



2ND EDITION

C U B E

C U Bioethics

SOCIAL AND HEALTH SERVICES - EUTHANASIA - EMERGING TECHNOLOGIES -
COVID 19 PANDEMIC - CONSCIENTIOUS OBJECTION



Editor's Note

We are delighted to present the annual publication CUBE Newsletter.

In 2020, the pandemic's omnipresence illuminated the structural weaknesses of the healthcare system, raising ethical questions in the allocation of scarce critical care resources, clinical trials for vaccine development, legal enforcement of public health measures, and many more. While these dilemmas may not be novel, there remains a dire need for thought-provoking discussion and examination.

In this second issue, we were excited to receive an increased number of insightful submissions covering traditional and contemporary ethical issues. The essays explore the realms of end-of-life care and euthanasia, the Covid-19 pandemic, healthcare structures as well as Medicine in the technological age. We hope that their perspectives inspire new conversations and offer an opportunity to reflect on one's own thoughts and moral compass. Taking part in the conversation allows us to shift from being reactive to proactive, better preparing individuals for the ethical conundrums they may face.

As a young platform, we invite creativity and input from you as readers and contributors to CUBE. We hope to receive feedback on our strengths, as well as areas for growth and improvement.

At last, the team gratefully acknowledges the generosity of CUHK Centre for Bioethics for sponsoring awards in recognition of outstanding student work.

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Carers, who care

LEUNG Yin M25

Whether it is when you take the Hippocratic Oath or witness your first patient death, there will be moments along our medical journeys that are guaranteed to tug at our heartstrings. Moments that only exist when we care about becoming physicians that treat the patients but not only the diseases, and becoming carers that fuel connections with warmth and sincerity. With the urge to strengthen my empathy and sensitivity, I volunteered at a local NGO's Child Care Home this summer. Only when I experienced some of these moments, I realised that they are always entwined with ethical dilemmas.

The first time I volunteered at the Child Care Home I was unaware of the intricate dynamics when just playing with the group of young children who may have experienced neglect, abuse or abandonment, and whose parents may have developed substance use disorders or may have struggled as being teen parents. I noticed a toddler-aged at least 1½ years old at the room corner being so quiet that stood in sharp contrast to the other children busily babbling, if not ready to speak real words, and exploring around. I wanted to initiate an interaction with him, but I overlooked that another child was building his collection of toys, and I picked up one from the pile. The way he chose to express his emotions was headbanging, and giving him back the toy did not help. He felt ignored. The other time I was about to leave the Child Care Home at around bedtime, I said goodbye and goodnight and waved prompted tantrum-like behaviours among the children. There were too many volunteers coming and leaving that day, and they were overwhelmed with good-byes. Growing up in out-of-home settings, they were aware that caregivers were always temporary. Still, they were also too young to deal with the emotions longing for stable and loving relationships.



At the Child Care Home, resource allocation and priority-setting always top the list of concerns. Even with committed volunteers, the daily operation still very much relies on the limited number of employed child carer. Routines one-on-one time with each of the young children is just out of reach. Three carers leading playtime with a group of thirteen young children aged from 1½ to 3 years old, in fact when compared to the overwhelmingly high child-carer ratios of 9-16:1 in overseas institutional care,¹ is impressive. Within the group,² some young children suffer from developmental delays, ranging from cognitive to socio-emotional delays and of varying levels of severity. Some have attachment issues with extreme attention-seeking behaviour or withdrawal symptoms which physicians easily misdiagnose as autism spectrum disorders when failing to comprehend the insecurity and inconsistency of their early caregiving environments since infancy. Children are all excellent imitators, and when one child exhibits aggressive or even non-suicidal self-injurious behaviours, for example, biting, headbanging, punching, the others follow. These are the most typical and prevalent concerns in young children growing up in institutional care.

To break the vicious cycle of children seeking “negative attention”,³ it requires compassionate curiosity in carers, which originates from attentiveness, to reinterpret “attention-seeking” as “relationship-seeking”. This reframing implicitly develops our empathy so that we respond by reassuring the young children their worthiness and strengthening their self-esteem but not by accepting that their needs are demanding. However, the efforts to care could be immense, not to mention the unfailing attempts to encourage the practices of different skills in daily routines for young children with developmental delays to catch up. Just basic care could already be overwhelming, and there would not be a protocol guiding carers on how to prioritise individual young children’s needs in out-of-home settings away from family love. Exceptional personalised support for those with developmental delays could provoke attention-seeking in others, especially when self-injurious behaviours require immediate attention. Responsiveness then sometimes goes against non-maleficence. What is more, children themselves interpret care in their perspectives, and when feeling unfairly disciplined, they perceive as being uncared for. With so many volunteers come and go, there are no consistent discipline strategies or reward systems, which further confuse the children.



I caused much trouble due to my inexperience. Full-time child carers at the centre reminded me that when I attempted to care for individual needs and emotions, there would be a high chance to trigger extreme attention-seeking behaviours in others and subsequently a ripple effect. Ultimately, I would increase their workload and pressure. “We just could not afford to care that much, especially here”. It is very true, and they spent an extra hour to soothe the headbanging boy. It prompts me to wonder: what exactly are the elements of care ethics that are just and fulfil non-maleficence for all? When doctors are carers, what does it mean to care when time and resources are always limited? When a child from institutional care arrives at the consultation room with a volunteer, how could you care? I am only certain with one idea: when we choose to care, we choose to experience those moments that make us feel alive, genuine and rewarding as future doctors.

We are already familiar with the four principles of biomedical ethics developed by Tom Beauchamp and James Childress, namely autonomy, beneficence, non-maleficence and justice. This paradigm embodies universalisability and impartiality, but there is a tendency for doctors to de-emphasise the many humane values of relationships that arguably compromises the integrity of doctor-patient communication, which in fact lay the essence of ethics. When serving in out-of-home care settings, this approach is inadequate to cope with the interactions with the most vulnerable, young children without appropriate family care and often suffering from traumatic stress.

Here is when Joan Tronto's five ethical elements of care, namely attentiveness, responsibility, competence, responsiveness and trust, which may offer us another perspective. Care exists as practices. It is without a doubt that only by first identifying needs and recognising vulnerability could we strengthen the caregiver-care recipient relationships.

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Why is dying well so difficult in Hong Kong?

FUNG Mong Yung M25

When my mother decided to receive palliative care and stop chemotherapy, most of her close relatives and friends did not seem to take it very well. From their perspective, palliative care was just another term for giving up. At that time, I was one of them. 'If beneficence is so important, shouldn't my mother continue chemotherapy because that could give my mother a couple more months to live?' I wondered. Looking back, I was very naïve and even argued with my mother about treatment options at that time.

Luckily, it did not take long for my relatives and me to accept and understand my mother's decision. In particular, I realised that empathy was crucial if we want to respect a patient. In our perspective, chemotherapy might be the most beneficial because we get to stay with her longer. However, I did not try my best to consider her feelings. I did not try to understand what mattered the most for her. If we had known her prognosis and side effects associated with chemotherapy, it would not have taken us long to understand her decision. As everyone has different experiences and values, it is natural that other patients would make different choices, such that there is never a right or wrong answer in deciding treatment options. For my mother, she simply believed that living a few more months at the expense of suffering from extreme pain and nausea was just not worth it. Therefore, when we become healthcare professionals in the future, it is crucial that we respect and understand their decisions by putting ourselves in their shoes. Being empathetic is not limited to being respectful but also about being caring. For example, I was very touched seeing how the doctors and nurses closed the door very gently after knowing that my mother was



very sensitive to noise. I am truly grateful to the medical professionals for taking care of my mother with compassion and empathy.

Thinking back, my relatives and I had a lot of misconceptions about palliative care. We are often so single-mindedly focused on curing cancer and have unwittingly devalued the need for palliative care. As said, I first thought that palliative care was synonymous to giving up. However, I soon understood that palliative care was meaningful and important in alleviating both the physical and psychological symptoms over the course of curing. As we know, aggressive treatments are usually futile in the final stages of a terminal illness. Instead of suffering from the painful side effects of treatments, isn't it more sensible for patients to spend quality time with their loved ones before leaving? If so, palliative care helps improve the wellbeing of patients suffering from terminal illnesses through pain relief and counselling services. Isn't it evident that palliative care is never about giving up but actively taking control of the final stages of our lives? It is obvious that the best treatment is not necessarily about

curing the disease, but about offering comfort and well-rounded care with empathy.

