Ethical Dilemmas of Healthcare Delivery in the Information Technology Age

E S T Ng

(This essay won the Singapore Medical Association Ethics Essay Award (Non-Medical Category) in 2002 and has been minimally edited to reflect the original entry submitted by the author.)

Beginning with the birth of the microchip processor, the Information Technology (IT) revolution has swept the globe, pummeling pedagogy, assailing assumptions, bludgeoning biases. Arguably, one of the areas in which IT has wrought the most furore is in the field of medicine, simply because medicine is all about the preservation and improvement of life, which is held as a sacred concept across all cultures.

In discussing the ethical connotations of practising medicine in the IT age, the first step is to calibrate our ethics scale. In the modern world there are many professional codes of conduct; if asked for the basis of medical ethics standards, the Oath of Hippocrates would instinctually come to mind for both the professional and layman. Written in 400 B.C., the spirit of the oath remains encapsulated in modern day medical codes of conduct, e.g. International Code of Medical Ethics of the World Medical Association[1], Physician's Oath[2], and is widely accepted as a useful guideline to what medical professionals should adopt as moral standards.

But what does a cold, impersonal entity such as information technology have to do with an amorphous, highly humanistic issue such as medical ethics? The crux of the changes IT has made to the practice of medicine lies in the three 'e's, Empowering, Enabling and Encompassing, and it is in these same three 'e's that the crux of the ethical dilemma is enmeshed.

INFORMATION TECHNOLOGY ENCOMPASSES

One of the most useful features of Information Technology is that it embraces and synthesises various fragmented systems into a concerted, coherent and easily operable algorithm. Hence it forms the basis for integrated systems used in the practice of medicine. Because of this, IT irrevocably affects many groups of people in the healthcare process. The dilemma arises when we have to consider the respective advantages and disadvantages for the different people.

"I consider for the benefit of my patients, and abstain from whatever is deleterious."

We begin the discussion by asking: Why is information technology applied to medicine in the first place? Who does it benefit? The patient? The caregiver? Perhaps more insiduously, the insurance companies? Or maybe the company which sells the technology?

Ethically speaking, the Hippocrates Oath states that the patients should be the ones to benefit. It would be straightforwardly unethical if IT is used in a "deleterious" manner which harms the patient. The truth is it rarely is. Often gains and losses to the patient are superficial and hazily ambivalent, instead, the real profits from the introduction of IT lies in the hands of another party. In comes the dilemma namely, someone has to bear the cost of this new mode; should the patient be the one?

Headquartered in Boston, Keane is an international company dealing in healthcare information technology; it designs and sells various administration technologies such as the Patcom patient management system to manage patient registration, billing and verification. In 2002, revenues for the first quarter were a stunning $221.3 million, reflecting the large sums hospitals spend upgrading their technology, sums which would inevitably come from patient coffers[3]. Even if the government paid, the money would still originate from the taxpayers, who are the patients in such large government schemes. This would cause an ethical conundrum, in view of the fact that while such systems may benefit patients by reducing billing error, they do so minimally; instead, the main benefit comes in the form of reduced administration costs, which may not be filtered down to the patient.

"With purity and holiness I will pass my life and practice my Art."

The physician may retain this beneficent intention, but the IT revolution can barely be said to be pure and holy in its intentions to benefit. Due to the all-encompassing and inter-disciplinary nature of IT the real gains of medical IT systems often lie tightly clasped in the hands of large technological conglomerates.

The Advanced Informatics in Medicine (AIM) programme was set up to connect and coordinate the healthcare systems of the various European countries.

Esther Ng Shu-Ting
Second-year student
at Raffles
Junior College

Correspondence to:
Esther Ng Shu Ting
Email: estherng@
mbox2.singnet.com.sg

An altruistic sounding organisation, it also provided a platform for discussion between the Commission of the European Communities (CEC) and the European industrial world, to "boost the development of European health products and services[4]". These would probably benefit the patient and healthcare provider. But after that, the computer firms attempted to make a "technology push" by promoting the micro-processor technology through two phases, as stated in their own words: "firstly, to create a demand in the healthcare market, and then, to impose their own standards in this new market". How ethical can this be? While cost-efficiency analysis may yield patient benefits, these computer companies may be driven to develop redundant uses, which waste the resources of healthcare providers who invest.

This dilemma is compounded by the fact that patients rarely have a choice whether or not to endorse and utilise such systems. IT is encompassing and its systems integrated, giving little leeway to opt out of usage, a trend which does not speak well for the ethics of patient freedom and autonomy.

INFORMATION TECHNOLOGY ENABLES

Besides its ability to encompass, IT can serve as a very powerful tool, which enables its user to perform complex calculations and abstract tasks beyond human capability. Ethical dilemmas arise when we question the competence of IT as a tool in healthcare.

"...according to my ability and judgment, I will keep the this Oath and Stipulation."

Where IT has pervaded healthcare, the physician's "ability and judgment to keep the oath" is not the only factor that affects the quality of treatment.

