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Eternal life as a medical goal

OPINIONS

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New technology enables visions of enhancing the human being medically. This necessitates a discussion about the essential question: What is the goal of medicine?

The essential question for the future of healthcare is so profound that it is almost never asked: What should be the goal of medicine?

Many see the medical profession as exclusively objective and empirical, but it is, in reality, guided by goals and their associated philosophical assumptions – which are often unstated. We argue that today we are facing a development that forces us to discuss them.

Medical expansion

We are currently living in a time when doctors, researchers, business people and politicians are promising an impending medical revolution (1). This future vision has names like 'personalized medicine', 'precision medicine', 'systems medicine' and 'digital health'.

The technologies that are driving this vision include artificial intelligence and computer-based mathematical modelling, which provide opportunities for interpretation of an increasing amount of big data from various sources, for example genetic sequencing, an increasing number of sensors for monitoring of different physiological processes, smartphones, health registries and social media (2). Additionally, we now have new tools for gene editing, such as CRISPR/Cas9, stem cell technology, nanotechnology, implant technology and synthetic biology (creation of new traits using living organisms).

This development should be understood in light of the concept of 'medicalization', meaning that aspects of human life and the human body are subjected to medical control. It is important to note that the medicine of the future will be directed particularly at *well* human beings, who will be measured and manipulated throughout life in an intensified attempt to detect and prevent disease before it develops. In the future, technology will enable a pervasive attempt at achieving total medical control of the human organism, an all-encompassing medicalization – with both positive opportunities and drawbacks (2).

The medical profession has traditionally been defined by the goal of prevention, amelioration or cure of disease. But definitions can be stretched, and give rise to new questions. For instance, what is disease? What is health? What (if anything) is good enough?

What now necessitates a discussion about the goals of medicine is the fact that different agents are seeking to radically expand them – based on new technological opportunities. We are seeing a growing emphasis on wellness, health maximisation and longevity, and there are explicit attempts to define and treat the ageing process as a disease (3).

We are seeing a renaissance of the explicit goal of enhancing humans seen in the interwar period. Eradicating death has even become an explicit objective for large biotechnology companies like Google-owned Calico (4). This represents the far reaches of this development, but it is our assertion that both medicine and health policies have long been characterised by boundlessness. Our question is: Should human enhancement, combating ageing and eternal life be medical goals?

Fundamental problems

A discussion like this demands that all agents discuss the fundamental medical-theoretical assumptions that these goals rest on. In his book 'Homo Deus', the historian Yuval Harari sums up the central assumption like this: "*Human organisms are nothing but algorithms*" (5).

This represents a philosophy in which humans are fundamentally seen as machines, more accurately as advanced, information-processing computers. Thus health, disease, ageing and death become nothing but technological problems – bugs in the software. At the same time, the body is assumed to be

basically rule-governed, the technology is assumed to be able to decipher these algorithms, disease and health are assumed to be quantifiable, predictable and – not least – controllable phenomena.

This basic idea is not new. On the contrary, the prevailing biomedical paradigm has long been characterised precisely by thinking of the human being as a machine. The new technological possibilities merely highlight this unspoken philosophy. And here we find a source of biomedicine's boundlessness: A machine can always be improved, year by year – like a smartphone. There are no limits, no tolerance for disease and death inherent in today's biomedical model; everything hinges upon the quest for effective control of the living.

While this approach to medicine has given us significant gains in health, it is now gradually becoming evident that it is also our biggest limitation.

We argue that phenomena such as rising expectations for health care, fragmented treatment, a lack of understanding for so-called medically unexplained symptoms (e.g. chronic fatigue), overdiagnosis and rising costs are consequences of a framework that wrongly defines health, disease and the goals of medicine based on the assumption that the human being is nothing but an algorithm or a machine. With the increase in medicalization that pursues outdated goals, based on equally outdated oversimplifications, the problems we are seeing will only increase.

We therefore have to clarify the goals of medicine. Only in this way can we achieve a sound, defensible future for medical science. As a first step, we would argue that human beings cannot be understood as algorithms or machines in the general meaning of these words, but as living, conscious, goal-directed, meaning-seeking and deeply social agents with a biology that is defined by this at every level (6). This opens up for other goals than eternal life.

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