Unfortunately, there is a lack of information and promotion of palliative care in Hong Kong. In particular, life and death education is rarely a focus under the education system. Together with the fact that death is usually considered a taboo, a number of patients suffering from terminal illnesses are unwilling to discuss death, let alone palliative care. As a result, most of them and their relatives are unaware of the option of receiving palliative care. Instead, some would go for life-sustaining treatments such as intubation without realising that these procedures are not only needless but also will drastically increase their suffering – is that what we hope to see? Given the misunderstandings of palliative care within society, conflicts between patients and their relatives happen from time to time. For example, while a patient may not wish to receive unnecessary treatments, his family members might disagree, thinking that it is better for him to seek treatment to live longer. While these patients are already suffering from terminal illnesses, it is deplorable to see how they have to go through these arguments with their loved ones due to misconceptions about palliative care.

Death is not the opposite of life, but a part of it. It should not be shameful to discuss death and palliative care because this will only make it more difficult to die with dignity. Therefore, life and death education should be promoted in society such that patients and their relatives can have a better understanding of the benefits of palliative care, thus reducing their pain during the final stages of lives. For example, students in Taiwan get to receive life and death education as early as in primary school. Moreover, as we face an ageing population, there is a need to develop palliative care policies and increase the number of hospital beds for palliative care patients. Lastly, palliative care is usually reserved for cancer patients. However, patients suffering from other forms of terminal illnesses such as Alzheimer's Disease deserve to receive palliative care as well. Although there is still a long way to go, I hope that the quality of death in Hong Kong will be improved. As my mother said: 'Almost everything in our lives is not within our control, including my cancer. However, we should have the right to die with dignity and peace.'



My experience as a HA patient: The desperate facts of the HK healthcare system

CHING Chun Long M24

I am sure that most of us would have thought about our future working environment after spending 6-7 years of learning, in a bid to make a small contribution to the community. However, sometimes it is difficult for us to have a clear image of our future career as we are still inside the ivory tower, and our thoughts are often idealised. Unfortunately, after a recent hospitalisation at a public hospital, I was able to see the ugly truth and shortcomings of our healthcare system. Through a current medical student's eyes, I was able to better understand how our future patients may feel.

During my short and precious summer holiday, I had been undergoing rigorous fitness training to reclaim the attractive physical appearance I had lost from my exam period. Unfortunately, I began suffering from chronic pain in my left knee, despite not seeing visible injuries. At first, I did not take it seriously as I could still run like the wind. However, the pain had become worse and debilitating, forcing myself to seek a consultation. I was naïve to believe that my knee could be solved swiftly by just a few steps: go to a GP, then get referred to a specialist, identify the defects after imaging, undergo a potential surgery, and recover. As I sit here, typing this article, one knee is still in pain. Yet, I'm grateful that I can walk and run (though slower than I used to). However, how about those who are not as lucky as me?

I went to a hospital in Kowloon in early September for a general outpatient consultation. The consultation was swiftly arranged after I had phoned for an appointment early that

morning. However, the GP could do nothing to improve my circumstance as the further investigation had to be conducted by a specialist, and I refused to take the unnecessary pain control. The GP warned me about the endless queueing of undertaking an MRI scan in the public system and wrote me a referral to a private orthopaedic specialist (more specifically, sports clinic). The next visit, however, would be in November, two months after the first visit.



Patients waiting in the accident and emergency department in Queen Elizabeth hospital. Credit: SCMP

After the first visit, I was a bit upset as I was sick of waiting for two months to receive my treatment, yet I quickly accepted the necessary waiting in public healthcare. However, what will be the scenario if patients are just laymen instead of 'well-educated' medical students? Public healthcare system involves tedious administrative procedures and paperwork showing albeit limited empathy towards patients. The patients may simply consider themselves a

football being kicked from departments to departments while their suffering and pain could not be relieved.

During the two months' waiting, my knee was getting worse. I did not lose hope, trusting that an experienced specialist could swiftly diagnose my knee problem. However, I could still remember the day of visit as I witnessed the chaotic scene in the specialist clinic in which the place was filled up with screaming elderly and nurses. I would say the chaotic environment is comparable to a hospital in the third world, and it is confusing as it happens every day in Asia's World City.

My designated time slot was 1330, and I was too naïve to believe that my consultation could be ended at around 1500. Sitting outside the consultation room, especially in this messy clinic was a torturing experience as you will never know when you can enter the room, and the only thing you could do is wait or leave. At 1430, I was disappointedly informed that the doctor had not finished the cases scheduled in the MORNING. That said, patients, including myself, scheduled in the afternoon slot would have to endure a longer waiting time. Long queue and limited capacity at public hospitals are infamously known. What else can I do other than sit and wait? I started to become inpatient.

It is absurd for a patient who got an appointment at 1330 and entered the consultation room in 1745. I repressed my angry feeling and remained calm. I was happy to be consulted by a CUHK graduate. However, the results were not that delightful as the Senior could not find any defects by palpation, and advanced diagnosis with MRI is warranted. He wrote me a referral to the physiotherapy and imaging department. I concluded the clinic visit at 1800, and all counters were closed. I had to pay another visit to get my next clinic schedule done three years later. This visit cost me missing several lectures and an important date.

In a short conclusion of my experience as a patient in the public healthcare system, I would say that my experience was discouraging, especially through a future health provider's eyes as I felt like my future working environment appeared lamentable to both professionals and patients. The chaotic system and endless queueing reflect the divide between the rich and the poor. The under-privileged have to wait and risk potentially irreversible deterioration before their next consultation date, just like the old capitalism society. Those who could not afford higher medical expenditure would have to suffer and die slowly. It is depressing to see this happening, despite Hong Kong being one of the most developed cities in Asia - a city whose economy and living costs are skyrocketing, yet still experiences severe patient backlog.

Although there is a Radi Collaboration¹ project between HA and private sector, practice helps patients with urgent needs, and some private clinics have discounts up to 40% off for HA patients in CT & MRI service. However, even with a discount, the price is still quite an significant amount for the under-privileged while those not in urgency could not join the Collaboration project. As a result, returning to the endless queue becomes the only solution. Obviously, the government can and should allocate more resources to solve the problem of long lines like providing subsidies to minimise the financial difficulty of accessing private imaging services that could shift some of the public patients to private sectors, shortening the length of the public queue.

1. **Radi Collaboration Project** is a government-funded Public-Private Partnership Programme aiming at enhancing radiological investigation services for HA's patients through collaboration with the private sector.

A compulsory medical aid for all HK citizens could be implemented by providing a limit of about 10k to 20k with a mechanism similar to the Continuing Education Fund. With such implementation, the financial burden of those under-privileged could be alleviated, and the quality of healthcare would be improved. These could fulfill the ethical principle of justice as every citizen has the right to medical consultation without any financial consideration.

Nevertheless, the HA should review its working environment and conditions to their employees. The attrition rate was high, with 5.4% in 2020 while most of the resigned doctors are experienced with average >10 years of practising. Although the two medical schools have increased the seats for first-year students, the vicious cycle has already been produced as the new graduates lack guidance from their seniors while those experienced doctors are leaving. It could be predicted the vicious cycle would imply negative impacts on healthcare quality while the waiting time will keep worsening. The working environment and organisational structure of HA have been criticised as the main reasons for the resignation of the senior doctors in which the working conditions should be improved with a more flexible shifting system and better OT allowance as the incentives for the experts. Moreover, the executive branches of the HA shall keep their feet on the ground focusing on realistic work rather than rewarding our professionals with fishball and siumai. Even though remodelling the whole system would be the most formidable challenge, it is worthy for the greater good of both medical practitioners and the HK society.



Still, I am the lucky one as I can yet walk, how about those who cannot? During my visit to the specialist, I met a patient who could not walk with both legs and had to use a walking aid for daily living, a tremendous inconvenience to his daily work and routine. Yet, it is the sad fact that most Hongkongers are unable to afford expensive private care. At the same time, we have to wait for the endless queueing in the public system and continue our living with inconveniences. For a low-income household or even an ordinary university student, they will likely be unable to afford an MRI scan in the private sector, costing upwards from 6000 up to 12000 HKD. It is depressing to think that individuals have to choose between paying for an MRI scan and sacrificing their month's worth of hard-earned salary to achieve good health. In line with the poverty cycle, people need to receive proper treatments promptly to continue working and earning money. Is being a HA patient means no effective treatments before endless waiting? However, I would say, this experience is true, mind provoking, especially to a medical student, a HA patient and an ordinary citizen.

Rare diseases – Our darlings murdered

William XUE M21



An unforgettable case

WY is a 4-year-old girl presenting to the Accident and Emergency Department of a local hospital for an acute onset of rapidly progressive chills and drowsiness for one day. Her symptoms were preceded by coryza and fever of 39° C. As her initial CT brain came back to be clear from intracranial haemorrhage or other space-occupying lesions, WY's GCS plummeted from 15 to 5 (E1V1M3) as she started convulsing. After being stabilised with anti-epileptics and intubated electively for her deteriorating consciousness, she was sent for an MRI brain with contrast, which revealed T1W hypointense, T2W hyperintense lesions with SWI blooming at bilateral thalami, midbrain, and pons. EEG monitoring showed encephalopathy with cerebral dysfunction without evidence of status epilepticus, while septic workup including lumbar puncture was unremarkable. The diagnosis of acute necrotising encephalitis of childhood (ANEC) was eventually made.

