Original Article

The neglected role of technology in quality of care crisis

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Abstract

The quality of care crisis (QCC) is one of the most crucial crises the modern medicine is confronting, as the existential and psychological needs of patients have not been addressed and satisfied. Several attempts have been made to find solutions for QCC, e.g., the Marcum's recommendation to make physicians virtuous. Most of the existing formulations for the QCC have regarded technology as one of the causes of this crisis and not part of its solution.

Although the authors agree with the role of technology in creating the crisis of care to some extent, in this article we try to present the crisis of care so that medical technology is an important part of its solution. For this purpose, we analyzed QCC from the philosophical perspectives of Husserl and Borgmann and put forward a novel proposal to take account of technology in QCC. In the first step, it is discussed that the role of technology in causing the crisis of care is due to the gap between the techno-scientific world and the life-world of the patients. This formulation shows that the crisis-causing role of technology is not inherent. In the second step, it is tried to find a way to integrate technology into the solution to the crisis. In the proposed reframing, designing and applying technologies based on focal things and practices make it possible to develop technologies that are *caring* and are able to mitigate QCC.

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Introduction

Since the 19th century, technology has played a significant part in modern medicine. According to Hofmann, "technology appears to have become a dominant paradigm in medicine by prescribing ways of detecting, identifying, and treating disease" (1). Medical technologies have been integrated into the diagnosis, treatment, enhancement, palliation, and prevention of processes. Because of technological and scientific development in medicine, the concept of clinical practice has been transformed. Technologically mediated tests and images have become the main source of the physicians' judgment and decision-making. In addition, the introduction of new medical technologies, e.g., tele-care technologies, care robots, artificially intelligent diagnostic systems, etc., has altered the physicians', nurses', and families' tasks and responsibilities. Therefore, the importance of technology in the practice of modern medicine is undeniable.

One important role of technology is in the Quality-of-Care Crisis (QCC). Modern medicine is accused of not paying enough attention to all aspects of care for a patient and the existential and psychological needs of patients are not satisfied (2). Technology has become an obstacle to patient/physician, patient/family, and physician/family relationships. Patients do not receive sufficient care in terms of both manner and motivation in the hospital or at home, which has confronted modern medicine with a serious problem called care crisis. Therefore, the crisis in the quality of care has been formulated in such a way that technology has been considered as one of the causative factors. Medical technology has increased our knowledge of the human body more accurately. Consequently, the concept of illness has reduced to malfunctioning of biological and biochemical processes in the body resulting in the dehumanization of medical practice. Therefore, the patient's existential/subjective experience is not a crucial part of the physician's decision-making process (1). These technological interventions have resulted in a gap between patients and physicians and given the latter unrestricted power and authority causing existential caring problems for the patient.

However, is the role of technology all bad and negative? Does it mean that we have to discard medical technology in order to overcome QCC? Can QCC not be formulated in another way? In the current formulation, is attention not paid to diagnostic technology resulting in overlooking

other medical technologies? How can we understand QCC in a way that technology can be part of the solution?

In part three, we problematized the role of technology in QCC and scrutinized the transformation technology has caused in medical practice resulting in QCC. We argued that these changes were not the mere side effects of improper utilization of technology. However, the use of medical technologies has drastically contributed to the reconstruction of clinical relationships and our understanding of disease and patient. Accordingly, additive and supplementary solutions would not be able to resolve the crisis. By reducing human interactions, technology has played a central part in disturbing the caring practice. The last part of the paper is devoted to reframing QCC according to the Borgmann's theoretical framework where technology-based approaches are suggested to overcome this crisis.

The Quality of Care Crisis

1. Care

Human beings are all vulnerable and dependent on one another demanding compassion and empathy (3). Caring should be provided in accordance with a particular situation where the caregiver should participate in the feelings of the care-receiver and put him/herself in his/her place to observe the context from different angles (4). To care for people, one should know their needs and receive them on their own terms (5). Performing care creates a close relationship between the caregiver and care-receiver in which the former is not entitled to dominate the latter and diminish his/her freedom. A caring relationship is based on integrity and respecting each other's dignity.

2. Aspects of care

In general, two main aspects can be recognized in a caring practice:

Motivational aspect: As for motivation, "the word caring can refer to being fond of someone, feeling sympathy or empathy for them, being concerned for their well-being, or having a professional commitment to seeing to their needs" (6, 7). The caregiver should understand and care about the care-receiver and his/her bodily and existential needs. The genuine feelings of empathy, compassion, support, and concern act as the motivational grounds for implementing behavioral care skills.

