of medical services to patients of limited or questionable value for the purpose of avoiding adverse outcomes. It can even pre-empt litigation through striving to persuade the legal system that the relevant standard of care was met. This move away from compassion-centred care towards the practice of defensive medicine drives up the cost of healthcare and may even expose patients to unnecessary risk. In many cases, the initial notion is to analyse medical practitioner practices as may be established through their testimony. The standard of care is virtually always a fault-based determination, not a strict liability rule.

Research and development in healthcare technology requires unique and more ethical ways of thinking about the innovation processes and development. It requires ways that are cognisant of the needs of patients at all levels of the socioeconomic pyramid. The current barriers to healthcare must be eliminated by the development of appropriate technology that is relatively inexpensive compared to the current trends.

Healthcare providers will need to be far more aware in regard to a number of issues including: inter alia, their moral and ethical obligations towards all stakeholders, exclusion of the poor from basic healthcare, dishonesty in practice, legal necessities, inequalities in healthcare, altering population profiles, institutional structures, trained and skilled biomedical technologists, market dynamic forces, fabrication of data, governmental policies, patient safety, technological advances, costs and effectiveness. In principle, realistic business models are required that target at least a part of the population that is totally omitted and disregarded when it comes to effective treatment’s.

Innovative new medical technology is, sadly, not always a panacea. Medical malpractice actions increase due to alleged defective medical devices, or the faulty use thereof, and negligence becomes part of the equation. However, in the United States, supporting hospitals where negligence was suggested, a court ruled that even an 85% hospital additional payment for a pacemaker does not convert the hospital into a vendor as opposed to a service provider. In South Africa, the enactment of the Consumer Protection Act of 2008 now makes medical practitioners liable for defective medical technology.

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Either way, technology is often involved and provincial health departments battle to provide healthcare services, while having to pay out huge amounts of money in claims against them. Equally, in private practices, medical practitioners are faced with excessive medical protection insurance payments, and this invariably causes healthcare costs to rise and has a devastating bearing on practices. Medical practitioners are increasingly held liable – as an example, a cardiologist who implants a pacemaker can be sued if the device fails.
According to the Medical Protection Society (MPS), the cost of reported claims more than doubled over a recent 2-year period. Claims exceeding R1 million have increased by nearly 550% compared with those of 10 years ago, while claims valued at over R5 million have increased by 900% in the past 5 years. In 2009/2010, the Gauteng Department of Health and Social Development reportedly faced medical malpractice claims totalling R573 million. Media reports of high damages awarded for malpractice in public health institutions are commonplace and becoming more frequent. If medical practitioners fail to disclose relevant risks in medical technology use, this can expose them to liability. Mainly, because such a failure diverts the patient of the prospect of considering the risks in the course of making an informed decision about what is considered to be a relevant medical procedure? Discovery Health recently recovered over R400 million in fraudulent claims on behalf of their clients.

It is clear that "risks in medical malpractice claims can be offset by timeous intervention and a co-ordinated approach to preserve the stability and ensure the sustainability of healthcare in the future." How medical technology is managed in hospitals and practices directly affects the quality of treatment that patients receive. It is highly disturbing that nurses are often not adequately trained to use medical technology, and that many doctors are equally unsure. This is a global problem requiring urgent attention and remediation.

There is much evidence that medical technology reduces illness and mortality from medical blunders. For example, such technology permits clinicians to recognize if there is some type of drug-to-drug or drug-to-food interaction, which was difficult to ascertain previously. There are also systems in place where clinics provide data on clinician reporting and disease management. In addition, these systems allow the clinic to monitor and evaluate the standard of care delivered to patients. In the main, such systems are only available in the private care sector. Access to healthcare differs from country to country and is undoubtedly prejudiced by a range of social conditions, poor economic conditions, and current health policies. Private hospitals in South Africa are often better placed to utilise the latest technology. The public healthcare system on the other hand is restricted by severe economic deficiencies.

CONCLUSION
Medical doctors have an ethical duty to protect the human rights and human dignity of their patients. The legal, procedural, and ethical frameworks of the future that will govern the use of technology in healthcare will have a direct bearing on medical practices. As we advance further into the 4IR, the medical technology sector will lead the way for healthcare practices to reach the potentials of the new industrial revolution. A healthy regulatory environment, and a business ecosystem supporting SMEs and a society that nurtures creativity will all be crucial aspects requiring attention. Advances in personalised healthcare will generate opportunities for developing much faster and more effective treatments for a range of ailments. Consequently, advancements in companion diagnostics will be crucial in ensuring that these devices will accurately determine the efficacy of a treatment.

Practitioners who are found to be wanting will face far more severe penalties for unethical conduct than is currently the case. For example, UNESCO has adopted the Universal Declaration on Bioethics and Human Rights to promote the application of international human rights law in every area of medical ethics.

Reflecting on the rapid developments in science and technology, which increasingly affect our understanding of life and life itself, resulting in a strong demand for a global response to the ethical implications of such developments.

Recognizing that ethical issues raised by the rapid advances in science and their technological applications should be examined with due respect to the dignity of the human person and universal respect for, and observance of, human rights and fundamental freedoms,

Resolving that it is necessary and timely for the international community to state universal principles that will provide a foundation for humanity’s response to the ever-increasing dilemmas and controversies that science and technology present for humankind and for the environment.

In a professional medical practice, ethics and the law are allies since unethical practice is unlawful. Illegal practice can and often does lead to criminal or civil proceedings against individual healthcare practitioners and also the organisations in which they may be employed. Medical practitioners need to do research and make themselves far more aware of the types of issues emerging in technology use and they also need to apply their minds to this important aspect of their vocation. Through critical self-reflection, most of them will be able to become more effective as they work with their patients. There also needs to be a concerted effort to promote equitable distribution of the use of medical technology so that we can ensure that those who are in the greatest need of such technology can, in fact, access it. All medical practitioners need to be ethical and deliver safe, empathetic care and demonstrate a commitment to improving quality in healthcare.

It is imperative that the basic and essential standards of care must always be met and that patient experience is valued as much as clinical effectiveness. Care must be calculated so as to facilitate self-care and to promote the patient’s health. And all services should be tailored to meet the particular needs of individual patients, including those who are vulnerable. In addition all patients must have a care plan that reflects their precise clinical and support needs.

While technological advancement is generally a good thing, a number of medical practitioners need to regain their ethical level of human consciousness and endeavour. This is so they can assiduously endorse and preserve the human element in their vocations, while avoiding being "captured" by greed and the excesses of capitalism and materialism. An underlying public policy issue is how speedily new technologies should be adopted by medical practitioners if at all. In addition, a well-trained and inspired technical workforce including, for example: technology managers, clinical engineers and technicians is indispensable if any public or private healthcare system is to function. Finally, there is an urgent need to strengthen ethical and also technological managerial capacity throughout the health sector in South Africa.
REFERENCES

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