ANEC has been increasingly recognised since it was first coined in 1995 by Yamamoto et al.¹ Its pathogenesis is still poorly understood, hypothesised to be due to altered vessel wall permeability in the brain without vessel wall disruption, secondary to hypercytokinaemia.² Over the past two decades, there were fewer than 150 cases reported in literature worldwide.³ ANEC is often compared with acute disseminated encephalomyelitis (ADEM), characterised by immune-mediated CNS demyelination typically following a respiratory infection or vaccination. ANEC, however, runs a fulminant course with poor neurological outcome, as opposed to the slower progression and favourable complete recovery rate for ADEM.⁴

YW's rapid deterioration of sensorium to ear comatose caught her family defenceless, so much so that her mother recollected as "*from an innocent sneeze to a coma in the blink of an eye*".

Orphans in Medicine

There is no universal definition for “rare diseases”: <7 per 10,000 in the US according to the Rare Diseases Act of 2002; <5 per 10,000 in the EU according to the European Organisation for Rare Diseases;⁵ <1 per 10,000 in Taiwan according to their Ministry of Health and Welfare. The total number of rare diseases worldwide is roughly 6,000-8,000, 80% of which are inherited. They have highly heterogeneous presentations and trajectories, from life-threatening to chronically debilitating. Some definitions also stress on characteristics like heritability, fatality, and chronicity of diseases, but a commonality all of these entities share is their under-recognition.

Together, however, rare diseases mount to a significant healthcare burden. It is estimated that more than 263-446 million persons are affected globally, roughly the population of the entire USA.⁶ These patients are often overlooked in their diagnosis, treatment, and protection.

Diagnosis

We as medical students are often taught “a rare presentation of a common disease is more likely encountered than a common presentation of a rare disease”. Under the prerequisite that resources are always scarce, it is sensible to prioritise efficiency, but avoiding misdiagnosis is paramount in quaternary prevention. For rare diseases, misdiagnosis is as common as 40% while most delayed for 5 years according to a EURO-DIS survey. Investigations and treatments per se are not without side effects, not to mention the psychosocial turmoil. Worse off, patients with rare diseases could miss their therapeutic window for effective treatment before disabilities or death ensue.

Treatment

A patient presenting with a rare clinical sign in the wards would often become a celebrity tracked down by medical students in no time, but such academic interest does not always align with the business side of pharmaceuticals. The hefty price tag of approved pills entails all the money invested in their cousins that never made it to the market. It simply makes more monetary sense to target diseases of a wider and wealthier demographic. The US Orphan Drug Act has cultivated hundreds of new treatments for rare diseases since 1983 by offering grants, tax credits, expedited FDA approvals, exclusivity of distribution, and so on.⁷ Some may argue that such legislation distorts the market and steers research away from more prevalent diseases, but studying rare diseases has offered new insight into our body’s physiology, driving innovation in the field as a whole.

Protection

Patients with rare diseases represent a niche market of great heterogeneity, rendering them susceptible to not only isolation or discrimination but also exploitation. A recent example revolves around the Valeant scandal, in which Syprine, the Copper-chelating drug for Wilson’s disease, was egregiously charged. The pharmaceutical giant received more revenue despite the decrease in number of sales, because there were no generic forms available on the market. In the free market, competition fosters choice while monopoly deprives consumers of any bargaining power, especially since the medications have become a necessity. Adjunctive to funding R&D, specific policy interventions are thus crucial to safeguard such patients’ access to treatment.

The Picture of Hong Kong

Rare disease has gained more public awareness in Hong Kong since the establishment of the Hong Kong Alliance of Rare Disease in 2014, the suicide of a patient suffering from hereditary spinocerebellar ataxia in 2015, and subsequent legislative council debates on accessibility to health care amongst these minority groups in 2016–2017. A recent study by Chiu et al. shed light on the epidemiology of rare diseases in our city.⁸ The study highlighted the disparity between prevalence (1.5%) and associated inpatient cost (4.3%), highlighting the importance and unmet needs of rare diseases in healthcare policymaking.

Genetic diagnosis and counselling in Hong Kong are mainly provided by the Clinical Genetic Service of the Department of Health since 1984 (now at Hong Kong Children's Hospital). Our local experience and expertise lie in the neonatal screening of G6PD deficiency, congenital hypothyroidism, and most recently inborn errors of metabolism. Oftentimes, diagnosis of other rare diseases remains costly and time-consuming, limited by whether patients meet doctors with special interests in the disease. Meanwhile, there is no definition of or comprehensive database on rare diseases in Hong Kong.⁹ Thus, many patients subsequently cannot benefit from the safety net of the Samaritan Fund, or are denied access to publicly-funded medications as they lack a named diagnosis. Even for the handful of disease-specific treatments that are subsidised, like enzyme replacement therapies, patients still subject to a stringent application process and yearly reviews of eligibility.¹⁰ The majority of rare disease patients are simply unable to benefit from existing mechanisms.

Some Food for Thought

- How will patient communication change with the pendulum of diagnosis swinging towards probabilistic models based on clinical criteria, as in the case of Creutzfeldt-Jakob disease?
- How can AI come into play in the issue of rare diseases? Can it be the answer to effective screening and triaging, or is it susceptible to over-/under-fitting as rare diseases come in all shapes and sizes?
- Will genetic therapy rise to become the saviour of patients with rare diseases, or just another tool of exploitation?

YW's Progress

After two weeks of close monitoring and supportive therapy, YW was discharged from the PICU to the general Paediatrics ward for rehabilitation. The family was informed that complete recovery would be near impossible. Albeit still bedridden, YW's consciousness and global function were able to improve slowly but steadily throughout the course of multidisciplinary care.



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Bystander intervention in medical emergencies: Where are we now and what next?

CHUNG Wai Fung Thomas M24

Imagine one day you see a man suddenly collapse on the street, how would you respond? Would you dial 999, approach to check or even attempt cardiopulmonary resuscitation (CPR) if warranted after some preliminary checking? As a matter of fact, most life-threatening conditions occurring on the street is out-of-hospital cardiac arrests (OHCA). Research puts mean survival rate for OHCA cases in Hong Kong at a mere 2.3%, being in the lower range among major Asian cities.¹ Apart from just a small section of the population having received first-aid training,² it is disturbing that many are reluctant to offer help in fear of the potential legal liability arising from unintentional injury caused during the process of the first aid.³



To encourage bystander intervention, the government has adopted several measures to educate the public, enhance public awareness and ensure equipment availability. For instance, in 2018, the Fire Services Department (FSD) introduced the character 'Anyone' to promote the idea that 'Anyone could save others' and provided education about compression-only CPR to the public. Also, there has been an increase in the availability of automated external defibrillators (AED) in public places ranging from sports ground, stadium to shopping malls.

Back to the basics, if someone collapses in front of you, how should you react? To most, the answer would be clear and direct enough: offer assistance. Yet, what kind of assistance? Calling the emergency service? Then what? This is actually a tough question. As mentioned above, not many people in Hong Kong have received first-aid training. In view of this, the FSD started offering post-dispatch advice in 2018 to facilitate the bystander in helping the patient before the ambulance arrives.

Ideally, we should mandate first-aid before the paramedics arrive. However, Hong Kong as a common law jurisdiction requires due care of a person who initiates first-aid and one is assumed to have reasonable competence when they commence first-aid, meaning that any unintended errors may lead to legal consequences.⁴ Therefore, it is unsurprising that some may simply walk away or pretend not to have witnessed the incident, in fear that their suboptimal care would harm the patient and put themselves in trouble. So, how to strike a balance between the interests of the patient and the bystander is the question to be addressed. I believe we should adopt different standards for different kinds of bystanders. Firstly, people with little or no exposure to first-aid training. Secondly, people with a certain degree of first aid training, e.g. healthcare professionals.

For the first group, some may worry that without proper training, they will easily do harm to the injured individual and possibly cause secondary trauma. These worries are, by all means legitimate. Yet, with guidance, they should still be able to carry out basic first aid, e.g. care for choking or hypothermia, etc. Besides, *some* care -albeit just a little- is better than *no* care. So, with instructions from the emergency hotline, I believe it is totally acceptable for them to perform basic initial care which should be non-invasive and involve minimal risks only.

For the second group, this is where the ethical dilemma comes in, especially for healthcare professionals like doctors. According to the code of Professional Conduct set by the Medical Council of Hong Kong, “A PHYSICIAN SHALL give emergency care as a humanitarian duty unless he/she is assured that others are willing and able to give such care.”⁵ which is consistent with one of the four pillars of bioethics: beneficence. Along this line of thinking, a doctor is definitely duty-bound to come to the rescue in the event of a medical emergency. Also, the competence of doctors to perform basic first aid is beyond doubt. Nevertheless, the problem is that once errors and accidents occur, should the doctor be held accountable?