Behavioral aspect: The behavioral aspect of care requires physical and psychological abilities to express motivational care and perform practical and mechanical activities safely and efficiently to meet the care-receiver's needs (8). Although one

may genuinely care about others, it does not mean that they have the competency to perform tasks required to take care of them. In order to be a competent caregiver in medical practice, one should have particular skills such as the specialized knowledge and the ability to put that knowledge into practice, the ability to evaluate and learn from medical practice, the ability to manage the information and handle ambiguities to make sensible and moral judgments and decisions, the emotional intelligence to create a relationship, and the responsibility to carry out duties (9-11).

3. Care in medicine

Two aspects of care mentioned above are complementary to each other. To reach the goal of medical practice, i.e., "healing and amelioration of suffering due to disease and relieve such suffering" (12) both aspects are required. As Pellegrino maintains, healthcare professionals should meet patients' needs through a caring relationship. The caregiver should understand the meaning of illness for the patient and take into account her special situation and lived experience in order to satisfy the patient's existential and physical needs simultaneously. Therefore, care has a fundamental strategic, not just a decorative, importance in the healthcare practice. At least, two issues could be put forward to take the quality of care in medical practice more seriously: ethical issues and epistemic issues.

3.1. Ethical Issues

Caring is not a one-way path. The caring relationship has a growing nature because first, it provides the care-receiver with a meaningful activity in his/her life and second, it helps the caregiver and care-receiver to realize their potentialities and experience fulfillment in their lives (5). The more empathic abilities the care-giver acquires, the more moral his/her behaviors and actions could be. According to Peabody, trying to grasp what the disease means for the patient and his/her experience of illness shows the physician's interest in humanity (13).

3.2. Epistemic Issues

Observing an issue from different perspectives offers epistemic comprehensiveness to make better judgments. For example, a physician's knowledge of a patient may alter through a caring relationship that will prominently influence the process of diagnosis and treatment. One crucial element of this comprehensive clinical picture is to become familiar with the patient's life-world, e.g., -his/her home, work, relationships, friends, joys and sorrows, and hopes and fears- (13).

Depending on merely one method for diagnosis and treatment of a disease, whether it is through

medical technologies, listening to the patient's narrative, relying on biomedical knowledge, having a conversation, observing, or empathizing with them, would not be sufficient. These various methods complement one another in forming a comprehensive "clinical picture" of the patient (13) and should therefore be implemented to make the most accurate decision about the patient.

4. QCC in medicine

Modern medicine has been incapable of showing sufficient care and concern about patients and their needs, both motivationally and behaviorally (2). In medical practice, the patient is usually not treated as a person suffering from an illness or a "lived body", but as a "biological organism" (14) or "a malfunctioning machine whose defective parts could be technologically replaced or repaired" (15). Flexibility, creativity, questioning, and genuine listening are not appreciated enough in the clinical context (16). Marcum discusses three levels of indifference to patients by medical professionals that motivate instrumental behavior towards patients: 1. inattentiveness to the patient's needs, 2. insensitivity to the patients' needs and feelings, and 3. acting mechanically and inhumanly regardless of the patients' suffering and his/her physical and existential needs (2).

Review of the Role of Technology in Medicine

Recent trends in digital technologies have led to a proliferation of studies focusing on the ethical implications of these technologies in healthcare practice. In this regard, three distinct approaches towards the role of medical technology in clinical practice can be distinguished, including

1. Optimistic approach: The achievements of medical technologies have exceedingly risen up expectations and hopes. For instance, Eric Topol in his book entitled "*Deep Medicine"* discusses how artificial intelligence systems have, to some extent, liberated clinicians by taking over multiple tasks, i.e. taking notes and facilitating diagnosis and treatment and provided them with new opportunities to interact with patients (17).

2. Pessimistic approach: Another group of scholars believes that technology has undermined the relationship between physicians and patients. In his book "*Digital Doctor"*, Robert Wachter warns clinicians about dehumanization due to the over-computerization of the medical practice and calls computers and medicine "awkward companions" (18). Kwiatkowski believes that theoretical science and technologization of medical practice have devalued the fundamentally important *direct* relationship between the physician and patient (19).