Integrated Services Digital Network (ISDN) is a digital communications network based on multiplexing digital signals to provide a high rate of transmission[5]. It allows a patient to make use of a wide range of remote services such as videoconference with a doctor, automatic prescription information and immediate bill faxing. However, this technology does have inherent faults such as jams, in addition to practical disadvantages, such as the obvious disquietude of confiding a private problem to a remote doctor over a miniature screen. The dilemma arises when we have to advise the patient on the usage of these questionable high-technology systems. The criteria for a good remote healthcare system remain ambiguous. Mc Nair J provides us with a comforting guideline from the famous Bolam test "A man need not possess the highest expert skill at the risk of being found negligent...it is sufficient if he exercises the ordinary skill of an ordinary man exercising that particular art[6]."

Which would be more unethical: to advocate the use of a system knowing that it might be disadvantageous, or to neglect informing the patient of such a possibly helpful system?

"...and will abstain from every voluntary act of mischief and corruption..."

Besides practical inadequacies, these information technology systems may cause a healthcare scheme to be vulnerable to the diabolical. On 21 January, 2002, a computer analyst pleaded guilty in a U.S. District Court to hacking into a hospital database and sending email that contained insulting statements about employees[7]. Security system Sonic Wall defines two main IT threats: Unauthorised network access and Denial of Service[8]. While networked systems may enhance treatment processes, they prove unethical in allowing patient information to become vulnerable to mischief makers. The ethical dilemmas do not lie in the crimes, they arise when we have to decide if the benefits of implementing an IT system outweigh the risk of computer crimes which harm the patient.

"I see or hear, in the life of men, which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret."

Computer crimes are not the only way in which external organisations can exploit IT used in medicine. Where previously records were manually managed and hence a great deal less comprehensive, IT has enabled large amounts of complex medical data to be more easily collected, stored and retrieved. IT has made possible the gathering of massive quantities of personal medical information such as blood test results, genetic fingerprinting, risk assessments and the like. This would no doubt benefit a patient with a database of parameters for treatment options. The ethical dilemma comes when we have to decide who should get to view such records.

The Access to Medical Reports Act 1988 by the Council of Europe's Data Protection Convention[9] provides the guidelines that relevant reports should be supplied from the doctor to the employer, prospective employer and insurance company. Insurance companies would want genetic data to determine if a person is at a risk of certain hereditary disorders, so that they can determine the most profitable clients. Would this benefit the patient? How about employers then? Instinctively, it would seem unscrupulous for the hospital to divulge confidential data, but wouldn't this constitute social responsibility if the patient were a high-responsibility employee, who occupied a key role in influencing the lives of many? How about the patient's own right

to know about his own records? The 1998 Data Protection Act implemented by the Council of Europe's Data Protection Convention[10] recognised the right to access personal data stored in computer banks, unless it is "likely to cause harm". But which doctor would want to prevent patient access unless he is uncertain if this data might be psychologically damaging to, perhaps, a patient with a possibly terminal illness? We again face the ethical dilemma of deciding whether IT might harm the patient.

INFORMATION TECHNOLOGY EMPOWERS

As its name implies, information technology allows for better transaction of information which empowers patients with better knowledge and a more rounded perception of their condition. Seemingly beneficial, ethical dilemmas arise due to misinformation or incongruency between information and experience.

"I will impart a knowledge of the Art to my own sons, and those of my teachers, and to disciples bound by a stipulation and oath according to the law of medicine, but to none others."

Who should have the right to dispense "knowledge of the Art"? With the advent of IT, the Internet has created a space for itself in many homes. People are turning to the Internet for diverse issues, from education to jobs, self-help to match-making. Medicine is one of them. But with the emergence of many net-based healthcare resources, ethical dilemmas are starting to appear.

"OCD Community" is a web portal created for sufferers of obsessive-compulsive disorder to share experiences and suggestions on effective therapy[11]. No doubt it benefits victims of this mental condition by giving them an outlet to express their frustrations, but will it decrease the necessity of consultation with a trained psychiatrist? A quick browse through the posts turned up responses such as "Don't bother with your shrink or your medicine. What I find helpful is cutting myself. It releases the tension." Though unlikely to influence millions, what may happen is that some young impressionable sufferers of the disorder read this and neglect proper medication with professional consultation. More worrying, yet, is the rapid increase in companies who place unrealistic web-based advertisements promoting over-the-counter drugs. It would be beneficial for the patient to increase his drug literacy, but would it be ethical for such companies to place intrusive advertisements which beckon with unrealistic claims? An ominous example would be the recent *"Slim 10"* incident in Singapore, in which one person died, another has to undergo liver transplant and others were hospitalised after taking the advertised China-made diet pill[12]. IT has given patients a broader and deeper view, a view which physicians traditionally would never have had the time to give. In the process, it has created misconceptions and distortions which may harm the patient even more than this increased literacy would have helped.