Is it ethically fair to punish a rescuer for his errors when trying to save the injured? It is not like in the hospital, where doctors are responsible for the medical blunders they make. Offering care is a doctor’s job in the hospital, but while on the street, though morally they should offer assistance, what they do is still, by its very nature, voluntary under the laws of Hong Kong. When things go wrong, rationally, they did make a mistake which could be serious and have violated one of the basic bioethical principle: non-maleficence. However, sensibility would dictate that it is unfair to punish a person who is trying to do good. Perhaps some may say the point is to determine whether the extent of damage done is reasonable. Yet, it is indeed hard to draw the line. Whether there is a sign of incompetence, is obviously subjective. With the discussion above, the problem boils down to what comes first, beneficence or non-maleficence, which is still a tough question.

In some jurisdictions, there is a Good Samaritan Law (GSL) which values beneficence over non-maleficence in medical emergencies, for trained personnel or even the general public. GSL exempts rescuers from legal liabilities in the case of emergencies.⁶ Different degrees of liability exemptions are offered in different jurisdictions. For example, according to the law in the state of California, “No person who in good faith, and not for compensation, renders emergency medical or non-medical care at the scene of an emergency shall be liable for any civil damages resulting from any act or omission.”⁷ Also, in China, the law states that, “a person shall not bear civil liability for acting voluntarily to help another in emergency and thus causes damage to the person being helped.”⁸ The law simply provides exemptions to all people in these two jurisdictions. However, in Queensland, legal protection is only limited to specific people, such as medical practitioners.⁹ Currently, Hong Kong is not among the jurisdictions which enforce such a law,⁶ partially because of concerns over potential adverse effects of substandard bystander first aid, how to avoid abuse of the law in that some may intentionally want to do harm, etc.¹⁰

Personally, I too would rank beneficence over non-maleficence in medical emergencies. I believe the introduction of GSL in Hong Kong could protect the rescuers' interest and hence remove their hesitation to assist in those critical moments. However, in drafting the law, the interest of the injured must also be taken into account. For instance, the law should only protect those who have responded in good faith and just erred in judgement, but not those guilty of gross negligence.⁴ Moreover, since Hong Kong people mostly have no or just limited exposure to first-aid training, in order to protect the injured, people of different abilities should enjoy a different degree of liability exemptions. For example, the law should cover people with little or no exposure to first-aid training only when they are instructed through the emergency services hotline, whereas for trained personnel the exemption should not go beyond what they have been taught.

Enforcement of a new law is never easy and calls for extensive discussion within the community. In the long run, the GSL may encourage bystanders to offer their helping hands, without fear of being sued. Meanwhile, it is of paramount importance to introduce more public education and training initiatives to enhance the confidence and ability of the general public to offer assistance in case of medical emergencies.

Lastly, it is indeed worthwhile to think: if a man suddenly collapses on the street, how would you respond?

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Perspectives on CRISPR

WONG Yi Lam Winnie M25

Once in a while, there is an advancement in science that draws an unusual amount of attention - an advancement that would likely revolutionise science and benefit the whole population. This time, it is different. A researcher in China, He Jiankui, made use of a gene-editing technique called CRISPR, to alter the gene of two embryos in vitro fertilisation. By disabling the gene CCR5, which is involved in the immune system and normally enables the HIV virus to enter cells, the two gene-edited babies were born with HIV resistance. This news might have been reassuring to the parents, who are HIV positive, that their offspring will be able to escape from the torment of the virus. Nevertheless, the experiment was universally condemned by scientists as it was an immense violation of medical ethics. The aim of this article is to discuss the ethical issues that emerged when using CRISPR in reproductive technology.

What are the possible violations to bioethics by He's gene-editing case?

Non-maleficence, one of the four principles of medical ethics could be potentially violated by the gene-editing technique. CRISPR is a very young invention, which was only introduced to the world in 2013. The first ever repairing of genetic mutation heart defect was in 2017. With an extremely brief history, many potentially harmful consequences brought about by CRISPR are unknown at present. Recently, there were studies that suggested that CRISPR may cause cells to lose their cancer-fighting ability, which had been previously overlooked.



Studies published in *Nature Medicine* found out that Cas9, the protein used in CRISPR, is capable of inducing catastrophic effects on certain cells, notably human pluripotent stem cells (hPSCs).¹

Human pluripotent stem cells (hPSCs), including human embryonic stem cells (hESCs) and human-induced pluripotent stem cells (hiPSCs), have the ability to self-renew indefinitely and differentiate into any human cell type. When using hPSC lines with stable integration of Cas9, an average insertion or deletion efficiency greater than 80% could be achieved. Under such high efficiency of insertion or deletion generation, it was revealed that double-strand breaks (DSBs) induced by Cas9 are toxic and can kill most hPSCs.² Therefore, CRISPR technology may not be as risk-free as we have had thought before.

Under normal circumstances, more studies have to be conducted to study the long-term effect of CRISPR on populations across different age groups. In the middle of the pandemic, CRISPR exhibits a promising potential in assisting vaccine development. In contrast with using hen eggs or cells in the traditional vaccine productions, CRISPR makes use of the gene-editing system in bacteria, which serves as a favourable basis for mass production. Hence, CRISPR technology can be allowed under emergency situations.

Justice, another essential aspect of bioethics, would have been breached if CRISPR were to be used in reproductive technology. Just like In-vitro fertilisation, it will come as no surprise that CRISPR will be commercialised if it were deemed safe and legalised. It may become another way for the wealthy to access more opportunities in society as CRISPR may enable them to choose advantageous, “supreme” traits. This can further widen the gap between the rich and the poor making it impossible to overcome. Another aspect to be considered is reproductive autonomy. Development of gene-editing in reproductive technology may hinder women’s free will when making their own choices. It may burden them with the obligations of creating the perfect babies, and those who are economically disadvantaged may hesitate to have children.

All in all, CRISPR might be a compromising tool in genome engineering. Nonetheless, it is not the best time for CRISPR to be applied in reproductive technology until more comprehensive analysis has been carried out and a clear line has been drawn between safety & regulations.



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Unlocking the secret of life – For good or worse?

Direct to consumer genetic testing

Huang Ying Xun Wing M25



Our DNA used to be a sophisticated language that could only be deciphered by doctors and scientists, and it seemed mysterious and unreachable. However, in recent years, the rise of direct-to-consumer (DTC) genetic testing has enabled people to easily access their genetic information without healthcare institutions or professionals as an intermediary. These services are often found online and claim to provide a range of insightful information, such as ancestry, health, personality and aptitude. Mainstream media presents taking such tests as empowering and being responsible for our wellbeing, which explains its exponentially increasing popularity.

One of the benefits of DTC genetic testing is that it provides personalised medical information, such as your risk for underlying genetic conditions and diseases.¹ They usually include genotypes at specific genes carrier screening and polygenic risk scores.

By better knowing your body, consumers can take appropriate measures to work on their health. For instance, people with a higher risk for diabetes and hypertension can adopt healthier diets and take up exercise to lower their chance of having such diseases. Carriers of recessive genetic diseases can also take into consideration such risks when planning to start a family. As the population continues to age, preventive healthcare can allow people to live longer, healthier and more enjoyable lives. Prevention is more effective than diagnosis and treatment when it comes to alleviating health burden on the healthcare system. We can become more proactive in protecting our health and society.

Commercial genetic tests are also more accessible for the general public. They do not require approval from healthcare professionals and can be ordered by filling in a short online

application. These tests are also inexpensive compared to those obtained through medical providers, and there are a large variety of tests available, catering to various needs. They can be a quick way for the general public to acquire an overall view of their health.

The genetic data collected could also contribute greatly to future medical advancements. With customers' consent, the results obtained from testing can be added to a database. Scientists can access this pool of information and use it to do further research, such as developing drugs and other novel methods for disease treatment or investigating underlying genetic causes of chronic diseases. A large pool of data would ensure that results or discoveries made through such research can be applied universally or cover a large portion of the population, enhancing the effectiveness and pace of modern medical advancements.

Yet, DTC genetic testing has its limitations, risks and implications, to which the public might be largely unaware of.² To illustrate, commercial tests aim to offer a broad scope of health information, but they may not accurately determine whether one will or will not get a certain disease. The sensitivity and specificity are unknown. They may only test for a few out of thousands of genetic variants, which could result in a false-positive or false-negative result that leads to missed opportunities for treatment or unnecessary worry. Also, genetic links do not always imply direct causation. Multifactorial genetic diseases, such as heart diseases and diabetes, are susceptible to environmental factors, such as diet and sleep habits, that aren't taken into account in DTC genetic testing. Moreover, there are little regulations in place for what diseases can be tested accurately, and different companies test for diseases in different manners, all of which challenge the reliability and accuracy of the generated results.