3. Neglecting approach: Despite the pivotal role technology plays in modern medicine, some experts fail to acknowledge it in their reflections. For example, James Marcum (2) provides a relatively comprehensive formulation of the quality-of-care crisis; however, when it comes to solving QCC, he is settled for making physicians virtuous to be able to perform motivational and behavioral care. In Marcum's sense, a virtuous physician possesses both ethical and epistemic (and intellectual) virtues that allow him/her to provide good quality care.

Although Marcum's solution may alleviate QCC partially, his negligence of other factors contributing to QCC makes his solution supplementary. The Marcum's suggestion fails to address numerous obstacles including, but not limited to,

- The unreasonable proportion of the number of patients to the number of clinicians, which makes it difficult for them to care for patients in a holistic sense,
- The vast sociotechnical healthcare systems (consisting of patients, hospitals, technical artifacts, economic stakeholders, policymakers, etc.) with different human and non-human characteristics affecting medical care practice.

The caregivers' limited human capacities, e.g., time, energy, memory, etc.

In the following section, the fundamental but relatively neglected role of technology in giving rise to QCC is discussed.

Critiques of Technology in Medicine

Perceiving a patient as a mere biological organism that only needs technical care has been embedded in the design of current medical technologies. Nevertheless, changing this perception of human beings and consequently of caring about them will improve the design of medical technologies that are more sensitive to other aspects of care. This section

Discussion

will elaborate some of the consequences of using medical technologies as some of the reasons for QCC:

1. Detachment from Subjectivity

Before the dramatic use of medical technologies, doctors in their medical practice would mainly listen to the narrative of the suffering person's embodied complaints and subjective experience. Nowadays, the patient's narrative is not regarded as an essential part of the healthcare practice (20). Physicians rely highly on the data collected from technologically mediated tests and images. The patient's subjective experience of illness is

translated into malfunctioning of the physiological functions of the body (21). The individuality and unique first person perspective of the patient is substituted by the third person perspective of the objective data of the body parts produced by medical technologies (22).

Overlooking the meaning of illness for the patient and his/her existential needs leads to a distance between the patient and the physician (23). The patient is considered as an object abstracted from his/her life-world and individual narrative (1), whereas treating the body as a biological object (Körper) is deficient without taking into account the body as a way of being-in-the-world (Leib) (24). The individual and emotional needs are not addressed satisfactorily because of the overemphasis on objective medical knowledge based on healthcare technologies (25-27).

2. ***Underrating Empathy***

The distance between the patient and caregiver created by technology makes it difficult for them to shape an empathic, existential, and dialogical relationship, while empathy is a way of understanding the other person (28), a cognitive source for comprehending foreign subjects and their experience, and a motivation to care for them. As a form of emotional reasoning (29), empathy can help the doctor to address the reasons for the patient's suffering and make a more accurate diagnosis and clinical judgment. Caring involves having concerns about someone that could be stimulated by an empathic relationship. Consequently, being a good caregiver requires the ability to empathize with patients (28), since it provides one with the motivation to care for and engage with them (29).

3. Ignorance of Illness

The expansion of medical knowledge due to technological advances has brought over-confidence for modern medicine; hence, technology is part of the existing problem (30). However, this knowledge suffers from inadequacy for the diagnosis and treatment of various illnesses. Instead of focusing on the person's illness and discomfort, physicians look for some diseases in their physical body, and if no disease could be detected, the suffering person does not need care and treatment services and is consequently ignored by the medical institution (1). The QCC challenges the omniscience of technological medicine and illustrates its epistemic limitations that render medicine incompetent to tackle the situations it has no solution for, e.g., cases like chronic diseases, disabilities, and caring for elderlies that are not treatable and demand permanent care.

4. Hospitalization

Technology has enabled medicine to treat formerly non-medical aspects of human life like pregnancy, anxiety, depression, etc. as controllable conditions requiring medical intervention while they were formerly considered as socio-behavioral phenomena. This transformation is described as medicalization, which is induced by technologies, including biotechnologies, information technologies, pharmaceutical, marketing, advertisement industries, health insurance and managed care complexes (31). Considering the fact that implementing medical technologies requires professional skills by clinicians, home care was replaced by hospitals. As a result of hospitalizing patients, they are separated from their families and support groups who have the highest motivation to care for them. Hospitalization results in losing this part of care, while it cannot be replaced by the clinicians in virtue of the constraints in resources and human capacities to provide high-quality care. In hospitals, in order to enhance productivity and economic profit, high-tech machines, which are not highly dependent on human intervention, have become gradually important in patient care. For instance, monitors are used to check the patients' conditions whereas the nurses, who are supposed to show compassion and care for patients, have turned into operators for these machines responsible for observing the machines' data. If hospitalization is correspondent to the automatization of medical practice, the QCC is inevitable in view of the fact that human interactions, which are indispensable for motivational care, decline as a side effect of hospitalization.

