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Revolution or Reformation

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Ardent disputations and ideological excitation concerning science, such as those incited by Darwinism at the beginning of the 20th century, are unimaginable today. The dominance of biomedicine is so longstanding, strong, universal, and institutionalized that we completely forget that it is only a cultural and sociological construct. This is understandable: natural and applied sciences have in the past two hundred years created great technological and scientific optimism, so that people perceive mostly the positive aspects of the technological expansion and contemporary life.

IN THE BOX

Let us explore binarity, which is one of main characteristics of biomedical thinking that we recognize as scientific, and thus unquestionable. Binarity is also deeply culturally engrained, because modern way of thinking (opposite to postmodern way) consists of binary categories only (Box 1).

OUT OF THE BOX

These binary categories that look so convenient in this box do not look the same when contemplated "out of the box."

In the first place, modern health care does not aim only to provide benefit (ie, health) for its "customers," but also to gain profit (ie, benefit) for health care providers, insurance companies, pharmaceutical companies, medical equipment producers and suppliers, law firms, etc. – in other words, health care has become an economic discipline. However, economic principles are not applied without exceptions. For example, some of the most profitable medical procedures, like transplantation, are excluded from market regulations and subdued to government regulation for ethical reasons.

Primary care field, hospital structure, and community medicine face the same demand for effectiveness, and espe-

Box 1.

Binary pairs in modern medicine (and their meanings)

Health vs disease
Life vs death
Homeopathy vs allopathy
Natural (biological) vs artifical
Primary care vs secondary and tertiary care (artisan's studio vs factory)
Preventive medicine vs curative medicine (thrift vs consuming)
Evidence-based medicine vs pursuing the hypotheses (paradigm vs speculation; regulative v. creative)
Cost-effectiveness vs culture of care (rationality vs emotionality)
Hierarchy vs social network (authority of power vs authority of competence)
Life support of terminally ill vs pallitative care (quantity of life vs quality of life; death control vs life control)
Defensive medicine vs malpractice liability (physician vs patient)
Surgeon vs physician (structure vs function; invasive vs confined)
Medicine vs medicalization (liberation vs control)
Medicine vs public health (infinite value of inidividual life vs greatest possible good for the greatest possible number of people)
Health vs healthism (coercive health; instrument vs aim)
Limited resources vs growing demand (private vs communal)
Profitable vs charitable (medical/pharmaceutical market vs organ donation)

cially cost-effectiveness. As explained before, this principle is not applied without exceptions. If it were, it would mean that very sick patients, whose condition demands extensive and expensive cure, would be let to die, except in the cases of rich patients who would be kept alive as long as possible in a semi-vegetative state until their financial resources run out.

TOYOTA FACTORY

As demonstrated on the example of binary thinking, the medical part of health care system is not based only on some intrinsic principles, but strongly reflects its social and economical surrounding. For example, hospitals are uniform, well structured, and strive to standardize their procedures; generally, their organization resembles the one of a factory, and an ideal hospital shares industrial ideals: efficiency, rationality, cost-effectiveness, streamlined workflow, minimal waste of resources, etc. Moreover, hospital managers search for inspiration for hospital improvements in successful factories like Toyota, and reorganize the hospitals to "produce" healthier patients very much alike Toyota factory produces good cars (1).

However, many of these working principles that ensure the best results cannot be pushed to extremes. If they are, they became inhumane in the same way as they are rational: when the patient is sick and scared, which describes almost all patients in almost all hospitals in the world, the last thing he wants is some nurse trying to be efficient instead of sitting with him and calming him down.

ARTISAN'S STUDIO

Rather than factories, primary care practices resemble artisans' workshops, where the service is tailored strictly for the "customer" and, at the same time, maximally according to the most recent medical trends. Primary care is supposed to be the base of the health care system, but we witness that the center is moving to the secondary and tertiary care. Furthermore, primary care is hyper-regulated, thus making the tailoring of the medical service more and more difficult: primary care decisions are pressured, modeled, and influenced not only by patients' needs and expectations, but also by insurance companies, pharmaceutical industry, secondary and tertiary care, complementary and alternative medicine, threat of lawsuits, and many other factors generating different conflicts of interests. Of course, there are also geographic, demographic, social, cultural, and many other factors that make every primary care "workshop" so specific and unique. This all makes primary care a loose field, in contrast to firm and uniform structure of hospitals.

"THINK, DON'T TRY"

Modern health care is exposed to constantly changing demands, thus requiring the creativity of the health care system. Although there is perception of biomedicine as a fast-changing field (eg, half-life of medical knowledge is only five years) (2,3), quite the contrary is true – this system is very rigid, and in the first place this is due to its strong hierarchical structure and constant demand for subordination – a medical student to a medical teacher, an intern to a senior physician, a nurse to a head nurse and a physician, a patient to a physician, a physician to an insurance company, and so on.

Even medical scientific research is highly rigid and regulated: by ethical committees (now Edward Jenner probably laughs from his cloud in heavens), animal rights activists, demands for extensive and meticulous documentation; even the form of presenting the results is highly regulated (200-word abstracts, IMRAD). Evidence-based medicine, although considered as the one of the greatest accomplishments in modern medicine, just pursues and digests already existent facts, and is a genuinely an administrative method.

The tiny number of journals that publish medical hypotheses clearly shows that the speculative thinking is overpowered by fastidious evidence-based, proof-providing reports, equipped with a decent amount of references (probably to ensure that the research is original, but not too original). Among all journals indexed in PubMed, only *Bioscience Hypotheses* and *Medical Hypotheses* are solely dedicated to publishing hypotheses. When we add the *Iranian Journal of Medical Hypotheses and Ideas* (established in 2007, not indexed in PubMed), they make 0.008% of the total of 35 769 journals in the repository of the US National Library of Medicine (4).

"DON'T THINK, TRY"

Edward Jenner was greatly influenced by this William Harvey's advice, a very famous one in medical circles at that time (and characteristically Enlightenment). Technological and scientific optimism, together with the binary way of thinking, is probably the main reason why we believe that problems caused by technology in health systems can be

solved with even more technology. Moreover, in our optimism we think that health systems are not facing any problems, but only difficulties and obstacles that can be solved with more money (which will provide more health care staff and, of course, more medical gadgets). Semantic distinction between "a problem" and "a difficulty" probably seems irrelevant to an average medical reader, but this distinction is critical for understanding the constitutive elements of the crisis in contemporary health systems.

When any system faces a crisis (problem or difficulty), it seeks solution. If elements of the solution are contained in the system, then we say that this system is facing a difficulty. In practice, it means that more of some systemic element (more money, more gadgets, better cost-effectiveness) or less of some systemic element (cutting the costs) is needed to resolve the crisis. Very frequently the solution of a difficulty is sought inside the pair of (apparent) opposites. A good example is the ongoing discussion in the European public health community as to which model of health insurance and social security, Bismarck or Beveridge, is more appropriate for the 21st century (5).

"HISTORY IS LIFE'S TEACHER"

But sometimes a system in a crisis cannot create from itself the conditions for its own transformation nor can it produce the propositions for changing its own propositions. It means that the system has a problem. The solution of a problem is always metapositioned to the system, ie, the solution is positioned outside of it (6). Indeed, some of the best "out of the box" solutions in the health care systems came from outside. For example, solutions for medical errors (that cause 98 000 of deaths annually in the US hospitals only) were found in the nuclear power plants and aviation security systems and measures (7).

Although confined into a box of technological optimism and scientific revolution, modern health care systems must find their way to reform themselves. History teaches us that revolutions happened because it was much easier to make a revolution than a reform, therefore I advise a very, very moderate optimism.

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