Furthermore, companies offering DTC genetic testing provide limited professional medical and psychological support for consumers. The results of genetic tests are complicated, especially if it covers a wide range of diseases and health indicators, and people need basic medical knowledge to understand its implications. Without adequate guidance from healthcare professionals, people may have an inaccurate or incomplete understanding of the information, leading them to make ill-informed decisions about their health, such as disease prevention and treatment. In particular, counselling specific to consumers who get an unexpected result, such as a positive BRCA gene for breast cancer, is largely unavailable due to the lack of geneticists and doctors trained in genetic counselling in Hong Kong. Clients need guidance on where to seek help and what actions they can take to tackle their disease. What's more is that testing positive for genes associated with diseases with limited or no preventative treatments, such as APOE4 gene for Alzheimer's, would simply be anxiety-inducing. Some companies give consumers the option to opt-out of receiving this gene test to avert additional worry.

Handling of genetic information is another major concern. In theory, testing companies are only authorised to use your DNA samples for analysing your health condition and have to destroy them afterwards. Unfortunately, this solely relies on the business integrity of these institutions. Dishonest companies may compromise your genetic privacy and secretly capitalise upon the acquired genetic information. They could sell them to third parties, which then use this information to sell drugs and health products tailored to consumers' supposed underlying conditions. Companies may also replicate and sell the DNA samples to research institutions, which then use them to conduct unauthorised research projects in the future. This is somewhat similar to enlisting customers as experiment subjects without their consent.

Results of genetic testing could easily be misused. Not only is there a lack of regulation for accuracy, there is also questionable regulation on whether it is a valid health document which insurance companies can obtain. To illustrate, insurance companies have the right to request medical information when evaluating the suitability, coverage and rates for various types of insurance. If the results of DTC genetic tests indicate a higher genetic disposition for certain types of diseases, companies can exclude related ailments from your insurance coverage and request you to pay higher insurance premiums to compensate for your high health risk based on genetic profile only. Your ability to obtain life, disability, or long-term care insurance may be severely affected. Are DTC genetic tests accurate enough to be assessed by insurance companies? If not, then consumers may be harmed by unreliable test findings. Furthermore, genetic profiling may lead to employment discrimination that is not protected under the law. Employers may preferentially recruit candidates who possess certain gene variations associated with a lower risk of chronic illnesses or higher performance in certain areas or even blacklist those whose genetic profile indicates an increased risk of developing certain diseases. This creates unfair competition amongst colleagues.

These are just some of the many issues that may arise from direct-to-customer genetic testing. Consumers are easily attracted by the novelty and promises of this relatively new commercialised technology, and are tempted to satisfy their curiosity by subscribing to these services while being unaware of its risks. Commercialised genetic tests have much potential for development, but this rapidly expanding industry should be regulated as soon as possible to maximise its benefits and ensure that the interests of its users are protected.

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Bias in Medical AI

Jasmine HUI M23

The advent of artificial intelligence (AI) making diagnoses or replacing doctors is a topic that often garners a lot of attention. The arguable hype and touted promises that surround AI have contributed to the skepticism that many have towards these new technologies. Despite these doubts in its clinical use, many novel machine learning (ML) solutions have popped up in recent years, in hopes of assisting diagnosis and making health services more resource efficient. This uprising trend in developing ML models suggest that there is a need for future and current healthcare professionals to understand the fundamentals of AI and their technical and ethical shortcomings.

Concept: *Machine learning (ML) falls under the umbrella of AI. To illustrate, imagine a ML algorithm that aims to detect pneumonia in chest x-rays. In short, ML “learns” how to do this by “training” on a large set of data (chest x-rays) and known answers (presence / absence of pneumonia). It identifies features unique to each group and develops its own set of rules. Each of these rules are weighted, meaning that features are prioritised based on what the AI deems important in making a decision (e.g. the opacity of the lesion is more important than its size). In contrast, classical programming involves specifically inputting the rules.*

The field of medical AI is a unique synergy between healthcare professionals, engineers, ethicists, lawyers and patients. Each stakeholder faces novel challenges in the development of ML decision support models. The list of ethical issues is extensive: data collection and ownership; explainability and transparency; clinical value (e.g. Is AI the best solution for the problem?); accountability and liability; resource allocation and overdiagnosis...But, in this opinion column, I'll be focusing on the problem of bias as it is debatably one of the most concerning and hard-to-tackle ethical problems for medical AI.

Bias occurs when the AI determines rules which are prejudiced towards a population group or a class of data. Some reasons as to why bias occurs may be due to training data which lacks diversity (e.g. gender, race, age), low quality data (e.g. poorly labelled, questionable ground truth), or a general lack of data. It may also stem from the cognitive bias of engineers and healthcare professionals as medicine, even in its current “analog” form, is also inherently biased due to unique clinical judgement. Bias is a problematic ethical issue as discrimination against certain populations can disadvantage and potentially cause harm, especially in the medical setting. Not only does this have implications in safety and liability, but it can marr the trust between physicians and patients. In my opinion, the goal of tackling bias in AI systems is not about mitigation, as most decisions are fundamentally biased. Rather, the issue is in identifying bias and preventing its guileful influence on medical decisions as the relative automaticity of using these systems can often blindside the user.



Although most of these systems will likely only ever be decision support systems (i.e. not autonomous), bias still has implications for how a physician makes their decision. Here, I'll briefly cover several aspects of bias through hypothesised case studies on medical AI:

Gender bias

Scenario 1: An algorithm is developed to assess mammograms for breast cancer. If the algorithm is trained with 80% images from female patients and 20% from male patients, it is more likely to perform worse on male patients. I.e. The rules the algorithm has determined may be less applicable to the under-represented population. However, for diseases that are inherently gender-skewed, how do we ensure minority groups are fairly represented? How can we collect sufficient data for these groups? If there is a genuine lack of data to achieve equal distribution, should specific indications for population use be clearly labelled on new ML models?

In 2019, Mitchell et al. proposed "Model Cards for Model Reporting", a concept which asks engineers to provide a short document that provides an evaluation of the ML model performance across a range of conditions like ethnic, age and gender demographics. These model cards also ask for the intended use of the model. These suggestions are all grounded on the basis of enhancing transparency and acts as a potential incentive to enhance fairness in terms of performance across populations¹.

Racial bias

Scenario 2: An algorithm is being developed to identify whether skin lesions are cancerous. If the algorithm was trained on images of skin lesions that were from patients of Caucasian descent, the model will likely perform poorly if tasked with assessing the skin lesions of Black patients. This is likely due to the lack of robustness in the "rules" the ML model has set for identifying skin lesions, i.e. its rules cannot be applied to dark skin. Currently, these rules remain relatively opaque to the user and the engineer, aptly being named a black box.

For example, Han et al suggested that if an algorithm was trained with data that was more ethnically diverse, it could perform better². This phenomenon highlights the need to carefully assess how AI systems perform in a population. Should we require engineers to ensure that they perform equally well in every potential patient that it will serve in a population? To what extent is it fair to sacrifice minority groups to enhance an algorithm's performance for the larger population? Moreover, this need for population-specific data during algorithm training further demands for greater data sharing. Even if a high-performing algorithm is published in the States, it may require extensive re-training and fine tuning if it were to be implemented in another country.

Opportunities for amplifying cognitive bias

Scenario 3: An algorithm is designed to help intensivists predict whether a patient will awake from a coma³.

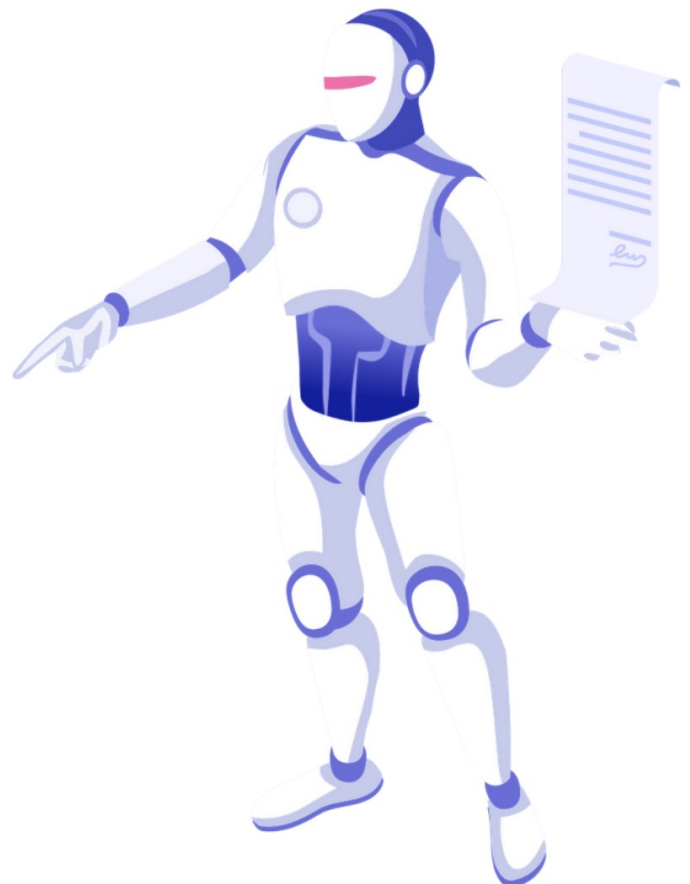
There are many areas of medicine where critical decision making is needed. In instances where decision making is less objective and requires the experience of a physician, decisions made between different clinicians may be nuanced. In these cases, the issue of establishing a ground truth can be problematic. As such, if AI is employed to offer a viewpoint, explainability and transparency would be invaluable for the clinician. Similar grey areas of medicine where AI application should take more careful ethical considerations may be in organ allocation and triaging.