5. Problem of Triage

Technology has transformed the meaning of normality and turned numerous biomedical conditions into diseases demanding therapeutic interventions (32). Overdiagnosis may occur when healthy people who attend screening programs or receive tests during check-ups are diagnosed and treated for the early form of a disease that may never seriously harm them (33). Overdiagnosis increases the number of "diseased people" who need unnecessary clinical services. On the one hand, the world's older population is growing dramatically and we are facing the shortage of younger healthcare personnel that are qualified to offer high-quality care. On the other hand, drug resources are not limitless, thus we ought to manage these resources.

Clinicians are obliged to consider not only the well-being of an individual patient, but also the economic and management aspects of their practice to realize fair distribution of resources among

possible patients (19, 34). In the absence of appropriate clinical management, some people who are in need of medical support may not benefit from the care services provided by the medical institution. The term "problem of triage" describes this situation (20, 35, 36). Technology, through facilitating overdiagnosis, has speeded up the lack of human and non-human resources required for high-quality care. In addition, as a result of the economic and management calculations, patients might feel to have been left alone with their problems (19).

Reframing Quality of Care Crisis

So far, we tried to explore the various ways technology has given rise to QCC. However, we believe that these problems are the consequences of a more fundamental distorted approach towards designing and using technology. If we rethink and change the current approach, the above-mentioned contingent character of technology would turn into one that mitigates QCC. In this part, QCC is reframed from the perspective of philosophy of science and technology. By putting forward a two-level argument based on the insights of philosophy of technology, a theoretical framework is provided for a new approach in designing healthcare technologies that could contribute to alleviating QCC:

Level 1: Gap between Life-World and World of Science

1.1. Scientific Experience vs. Lived Experience

In general, we can distinguish two forms of experience: scientific experience (*Erfahrung*); and lived experience (*Erlebnis*) (26). A scientific experience is one that is achieved in the domain of natural sciences and constitutes the basis of scientific knowledge. This type of experience is replicable, testable, and justifiable. One should eliminate historical and cultural aspects of an experience in order to make it objective enough to become repeatable in similar situations by anyone. Yet, one may go through certain firsthand prescientific experiences that are new and unexpected. This type of experience implies that there was something in a situation that one had no discernment about. However, after facing this experience, they came to a richer understanding. Nevertheless, in the scientific world, this form of experience is not taken into account.

Hence, one can make a distinction between two worlds: the world of science in which scientific experiences are important; and the life-world of lay people in which lived experiences are of value. The huge gap between these two worlds has given rise to the crisis of sciences (38). Considerable shares of the achievements of natural sciences have not

been implemented properly in the life-world of lay people; as a result, the communication between lay people and experts is disrupted. This is while science is the product of formulating the elements of life-world and should be eventually applied to that world and leave an impact on it.

1.2. Two Types of Experiences in Medicine

In medicine, there is an obvious distinction between these two forms of experiences. Medicine as a practice is intertwined with human beings and its success and functionality are evaluated by people according to the changes it would bring into their quality of life. The effectiveness of the medicine's scientific *world* is assessed, to some extent, by its impact on the patients' life-world. Therefore, the quality of the relationship between the medicine's scientific world and the patients' life-world in the medical practice is crucially important.

In medical practice, we may reduce the patients' narrative of their lived experience to abstract objective concepts and neglect their individuality and suffering. Rather, we focus on the similarities between different patients' pains and symptoms. By drawing out the similarities between these experiences to develop scientific theories, the subjectivity of the lived experiences will become superfluous with no function in medical practice, which contributes to creating a gap between the medicine's scientific world and the patient's life-world. Habermas formulates this by making a contrast between communicative rationality and instrumental rationality. While the instrumental rationality dominates the scientific world of medicine, abstracts it from public sphere, and 'colonizes the life-world' (39), the communicative understanding of the life-world of lay people is ignored in medical practice (40).

