Hippocrates’ Oath is Challenged*

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*.In every house where I come I will enter only for the good of my patients, keeping myself far from all intentional ill...*

Hippocrates

Hippocrates, considered the "father of medicine," penned his oath in the fourth century BCE. As doctors, we grew up and mentored others based on principles that he established. Among them, one of the central precepts is expressed by the Latin phrase "Primum non nocere" – "first, do no harm." Another principle states that our highest priority must always be the good of our patients, and that every action we take as medical professionals should serve that purpose. We feel obligated to treat all patients without discrimination. However, our daily routines confront us with situations that neither we nor Hippocrates could have anticipated. How do we apply Hippocrates’ ancient code in a modern world?

CAN A PHYSICIAN REFUSE TO TREAT?

Does a health caregiver have the liberty to refuse to treat? To whom and under what conditions is he or she allowed to do so? The Hippocratic Oath does not refer to this issue, assuming instead that every patient should be treated. This is an assumption we would all like to adopt, but a review of the literature on ethical codes indicates that there are certain situations in which physicians are not obligated to treat. In our country, and in most others, this topic is not well defined – not within the national ethical code or by legislation, although there is some guidance in the 1996 Patient’s Rights Act.

SCENARIOS IN WHICH A PHYSICIAN MAY CONSIDER NOT TO TREAT

- A doctor may refuse to treat in cases of personal, moral, religious or ethical objection, such as a religious obstetric surgeon asked to carry out an abortion for which there is no pure medical indication. The Israeli Penal Law states that committee approval to terminate a pregnancy does not obligate an individual physician to do so if the procedure contradicts his/her conscience or his/her medical opinion. A similar provision appears in the Israeli "Dying Patient Act," in which a caregiver is not obligated to provide a dying patient with a certain treatment or to avoid one contrary to his/her values, conscience or medical opinion [1]. In both cases, the physician must refer the patient to the care of another doctor. Even in cases of moral or religious objection, however, there must be a balance between the rights of the patient and the rights of the doctor. Thus, the British Medical Association protested in 2007 against amended General Medical Council rules that would allow doctors to conscientiously object to a wider range of treatments than those currently accepted, including abortion and life-prolonging treatment, claiming it gives doctors a license to discriminate against certain groups based on gender or sexual orientation. There was similar protest against a Michigan (United States) bill that would allow health providers to refuse service to anyone on moral, ethical or religious grounds (excepting emergencies), leaving a wide range of services and people open to discrimination [2].

- The phenomenon of violent patients is growing worldwide. In several states in the USA, for instance, the right to refuse to treat such patients is recognized by law. In some cases the patient’s family is also physically or verbally violent [3]. A recently proposed Israeli law suggests that violent patients who have been previously warned may be denied treatment at the medical facility where the violence occurred for a period of three to six months, excluding emergency situations [4]. Our experience taught us to treat the violent patient but at the same time to seek urgent law enforcement.

- A physician is expected to undertake a certain personal risk, but in some cases the risk from health hazards is...
Refusing treatment may stem from the patient’s non-compliance or disobedience. For instance, with regard to smoking – how many times have we asked a patient with cardiovascular risk factors to quit smoking before he suffered a heart attack? This argument can be taken to an extreme in the case of patients with substance abuse or dependency, where the argument takes on elements of moral, as opposed to medical, judgments. In some countries, this phenomenon has been institutionalized and even regulated. In the United Kingdom, doctors declined treatment of a patient with a broken ankle unless the man stopped smoking. In Germany, the government proposed to fine patients who disobeyed their doctors’ orders. Following vociferous objections by doctors and patients, a decision has been made to fine the patient only if he/she explicitly refuses to follow the doctor’s orders [11]. Besides the ethical problem of refusing to treat because of patients’ lifestyle decisions, there are the practical problems of drawing direct correlations from any one behavior to a specific health outcome [12], of determining when any behavior, acceptable in moderation, becomes excessive or even ascertaining what constitutes abuse of one’s health. As noted in a leading medical journal, “Many older people remember when sunshine, milk, bread, butter and meat were good for you and were recommended by physicians” [13].

According to the American “common law” a physician is not obligated to treat unless a patient-doctor relationship has been established. The American Medical Association claims that a physician’s elementary social right is to be allowed to choose whom to treat. This of course excludes medical emergencies and should not include refusal on discriminatory grounds. The Canadian Medical Association permits their doctors to refuse to treat patients in non-emergency conditions. The British Medical Association claims that discontinuing the patient-doctor relationship is allowed when the patient is violent, but not because of personal beliefs or financial reasons.

**DOCTORS WHO DID NOT HESITATE**

Some doctors have been heroic and inspiring, putting their patients’ lives, or their research, before their own lives. Medical ethic codes scarcely deal with these situations. Could these doctors face legal proceedings or insurance law suits? Some examples are given:

Daniel Alcides Carrion was interested in studying the deadly disease Oroyo fever. On 27 August 1885, Carrion took blood from a verruca lesion of a patient and inoculated himself. Carrion made detailed notes on the inoculation and the course of the disease. His condition rapidly deteriorated and he succumbed to the disease. He helped prove a link between the acute blood stage of Oroyo fever and that of the later chronic form of the disease, verruga peruana [14]. After his death from the disease, his assistant was arrested and tried for murder.