Conclusion

Many articles often claim that medical AI imaging systems outperform doctors in diagnosis. Yet, it is important to consider the ethical and practical nuances of ML models, especially in the field of clinical diagnostic support. In addition to advancing the technological aspects of ML, greater discussion and educational efforts towards enhancing awareness for the ethical implications of medical AI should be made. Such steps may also bridge the language gap between physicians and engineers, to efficiently design systems that integrate into the clinical workflow and better serve both physicians and patients. There is also a need for policy and regulation to guide the medical AI space to better address issues like bias, transparency and explainability as all of these principles build the foundation of trust in the physician-AI and patient-AI relationship.

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The right to end one's life

TAM Wing Chi Destiny M21



In my rotation to the psychiatry department, I encountered a patient with major depressive disorder in Castle Peak Hospital. She was a middle-aged lady with stylish haircut and heavy make-up. Her mood was calm and willing to talk with us, but she had just attempted suicide. She admitted that she would try another suicidal attempt in the future because she was in pain. She thought that no one could understand her torment and death was the only way to set herself free. She described herself as an empty body without a soul.

I can learn the symptoms of depression from the books. The patient would have symptoms such as sleep disturbance, avolition and loss of appetite. However, I can never experience her grief.

Euthanasia has been a controversial issue over several decades. Most of the focus is put on patients with severe physical diseases but seldom do we discuss the patients suffering from mental illnesses. Autonomy, justice, non-maleficence and beneficence are the four bioethics principles. Do the patients have the autonomy to end their life? Is euthanasia beneficent to the patients who can no longer tolerate their mental and physical suffering?

Euthanasia is illicit in Hong Kong currently so some people would choose to end life in their own way. In countries where euthanasia is legal to perform, the patients need to undergo a comprehensive assessment. One of the criteria is that their suffering is intolerable and irreversible. The severity of physical diseases can be reflected by an array of objective parameters. On the other hand, it is difficult to quantify the degree of mental suffering as we cannot experience the feeling of another person.

We always face the dilemma of two or more bioethics principles in real life. By non-maleficence, the doctors should spare no pains to save patients' life. Under no circumstances should we do harm to our patients. However, euthanasia seems to fulfil the principles of autonomy and beneficence when the patients cannot tolerate the decline of health condition. Another problem deserving our attention is whether euthanasia can be applied to the patients with mental illnesses. Therefore, euthanasia remains contentious.

Euthanasia – Is mercy-killing really a mercy?

WAN Wing Tung Crystal M25

19th June, 1991. A 22-year-old young man studying Sports and Social Science in Hong Kong, was rehearsing a backflip for his school's graduation ceremony. Unlike his usual perfect landing, unfortunately, it was one that completely turned his life upside down. His 1st and 2nd cervical vertebrae were fractured. The teacher-to-be, in a night, had to live his remaining life only in bed, only in a hospital and only with a hopeless heart.

He is Tang Siu-pun, called by others as Ah Bun. With despair, he wrote letters to the Chief Executive in 2003 and 2004, hoping that euthanasia, collectively known as mercy-killing, could be legalised in Hong Kong. His appeal stirred debate over whether such an act was right or wrong in the community, igniting discussion on relevant legislations.

It was simply a story to me before I got into a medical school, or maybe, a social issue that was once significant. But apparently, it was not as black-and-white as I had thought. And, before I start sharing my thoughts regarding the issue, I still do not think I have, nor am going to have any definite answer over the matter in the near future.

We are doing something in accordance with the desires of the patients... aren't we?

To many, euthanasia (here I mean voluntary euthanasia, as consented and wanted by patients themselves) is appropriate as it follows the principle of autonomy. In health care ethics, autonomy means the choice of choosing or refusing medical treatment, based on a patient's own personal interests and beliefs.



Pro-euthanasia advocates believe that as human has the right to life, they should equally have the right to choose what happens to their lives, even when it comes to ending it. To some extent, it is really complicated to argue why somebody should not choose to end his suffering, especially when you are unable to fully experience their predicament -- why should we have a say in how others choose to live when it does not even affect us?

In fact, it does affect the community. Legalising the right to end a life may not necessarily end suffering, but instead might be promoting premature or preventable suffering to future generations. When self-wanted death is a choice accepted by society, it could be conveying a message: Terminally ill patients can see death as a solution, see euthanasia as righteous as it also seems to alleviate pain of their families. More importantly, when it is a choice, people can easily ignore other more positive solutions to sufferings, which brings devastating impacts.

What if –

‘What if a patient who wants euthanasia later regrets his or her choice?’

Life is unpredictable. False diagnosis occurs from time to time. Occasionally, miracles do happen even in this science-driven world. Humans make mistakes, meaning doctors may come up with a treatment that can possibly alleviate unbearable pain or even cure patients after saying that it was impossible. For example, in the case of Ah Bun, what if there was a new technological invention to assist him in walking again? Humans have a change of heart, meaning patients who once felt despaired and meaningless may later figure out a reason to live. What I would like to bring out is that, while the principle of autonomy emphasises on respecting patients’ decisions, patients themselves may also change their decisions. Will they regret the irreversible ‘suicide’?

With the goal of medicine to treat illness and promote health, death as an end in itself is traditionally equated with harm. With the Hippocratic Oath stating ‘do no harm to the patient’, deliberating causing death challenge doctors’ fiduciary duty to provide care and thus considered unethical in traditional bioethics. In other words, performing euthanasia can be perceived as irreversible harm if the consent made by the patient is not after thorough, comprehensive consideration. More crucially, it is difficult to judge if consideration for euthanasia is comprehensive enough, especially when the patient is in immense pain or unconscious.

Here, we can see consenting to a patient’s death can end up as harmful to them, but, not permitting them to end their sufferings can also be a form of harm. The reason is apparent: Doing no harm or non-maleficence is not just equivalent to keeping vital signs normal, but also maintaining the quality of life many patients are looking for.

So, is euthanasia doing harm or preventing harm? The answer is, probably, no definite answer.

Are doctors playing God if euthanasia is allowed?

Religion-wise, euthanasia sparks additional controversies. I, as a Catholic, find myself struggling a lot when pondering over this question as well. Many with a religious background believe that humans have no right to take control over the termination of a life, not even if the life is yours, and not to mention others participating in the decision. Life, to many, is a gift from their gods. In the big picture of a society, legislation of euthanasia would not be widely accepted by the people, particularly for people with religious beliefs. This is why, practically speaking, it is rather unachievable. But religiously speaking, is euthanasia something people believe that they should be striving for? For Catholicism, in 1980, the Declaration on Euthanasia was issued by the Church. It condemns euthanasia as ‘a crime against life and God’. For Buddhism, there are different sayings. Compassion is a justification for euthanasia according to some Buddhists, while some share similar views with the Catholic society that it is immoral to destroy a life.

I have been thinking a lot about this in regards to my religion too. Are doctors trying to play God’s role if they allow euthanasia? I’m uncertain about the answer. But, thinking from the flip side, will ‘not allowing euthanasia’ be doing the same too, as it is seen as not allowing patients to uphold their dignity in some situations? Let’s leave this question for us to ponder over together.

With all these uncertainties, what should we do?

There are two things I have come up with:

Firstly, Palliative care of good calibre. Many terminally ill patients opt for euthanasia because they are reluctant to spend the rest of their lives without dignity. Not being respected, not being able to live on their own abilities, depending on people around them for all daily activities, requiring machines to maintain life – these are seen as reasons of dignity deprivation. Palliative care emphasises on preparing death in a peaceful way and a principle of upholding the dignity of patients. Despite its increasing popularity in Hong Kong, it is still not widely known by many, especially those who do not work in the medical field. In my opinion, it would be a good alternative of the vigorously debated euthanasia.