1.3. The Birth of a Crisis

In our view, the disrupted relationship between the medical practice and the patient's life-world has resulted in the quality-of-care crisis. To solve this crisis, medicine should find its proper place in the patients' life-world and welcome their feedback in order to reach its goals, which is to decrease the patients' suffering and to care for them (12, 16). Suffering is a subjective experience for the patient that is affected by the context of the patient's life-world and hid/her beliefs, perception of the disease, and the cultural, economic, and personal situation. However, in the scientific world of medicine, this context-dependency of suffering and the patient's phenomenological perception of illness are of no epistemological and ethical values.

The mediation of technologies in some particular ways has caused over-authority of the medical

professionals to the extent that they feel no need for the patient's subjective narrative for diagnosis and treatment. However, the physician is not able to produce health only by using his/her scientific and technical skills and has to re-understand health based on the patient's life-world. Health is a way of being-in-the-world and being together with other people (41). Care is a practice that supports the active engagement of the patient with his/her life-world, especially in chronic cases.

The technical perception of care has resulted in designing technologies that focus on the technical and scientific aspects of the disease and the value of existential care is not embedded in most of the medical technologies. However, the mediation of technology in medical practice would not inevitably reduce the richness of this practice and caring relations. If technologies are designed in a way that they are more respectful to the value of care and be used for the right tasks, they can increase the quality of care and strengthen the care practice. Therefore, technology could bridge the gap between the scientific world (of medicine) and the life-world (of the patient). But how technology can contribute to alleviating QCC instead of causing this crisis?

In the following part, we present the second level of our argument as we believe that the concept of "focal things and practices" developed by Albert Borgmann is the key to answer this question.

Level 2: Technology in Focal Practice

2.1. Device Paradigm Replacing Focality

Borgmann calls the modern age the age of device paradigm, which is characterized by a decrease in the engagement of human beings with nature and with each other (42). A device is described as an object detached from its world and context that has lost its meaning. On the contrary, a focal thing is attached to its context, which gives meaning to every part of the practice. Focal things are engaged bodily and socially with the world, which would result in forming focal practices around them (42). In our view, a focal caring technology could be defined as a technology that consolidates the patient's engagement with his/her world and with others. Because health is a way of being in the world together with other people and to reach health and healing, these engagements are inevitable.

Accordingly, we believe that a good technology is integrated with its context, can revive a focal practice, and helps it to propagate. Considering the characteristics Borgmann attributes to a focal practice, we claim that caring can be considered as a focal practice since it acquires all these characteristics: there is a relationship (engagement)

between the caregiver and the care-receiver in a caring practice that contributes to their ethical growth and gives meaning to their lives. A focal practice is an integrated practice in which hardship and joy are merged, means and ends are intertwined, and the mind and the body are both engaged in performing the practice. In addition, in a focal practice, one can experience an engagement with the social environment (42).

2.2. Technological Emancipation

Borgmann believes that technology has disturbed focal practices in the device paradigm and has consequently raised several crises. Because of violating the caring relationships, medical technologies are accused of giving rise to care crisis. However, if technology is installed properly in the heart of a focal practice, it can form and strengthen care and is therefore not regarded as a threat anymore. It can be argued that by integrating technology in a focal practice, it can contribute to shaping an effective relationship between the caregiver and care-receiver and play a major role in satisfying various needs of the care-receiver. Such a technology does not disturb the caring practice by being an obstacle to caring relationships, preventing human beings from a dialogical empathic relationship, and ignoring the social environment.

Illness was formerly treated as a focal thing with a centering force to create a set of relations and focal practices to care for the patient. However, technology has disturbed these practices in many ways (like hospitalization, imaging and testing technologies, etc.). With hospitalization, patients are separated from their life-world and lose their families' and friends' care while the role of family care is extremely important in some groups, for instance chronic patients, elderlies, and disabled people who need long term care. Nonetheless, in modern medicine, these patients either are hospitalized or separated from their life-world or remain in their life-world at the cost of more suffering and becoming a burden to their families. Thus, they go through feelings of being overwhelmed, over-dependent, and disrespected, and their autonomy and dignity is undermined. Therefore, a caring technology should strengthen the humane interactions between caregivers and care-receivers in every possible way.