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**SARS = severe acute respiratory syndrome**
Another example is that of Dr. James Carroll, who in 1902 voluntarily submitted himself to the bite of contaminated mosquitoes that had previously caused three well-documented cases of yellow fever [15]. Until then it was believed that the disease is caused by contamination of spoiled food or dirty clothes. Within four days he was taken ill and suffered a severe attack of the disease. He recovered, but with significant damage to his heart. He died six years later in 1907.

Barry Marshall in 1984 proved that Helicobacter pylori is associated with gastritis by drinking a culture of the pathogen [16]. He soon developed the symptoms associated with H. pylori infection. An abstract describing his findings was initially rejected by a medical journal, but in 2005 he was a joint recipient of the Nobel Prize for medicine. In 1950 William J. Harrington and James W. Hollingsworth postulated that in patients with idiopathic thrombocytopenic purpura, it was a blood factor that caused the destruction of platelets [17]. To test this hypothesis, Harrington received 500 ml of blood from a patient with the disease. Within three hours, his platelets dropped to dangerously low levels and he had a seizure. His platelet count remained extremely low for four days, returning finally to normal levels by the fifth day. The experiment was subsequently repeated on all suitable staff members at the Barnes-Jewish Hospital. All subjects developed low platelet counts within three hours, and all recovered after a period of several days.

Although these doctors inspire the medical community and serve as an example to the medical profession, some may advocate that their actions are somewhat irresponsible and therefore unacceptable.

**DOCTORS GO TO WAR – A CONFLICT**

When military forces go to war, they are usually accompanied by medical personnel. Serving the army and participating in military clashes may seem contradictory to our medical codes and may put them to a test, known as "dual loyalty." The army doctor may be part of a combat unit whose objective is to annihilate the enemy. He may carry a gun and may use it in certain situations. These professional are bound by international law to treat wounded combatants *from all sides* and to care for injured civilians. In some cases they will treat enemy soldiers immediately after they (the doctors) have been under their (the enemy soldiers) direct fire. They are also obligated to care for enemy prisoners and report any evidence of abuse.

The global war on terror has recently brought renewed attention in the U.S. to the question of whether physicians are physicians first, soldiers first, or physician-soldiers. The international committee of the Red Cross has accused American medical personnel at Guantanamo Bay for sharing health information, including patient records, with army units that planned interrogations of detainees [18]. Whether army physicians should or can participate in military interrogation procedures was an issue for debate by the U.S. public. The U.S. Army Surgeon-General claimed that doctors assigned to military intelligence have no doctor-patient relationship with detainees, and in the absence of life-threatening emergency have no obligation to offer medical aid [18]. Others advocated that the interests of states at times of war and conflicts may outweigh the considerations of patients’ welfare. This might resemble the dual role of doctors of forensic psychiatry and occupational health, in which the medical profession sometimes serves purposes contrary to the patient’s welfare, such as providing evidence that may harm the patient or compromising a patient’s privacy for the common good. The International Dual Loyalty Working Group, a non-governmental body comprised of leading ethicists, physicians and lawyers from around the world dedicated to the study of this complex topic, states that "in all circumstances where departure from undivided loyalty takes place, what is critical to the moral acceptability of such departures is the fairness and transparency of the balancing of conflicting interests, and the way in which such balancing is, or is not, consistent with human rights" [19].

**CONCLUSIONS**

Modern life, in times of peace as well as war and global terrorism, raises issues we have not encountered before: patients’ violent or disobedient behavior, prisoner interrogation, heroic treatments, among others. Societies with high moral standards that go into war are challenged as their commanders and medical personnel are urged to provide adequate medical care for the wounded of both sides. Hippocrates’ oath and other ethical codes help define how to treat our patients but not *when* to treat them. Vague opinions are heard from the medical societies and ethical boards, but there is no clear statement concerning these issues. Therefore, in some situations we face these dilemmas alone, as each of us must decide according to his/her own personal standards, within ethical boundaries.

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**References**
The myelin sheath insulates neurons and facilitates rapid axonal conduction, and its disruption is characteristic of some neurological disorders, such as multiple sclerosis. Axonal signals stimulate Schwann cells to form myelin in peripheral nerves, but the mechanism is not completely known. By characterizing a mutation identified in zebrafish, Monk and Eitan Israeli used the adaptor protein MAVS to activate IRF3. Nod2-deficient mice failed to produce interferon efficiently and showed enhanced susceptibility to virus-induced pathogenesis. Thus, the function of Nod2 as a viral PRR highlights the important function of Nod2 in host antiviral defense mechanisms.

**Capsule**

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**G protein-coupled receptor is essential for myelin formation**

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**Capsule**

**Bacillus anthracis alive and well in the ground**

In a set of extensive analyses, Schuch and Fischetti found that *B. anthracis* harbors not only its own distinctive virulence plasmids but also the ability to act as host for several lysogenic bacteriophages. Lysogeny was found to alter the capacity of the bacterium to sporulate, to form biofilm exopolysaccharide, to reproduce vegetatively, and to colonize earthworm guts.

Phage-encoded sigma factors transcriptionally activated bacterial loci to switch on these phenotypes, enabling *B. anthracis* and its cousins to live in the soil in a variety of modes, and not just as dormant spores.

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