Secondly, treating patients with an open mind and as individual cases. Euthanasia is a complicated topic. The controversies have not given us any model answer of whether it is appropriate, but they do show us that there are many possibilities in this issue. It would be vital for us to look at it on a case-by-case and try our best to understand the situations of each and every family is facing. More to note is that care and patience should be given when explaining the consideration of euthanasia and its alternatives.

I believe, health care ethics are not just words and inflexible rules to abide by. We have to adapt them to various situations, including that of euthanasia and other equally important conditions.



Autonomy vs Beneficence: On the public health ethics of Covid-19

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Public health ethics have become increasingly relevant in our world plagued by Covid-19. With restrictive yet arguably necessary government regulation on freedoms such as those of movement and assembly, questions have arisen about how much governing bodies can curtail individual autonomy for the sake of public health beneficence. Given that such right-infringing government restrictions vary across countries and nations, from mandated mass lockdown in India to enforced social distancing in South Korea, these questions are further complicated when we compare public health policies internationally and their relative efficacies in tackling the pandemic. Not only does the efficacy of policy vary, but enforcement of policy does as well. In the past year, several countries have reported extreme enforcement of quarantine and social-distancing policies with police brutality.^{1,2} Other countries and nations, including Singapore and South Korea, have turned to digital tracking to monitor quarantine compliance, which potentially breaches a completely different set of rights that physical enforcement measures do.³ Considering that all UN member states have ratified at least one of the nine core international human rights instruments and should, in theory, have a similar conceptualisation of human rights, why is there such a large disparity in how much different nations' containment strategies erode fundamental rights?

One reason for the disparity may be a lack of internationally acknowledged, Covid-specific ethical frameworks addressing the curtailment of human rights in the name of public



health. At the moment of writing, the WHO Working Group on Ethics and Covid-19 has not yet published Covid-specific guidance documents on the legitimacy of restricting various autonomies including freedom of movement.⁴ Even UNESCO International Bioethics Committee and COMEST's newest proposed ethical framework for Covid-19 response only refers back to WHO's pre-Covid guidance documents on conceptualising epidemic ethics.^{5,6,7}

COMEST

An advisory body appointed by UNESCO to formulate ethical principles that could provide decision-makers with criteria that extend beyond purely economic considerations. It is composed of scholars from scientific, legal, philosophical, cultural and political disciplines from various regions of the world.

National ethics councils and committees must now justify decisions about restricting individual autonomy with little insight into how these imposed restrictions may benefit or hinder the battle against the ever-evolving Covid-19.⁸ The lack of international cooperation, insufficient scientific transparency and the politicisation of the pandemic by current world leaders are certain factors that do not help countries in gathering sufficient scientific information about Covid-19. As an example, the initial confusion amongst communities about the validity of establishing herd-immunity or the merits of mask-wearing, and how this confusion adversely influenced public health policy in countries like the UK and the USA only serves to demonstrate how difficult it is to evaluate the beneficence of outbreak control methods and weigh it against citizens' autonomies, especially when there is underlying political distrust colouring decision-maker opinions.^{9,10} Current levels of international scientific transparency and collaboration are simply not sufficient for nations to easily determine just how policies such as city-wide lockdowns and certain community-based measures are effective in reducing disease transmission, and therefore evaluate whether they have justifiable basis for impinging on individual rights.

Although there could be more standardisation in how ethical frameworks on international human rights and bioethics are interpreted and implemented when considering individual autonomy versus public beneficence, there is no one-size-fits-all method for controlling the spread of Covid-19, nor should there be. Enforcing social distancing and voluntary quarantine measures in Beverly Hills, Los Angeles is after-all, wildly different from enforcing such measures in Dharavi, Mumbai. The beneficence in Covid-19 outbreak control changes with national demographics, and as a result, nations must be flexible with their control measures when evaluating beneficence of policies and restrictions. As a number of ethicists and other healthcare professionals have emphasised, it is also vital that policymakers

consider justice and equity in the decision-making process.^{11,12}

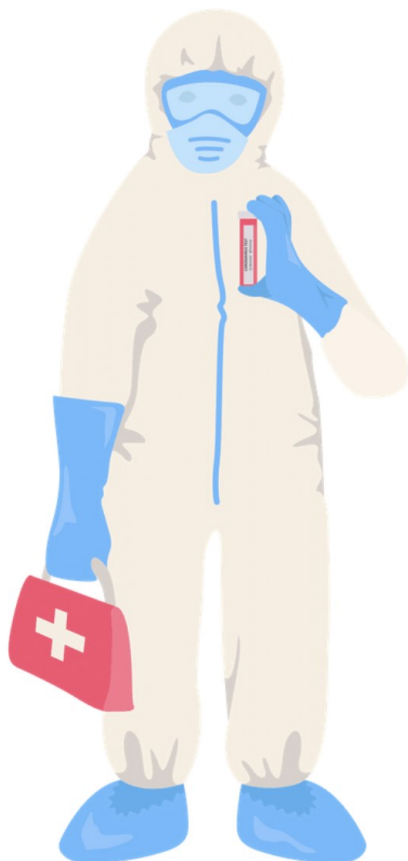
Why? Without considering justice and equity, it is easy for public health policies to exacerbate existing health vulnerabilities when attempting to curb the spread of Covid-19. This then skews the scales when we evaluate beneficence against restricting individual autonomy, given that vulnerable populations such as the homeless, undocumented, disabled are the ones who suffer most with human rights curtailment.¹³



Ending dine-in service in the evening put McRefugees back on street.
Credit: Suraj Katra (HKFP)

To illustrate, Hong Kong's homeless population has grown since the start of the pandemic, partially due to the waning economy claiming jobs and homes, but also due to government restrictions on freedom of assembly. Closure of public sanitation facilities, the dine-in ban on restaurants preventing street sleepers from seeking shelter at 24-hour fast-food restaurants like McDonald's, and restrictions on supportive services have all exacerbated the health problems these vulnerable populations face. For example, they face problems like decreased sanitation, greater exposure to the natural elements and reduced access to mental healthcare, at a time when health and sanitation are more critical than ever.¹⁴

Although there have been efforts by the government to address the issue of Hong Kong's expanded street sleeper population, with marginally increased capacity at temporary shelters and the reopening of some showering facilities, the bottom line is that more attention should be given to how vulnerable populations such as the homeless may be adversely affected by blanket policies. More attention should be given to how a lack of flexibility and foresight in public health efforts to curb acute health crises can exacerbate, rather than solve, public health issues already present in communities. This, therefore, returns us to the initial debate between sacrificing individual rights and autonomy for public beneficence. To what extent can public beneficence justify the erosion of human rights and autonomy when the policy itself causes direct harm to a sect of the public it seeks to protect? This is why justice and equity must be factored in when determining public health policy during Covid-19, and to a much greater extent than they currently are.



From regulating digital tracking technologies used for contact tracing to address the distribution of PPE in a time of severe resource scarcity, Covid-19 has prompted a wave of new bioethical concerns in the field of public health and policy. With the abruptness and severity of an evolving pandemic, nations may restrict individual rights and autonomies in the name of public health without due concern towards providing equitable healthcare, possibly due to insufficient information and guidance. What nations can and should do now is to increasingly cooperate and coordinate their understanding of human rights during Covid-19, aim to implement policies with increased adaptability and consideration for vulnerable populations, and constantly evaluate public health policies' efficacy in combatting the pandemic. Still, regardless of the new complexities of navigating public health bioethics in the era of Covid-19, national healthcare policymakers must bear a single concept in mind – they work to respect the dignity of all humans.

Then, and only then, can nations form and implement beneficent public health policies that justifiably impinge on individual autonomies.

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Some considerations of the Covid-19 health code system

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As part of the plans to lift border restrictions due to the Covid-19 pandemic, Hong Kong may soon introduce a health code system to certify virus-free residents and allow them to visit Macau and Guangdong.¹ In order to apply for a health code, individuals will have to undergo a Covid-19 nucleic acid test. Saliva samples are sent to private laboratories for analysis, with results being available within 12 to 24 hours. Individuals are exempted from the mandatory 14-day quarantine once they receive a negative test result. The code is expected to be valid for around seven days.

