

## **Whither Medical Technology?**

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There are two most prominent aspects of modern day medical care - the specialist doctor and the medical technology. This prominence flows from the kind of changes that have come about in the organisation of medical care as well as from the popular perception of medicine. They feed into each other - there is constant and rapid technological upgradation of medical care that tries to find market by high-powered propaganda and advertisement, which in turn raises people's expectations of the miracles that the medical technologies and the high-tech doctor could produce. From a social angle, the high expectation often creates high disappointment that in turn sets the aggrieved patient or relatives against the doctor. The result is increased confrontation and litigation.

While both doctors and patients would invite and welcome better medical technology, they find themselves in this cycle of "love - hate" relationship, not knowing how to break the vicious circle. They are unable to decide together what exactly is "better" and there is hardly any discussion on what is appropriate for the "greater good of greater number of people", the basic tenet of ethical consideration in introducing new medical technology.

Thus, while discussing medical technology it is not sufficient to talk about new machines, buildings and specialities, it is absolutely essential to examine the setting and the system in which they are installed and operate.

### **What is medical technology?**

I am sure readers would laugh at me for starting at such a preliminary level. But I am afraid, in medicine, there is a great deal of confusion in understanding this basic term. The medical technology is defined as, "drugs, devices and medical and surgical procedures used in medical care, and organisational and support system within which such care is provided". Thus, it is not sufficient to look at a machine called CT-Scan, one need to know where it is installed, its maintenance, for what it is used, who is using it, and so on. Some of you may feel surprised to learn that hospital itself is medical technology which provides not only in-door care for the patients but houses other technologies intended for patient care. In essence, mere machine, drug or device is not medical technology. In order to make them medically useful their actual usefulness in medical care must be established, not once, but constantly by generating empirical information. Thus, the technology does not replace or substitute for the science of medicine, but that the science commands the very use of medical technology.

### **What medical technology is capable of doing:**

One need not enumerate the assistance provided by the technology in medical care. While a healer could do many good things for the patient with bare hands, the development of medical science has also put many tools in those hands, so much so that it is often difficult to visualise a doctor without some tools. The most important technology the doctor is identified is the drugs. However, just like many other technologies, the drugs and their use by doctors have undergone profound change. Once upon a time, the doctor used to collect plants and other materials and then compound drugs in his clinic. He was like a household producer of drugs useful in his own work. However, this function of the doctor has been effectively taken over by the industry. Once the industry became a supplier of the drugs, the doctor became the sole decision maker for the sale of those drugs. This brought about a close relationship between the doctor and the industry, and this relationship has not always been good for the patients.

In any case, the entry of industry for the production of tools and technology of doctors has had a profound effect. The market driven industry, for its own survival and profit motive, has been rapidly upgrading and diffusing the new hi-tech medical instruments. In the process, it is drawing on various other sciences and technologies to make them applicable for medical care. In the process it has produced some of the path-breaking machines for investigating the condition of patients and for their treatment. So much so that not long back certain conditions considered to be the sure end of life have become manageable, and as a result new disease entities have been created. For instance, the renal failure was considered to be an end of the life, the doctor's role being to wait for that to happen. However, the availability of dialysis created new condition of end stage renal disease, while the transplantation made it possible to acquire new kidney. In the same way certain pathological state of organs were observed only on post-mortem, the same are now visualised in the patients using the least invasive investigative procedures. Or some of the new technologies have given us non-invasive techniques to treat the conditions for which earlier the surgery was the only choice available.

Indeed, the technologies have revolutionised medicine and medical care. These technologies need special environment and maintenance, are housed in fancy hospitals and operated by the highly trained technicians. In the process, they have also transformed the décor and organisation of hospitals, which now look more like high grade hotels than the typical hospitals.

### **Technology and medical profession:**

The potential of medical technology in assisting in the medical care is therefore immense and unlimited. However, as explained earlier, the technologies are not just machines, they are technologies for patient care, and the setting in which the technology operates cannot be separated from the physical presence of the machine. Thus, the most important question we must ask ourselves as doctors is: do we have capability, resources and ethical commitment to harness the potential of medical technology for the greater good of larger number of people? And above-all, as doctors have we been using the simple and basic medical tools correctly for the benefit of patients?

These questions are not easy to answer. India has several systems of medicine. Of one million doctors, only 40% are allopathic doctors. The cross-medical practice is rampant. But that does not mean that everything is good with the allopathic medical practice. There is irrefutable evidence available that the prescriptions by doctors are often irrational, contain unnecessary drugs. Therefore a part of the prescription is not in the best interest of patient but for the vested interest of doctor and the drug industry. Similar trends are visible in surgeries. The number of unnecessary surgeries has been very high. The recent data show that, for example, the rate of Caesarian section deliveries in urban private nursing homes is as high as 50 to 60%. Indeed, as we do medical audit of the simple basic technologies used by doctors in medical care, we unearth more evidence of gross inappropriate and misuse of the technologies by many doctors. Of course one knows that there are always few black-sheep in every profession. But the trouble with data is that they show very high rate of misuse, and such high rate is unattainable if only few doctors are indulging in such unscientific use of technologies. Besides, the profession as such and its associations and councils are silent spectators in this situation. This only adds into people's perception that not few black-sheep but a sizeable section is involved in such practices.

The entry of very expensive hi-tech medical care has also raised some fundamental issues related to doctors social responsibility. That is, are we ethically justified in orienting ourselves to new hi-tech technologies when we are incapable of making universally accessible the basic technologies to the masses of our people? This does not mean that we do not need hi-tech medical technology, but that it should be for providing support to the basic health system which is universally accessible, not for replacing it. Any disregard for the such ethical issue would ultimately create (indeed, has created) dual system - one for the rich and another for the poor. Naturally in such a scenario the medical technologies would concentrate themselves in the system for the rich.

Lastly, the medical profession needs ask: how much medical technology is good? This is important because if it is true that the whole of England has as many CT-Scan/IMR machines as Mumbai has, and still England is able to provide universal access and better quality health care than Mumbai, then there indeed is something seriously wrong with the way we have allowed the expensive technologies to penetrate medical care. Or, in other words, is this excess of medical technologies in the highly privileged metropolis is to meet the genuine needs of patients, or is it for commercial needs of the industry and the profession?

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