"I will follow that system of regimen which, according to my ability and judgment..."

And while we think about increased literacy, it would be relevant to consider the ethical dilemmas of increased autonomy versus a doctor's "ability and judgment". During the late eighties, numerous electronic health card experiments have been set up in Europe. The main objective was to evaluate the use of a computerised card containing health data and portable by patient[13]. For patients, a major issue of health cards could consist in a better awareness and a more important responsibility towards their own health, which could prove to be beneficial to the more educated patient, but not the less educated, paternalism-expecting patient. As it is difficult to conceive a health-card system based on voluntary agreement, the question remains to know if this responsibility should be imposed to the whole population, hence creating a social divide, which would certainly place a strain on our ethical balance pan. This system could also have dire implications for the healthcare provider if the portable medical file allowed patients to terminate and switch treatment plans according to their fancies.

Information technology has altered the whole mentality of the practice of medicine. IT encompasses; it integrates systems and people, placing patients at a risk of financial exploitation, in addition to creating a dilemma of usage, with its barrage of pros and cons. IT enables; it bestows convenience to healthcare, but creates problems with its vulnerability to nefarious intentions. IT empowers; it presents the patient with information, both helpful and deleterious, in so doing radically changing the role of the physician.

These dilemmas are tantalisingly difficult to solve. A frequent attempt, which has been tried, tested and contumaciously worked upon, is the imposition of regulations, rules to ensure that companies do not profit at the expense of patient satisfaction, statutes to enhance the security of IT systems, laws to ensure the validity of medical information posted on the Internet. However, the rebellious orthodox adage "rules are meant to be broken" speaks for the efficacy and inclusiveness of this system, which would inevitably be gnarled to allow a loophole.With the widespread nature of IT systems, it would be impossible to impose any such regulations with viable efficacy.

But in any case, it is the nature of ethics to elude regulation. Who has the right to define what ethical is? Regulations only help to alleviate risk-benefit-balance related ethical dilemmas by eliminating so-called unethical implications committed against the patient. Deeper still, is the dilemma to decide if such implications are even unethical in the first place. What solutions can be proposed to evaluate whether the introduction of computerised health cards have a gross positive or negative effect? What methods can we use to analyse whether an IT system is suited for a patient? Would it be more ethical to use IT if it helped one sector of the population but did not benefit the rest? What if it harmed the rest? Who gets to define harm?

We can only execute a tarantella with ethics, a medical tarantella that has lasted throughout the ages, prancing past the soul-searching prozac revolution, tripping round the ground-breaking IVF babies, capering into the adrenalising gene therapy revolution. I repeat the quote used by the NHSS Tan[14] in his 2001 essay, a meaningful line from an unknown physician who responded to a study done by Sullivan, Menapace and White 'I'm not the God of this patient, just a technician with an education'.

Sometimes after cracking one's head over ethics, it pays to just try and be a good technician. We have survived; I think we will continue to.

REFERENCES

1. World Medical Association. International code of medical ethics. World Medical Association Bulletin 1949; 1:109-11.
2. Declaration of Geneva (1948). Adopted by the General Assembly of World Medical Association at Geneva Switzerland, September 1948.
3. Keane's earning report for first quarter 2002[online]. Available at: http://www.keane.com/index.shtml. Accessed May 1, 2002.
4. Fast programme, the social and economic implications of new technology. CEC Fast D.G.XII Vol 2, Nov 1991; pp:101-17.
5. Berleu, Jacques, Nguyen Nam Tien and Renaud Delgaye. Technology assessment for decision-making in the field of informatics in medicine and healthcare. Great Britain: IOS Press, 1995.
6. (1985) 1 All ER 635 1 WLR 634. Hughes v Waltham Forest Health Authority.
7. Hospital hacker to be sentenced. Jan 21, 2002.Business Journal, San Jose [online]. Available at: http://sanjose.bizjournals.com/sanjose/stories/2002/01/21/daily3.html. Accessed Jan 22, 2002.
8. Sonic. Comprehensive internet security [online]. Available at: http://www.sonicwall.com/. Accessed May 15, 2002.
9. Access to Medical Reports Act 1988 (c.28) [online]. Available at: http://www.hmso.gov.uk/acts/acts1988/Ukpga_19880028_en_1.htm. Accessed June 10, 2002.
10. Data Protection Act 1998 Chapter 29 [online]. Available at: http://www.hmso.gov.uk/acts/acts1998/19980029.htm. Accessed June 10, 2002.
11. OCD Community [online]. Available at: http://www.ocdcommunity.ifrance.com/.
12. Slim 10 maker loses China sales licence. The Straits Times, June 8, 2002.
13. AIM report on assessment of the needs and organizational impact of the patient data card. AIM Patient Data Card Working Group, Brussels: CEC D.G.XIII, 11 December 1990.
14. NHSS Tan. Deconstructing paternalism – what serves the patient best? Singapore Med J 2002; Vol 43:148-51.