2.3. Technology may overcome caring obstacles

One of the main obstacles for professional caregivers to offer high-quality care is the lack of time. To mitigate this problem, we can assign technologies the tasks that do not call for human skills. By doing so, technology can offer extra time to caregivers to focus on social interactions with

care-receivers and make a deeper and more personalized relationship with them (17). In addition, technology may be helpful in tasks where human caregivers have bodily limitations and are fatigued to the extent that are not able to interact existentially with patients. These contributions of the technology to the care practice could provide human caregivers with the opportunity to focus on their humane skills such as empathy, creativity, compassion, intuition, understanding, etc. to offer further existential care.

Moreover, technology itself could be a platform in which human interactions are improved. Online forums, tele-care technologies, etc. are some examples of "technology as focal thing" that facilitate the interaction between caregivers and care-receivers. They can also distribute the caring tasks between more agents by propagating and diversifying the care practices and simplifying the process of participation in them. Therefore, they might mitigate the over-authority of physicians over patients and prevent them from misusing their unrestricted power. As a result, they provide patients with self-liberation by allocating parts of the caring tasks and responsibilities to other caregivers (the patients themselves, telecare workers, new friends with similar diseases, etc.) in the caring networks. However, it is necessary to improve the design of caring technologies in such a way to embed the value of care and its different aspects more prominently and prompt caring behaviors in people engaged in caring practices. We should think of innovations that translate the value of care in different contexts and help the caregivers and care-receivers to communicate more effectively.

Conclusion

The present study was designed to: 1) critically reflect on the impacts of medical technologies on the healthcare practice and explore their role in raising care crisis and, 2) reframe the care crisis based on the Borgmann's theoretical framework in order to open a new path to propose solutions for this crisis with the help of technology. The research indicated that most of the current medical technologies have violated the caring relationships between care-givers and patients and have distanced them. The resulting distance between these two parties has resulted in unmet existential and psychological needs of the patients. To find a holistic solution to this crisis, one should take into account the role of technology in this game.

This paper sought to develop a new perspective to QCC and present a new philosophical ground for designing new caring technologies. The proposed

reframing of QCC provides an insight for designing a new set of medical technologies, namely caring technologies, that are either caring focal things or integrated in a caring focal practice. It is recommended that further research be undertaken regarding the different concrete caring practices and various caring tasks that should be accomplished in order to determine which tasks could be carried out by caring technologies and what is the proper place of a caring technology in a specific caring practice.

The most prominent innovation of this article is that it provides a theoretical framework based on which technology can be considered part of the solution to QCC. This achievement is very important as technology is considered a factor of crisis or has been completely ignored in the existing formulations.

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Conflict of Interests

The authors report there are no competing interests to declare.

References

1. Hofmann B. "On the Value-Ladenness of Technology in Medicine". Medicine, Health Care and Philosophy. 2011: 335-46.
2. Marcum J. The Virtuous Physician. Springer, 2012.
3. Held V. Justice and Care: Essential Readings in Feminist Ethics. Boulder: CO: Westview Press; 1995.
4. Pettersen T. Comprehending Care: Problems and Possibilities in the Ethics of Care. Lanham: Lexington Books; 2008.
5. Mayeroff M. On caring. Journal of Philosophy. 1972; 69(4):114-7.
6. van Hooft S. Caring: An essay in the philosophy of ethics; Boulder: University Press of Colorado, 1995.
7. van Hooft S. Bioethics and caring. J Med Ethics. 1996 Apr;22(2):83-9. doi: 10.1136/jme.22.2.83. PMID: 8731533; PMCID: PMC1376919.
8. Marcum, J. The Virtuous Physician, Springer; 2012.

9. Carraccio C, Englander R, Wolfsthal S, Martin C, Ferentz K. Educating the pediatrician of the 21st century: defining and implementing a competency-based system. Pediatrics; 2004 Feb;113(2):252-8. doi: 10.1542/peds.113.2.252. PMID: 14754935.
10. Larkin GL, McKay MP, Angelos P. Six core competencies and seven deadly sins: a virtues-based approach to the new guidelines for graduate medical education. Surgery; 2005 Sep;138(3):490-7. doi: 10.1016/j.surg.2005.03.013. PMID: 16213903.
11. Epstein RM, Hundert EM. Defining and assessing professional competence. JAMA; 2002 Jan 9;287(2):226-35. doi: 10.1001/jama.287.2.226. PMID: 11779266.
12. Ahlzén R. Medical humanities - arts and humanistic science. Med Health Care Philos. 2007 Dec;10(4):385-93. doi: 10.1007/s11019-007-9081-3.
13. Peabody, F. "The care of the patient," *Journal of American Medical Association;* p. 88:877–882, 1927.
14. Svenaeus, F. "Heidegger's Philosophy of Technology and the Perils of Medicalization," in *Existential Medicine: Essays on Health and Illness*, London.New York, Rowman & Littlefield International Ltd; 2018, pp. 131-144.
15. Lee, K. "Technology and Dehumanization of Medicine," in *handbook of the philosophy of medicine*, Netherlands, springer; 2017, pp. 661-675.
16. Wright, H. G. Means, Ends and Medical Care, Springer; 2007.
17. Topol, E. Deep Medicine: How Artificial Intelligence Can Make Healthcare Human Agian, New York: Basic Books; 2019.
18. Wachter, R. The Digital Doctor, Mc Graw Hill Education; 2015.
19. Kwiatkowski, W. "Medicine and technology. Remarks on the notion of responsibility in the technology-assisted health care," *Medical Health Care and Philosophy;* 2018, pp. 21 (2): 197-205.
20. Reiser, S. Medicine and the Reign of Technology, New York: Cambridge University Press; 1978.
21. Jonsen, A. R. The New Medicine and the Old Ethics, Cambridge MA: Hraward University Press; 1990.
22. Carel, H. The phenomenology of illness, Oxford: Oxford University Press; 2016.
23. Jennett, B. "Medical Technology, Social and Health Care," in *Principles of Health Care Ethics*, New York, John Wiley & Sons; 1994, pp. 861-8721.

24. Heidegger, M. Zollikon seminars: Protocols-conversations-letters. F. Mayr and R. Askay (trans.), Northwestern University Press; 2001.
25. Glover, J. Causing Death and Saving Lives, Harmondsworth: Penguin; 1977.
26. Pellegrino ED. Medicine, science, art: an old controversy revisited. Man Med; 1979;4(1):43-52. PMID: 470449.
27. Cassell EJ. The sorcerer's broom. Medicine's rampant technology. Hastings Cent Rep; 1993 Nov-Dec;23(6):32-9. PMID: 8307745.
28. Svenaeus, F. "The phenomenology of empathy in medicine: an introduction," *Medicine, Health Care and Philosophy;* 2014, pp. 245-248.
29. Halpern, J. From detached concern to empathy: Humanizing medical practice, Oxford: Oxford University Press; 2001.
30. Canguilhem, G.The Normal and the Pathological, NEW YORK: ZONE BOOKS; 1991.
31. Conrad, P. The medicalization of society. On the transformation of human conditions into treatable disorders, Baltimore: The Johns Hopkins University Press; 2007.
32. Brown, W. M. "On Defining “Disease”," *Journal of Medicine and Philosophy;* 1985, pp. 311-328.
33. Hofmann, B. "Technological Invention of Disease," in *Encyclopedia of Creativity, Invention, Innovation and Entrepreneurship;* 2013, p. 1786–96.
34. Agich GJ. The importance of management for understanding managed care. J Med Philos. 1999 Oct;24(5):518-34. doi: 10.1076/jmep.24.5.518.2515. PMID: 10614734.
35. Anspach, R."Prognostic Conflict in Life-and Death Decisions: The Organization as an Ecology of Knowledge," *Journal of Health and Social Behavior;* 1987, pp. 28, 215–231.
36. Aron H., Schwartz, W. The Painful Prescription: Rationing Health Care; Washington DC: Brookings Institution, 1984.
37. Beyer C., Zalta, E. N. (ed.), "Edmund Husserl," Winter 2020 Edition. [Online]. Available URL = https://plato.stanford.edu/archives/win2020/entries/husserl/
38. Husserl, E., _The Crisis of European Sciences and Transcendental Phenomenology an Introduction to Phenomenological Philosophy_. Northwestern University Press; 1970.
39. Scambler, G. "Habermas and the power of medical expertise," in *Sociological Theory and Medical Sociology*, London, Tavistock; 1987.

40. Kelleher, D. "New social movements in the health domain," in *Habermas, critical theory and health*, Routledge, 2001; pp. 119-142.
41. Gadamer, H. G. The enigma of health. J. Gaiger and N. Walker (trans.), Stanford, CT: Stanford University Press; 1996.
42. Borgmann, A. Technology and the Character of Contemporary Life_ A Philosophical Inquiry, CHICAGO: THE UNIVERSITY OF CHICAGO PRESS; 1984.