Eligibilities for Covid-19 tests in public hospitals are currently dependent on symptoms, travel history, and contact with people who tested positive. Policymakers have to determine whether public hospitals should use already limited resources to test asymptomatic individuals for Covid-19. It could be argued that these resources would be put into better use for testing and treating suspected cases. On the other hand, Covid-19 testing in the private hospital setting can cost upwards of HKD\$2000.² This may lead to inequity as the poor would be less

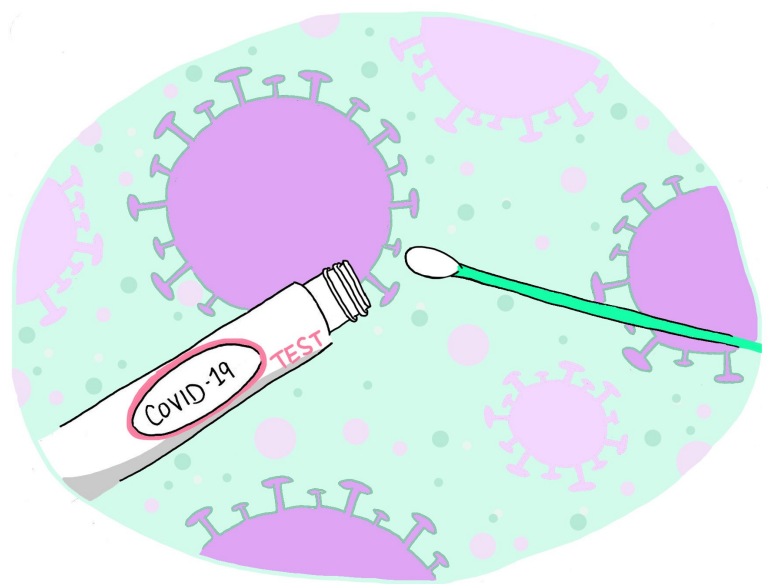
likely to have access to this service and subsequent privileges. Freedom to enter and leave the region is protected under Article 31 of the Hong Kong Basic Law,³ but this freedom would not be enjoyed by everyone equally if health codes come with a hefty price tag.

The use of health code systems may also set a dangerous precedent for individuals to be restricted from access to public services due to their health. Some governments have been considering “immunity passports”⁴ to only allow authorised individuals who have tested positive for Covid-19 antibodies to return to work without restrictions. While, as of the time of the writing, there is insufficient evidence about the effectiveness of antibody tests used in “immunity passports”, it creates some concerns about inequitable access to testing. Low socio-economic status households often have access to these precious resources last. As a result, the already marginalised members of the society may be deprived of necessary public and health services for the longest time.

The ideal solution would be a vaccine against Covid-19 that is both effective and universally available. However, the same bioethical issue remains in terms of how the first batches of the vaccine should be distributed when it is yet to be widely available. It should be made available to all individuals, without monetary barriers, while ensuring that frontline medical workers and the most vulnerable are protected.

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Ethical dilemmas during the coronavirus pandemic

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For the past six months, the whole world has been ravaged by the coronavirus pandemic. Lives were lost, jobs were cut, and schools were closed. Everyone is having a difficult time. Not only do governments have to make difficult decisions to strike a balance between reviving the economy and public health safety, but healthcare professionals are also facing ethical dilemmas on a daily basis.

With medical resources deemed vital for survival, such as ventilators, being extremely insufficient, who gets to use them and who does not? To answer this question, we can consider the principle of justice in the prioritisation of healthcare needs. From the perspective of justice, everyone, regardless of their race, gender, religion and social status should be evaluated equally in an egalitarian society. They are on equal grounds, but this does not mean everyone has the same chance of accessing a ventilator, since the demand is always greater than the quantity supply. As healthcare providers, we certainly want to maximise the use of limited resources to provide maximum benefit to society. Therefore, patients with a better prognosis, who can live longer or enjoy a higher quality of life after using the ventilators, are more likely to have access to them. In particular, younger patients are more likely to have a longer and higher quality life if they have access to these resources.¹

Nonetheless, prognosis allocation has its disadvantages. Consider two 60-year-old women who have equal chances of survival if they have access to ventilators. The one who is otherwise healthy is prioritised over the other who suffers from multiple comorbidities,



Businesses have been shut in Lan Kwai Fong amid Covid pandemic. Credit: Paul Leung (Bloomberg)

since the former has a higher probability of living a longer and higher quality life after receiving treatment.² This practice discriminates against those with ill health and is at odds with the commonly held moral intuition of saving the worst off first.³ Although the prognosis principle is an important consideration when allocating scarce resources, it should be used in conjunction with other principles to achieve fair rationing.

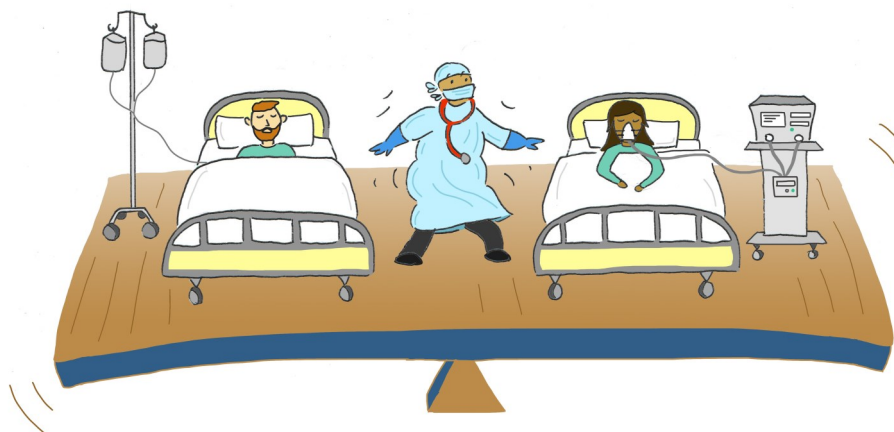
Another ethical question raised is whether it is ethical to force the closure of some businesses and enforce mandatory quarantine during the pandemic. Admittedly, this is against the principle of autonomy, which states that everyone can make their own decisions without interference, and their decisions should be respected. However, from the perspectives of beneficence and non-maleficence in public health, forcing the closure of high-risk places and making quarantine mandatory for those who have travelled overseas are appropriate measures for the sake of safeguarding the health of the greater

community. Those places and people have an especially high risk of spreading the virus; shutting them down or isolating them can prevent widespread transmission. A small sacrifice has to be made for a greater good to minimise harm to other people. With that said, policymakers should consider those stakeholders' interests as well. It is crucial to balance their interests as well as the safety of the general public. When the pandemic shows signs of plateau, authorities should consider whether or not to relax restrictions.

No one knows when the pandemic will end, and when life will return to normal. Nevertheless, it is a good sign to see the decreasing number of new coronavirus cases in most parts of the world. Let us continue to have hope, knowing that together we can keep the virus at bay!

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Human challenge trials:

Is it worth it?

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Do Human Challenge Trials, as its name suggests, assume that volunteers are to compete against a virus that is more superior in ability and strength than humans? Does it already define the fate of the volunteers that they will suffer to at least a moderate extent during this trial? Or is it a vision that we can overtake the virus with the vaccines? In fact, human challenge trials are when a volunteer is infected deliberately by an infectious disease. However, we do not know whether it is a risk worth taking.



Human Challenge Trials were not first seen during Covid-19; they were conducted during cholera and malaria outbreaks. Left untreated, they can also cause irreversible harm. Lung fibrosis is currently incurable.¹ Nonetheless, the coronavirus is ever-mutating. This is also true for seasonal influenza. Since the influenza virus also mutates by antigenic drift and shift, thus the vaccines are reviewed each year.² This makes sure that the vaccines match the circulating virus. Back in the early stage of the Covid-19 pandemic, the expected number of people to be infected by each case was just 2.5. It has already risen to 4 in July.³ Currently, the circulating strain is mostly G strain, arising from the D614G mutation. It is more potent in infecting cells.⁴ But it is impossible to assure that the virus would not mutate in other perspectives like deadliness. Especially when there are so many mutations appearing, it does take time to confirm the effect of that particular mutation as not all mutations are meaningful.⁴ The mutation causes two concerns: Whether the volunteers will suffer from unexpected harm due to the mutations and whether the vaccines would still be effective if the virus mutated.

To the first concern, we cannot be so certain that lab-grown viruses will not mutate. According to the Declaration of Helsinki, the volunteers must have informed consent.⁵ By informed consent, it means that the volunteers should be fully aware of the risks and benefits of the trial and its alternative. They should also know the procedures of the trials so that they can make educated choices on whether to join or not.⁶ But as aforementioned, the risks and developmental changes in the Covid-19 virus are ever-changing, and thus, the initial risks of the trial when communicated to the subject may change over time. Volunteers may come to grips with risks that they did not give consent to. In such a case, we must emphasise to the volunteers that some risks are unknown and changing, and they are given to quit the trial at any time they want. Or else, there would be a false promise of safety, even if it is an unintentional mistake.

Another way to solve this would be ancillary care. Some of the organisations would instead consider giving out monetary compensation, such as Open Orphan which gives around £4,000.⁷ However, this could also cause other issues. If such a sum is given to volunteers with

lower income, they may apply for human challenge trials without thorough consideration of all the risks, resulting in indirect exploitation. Currently, Open Orphan is conducting the Human Challenge Trials in the UK, but we do not know if this sets the example for other regions to follow. If that is the case, reconsideration is needed. Perhaps, the most direct and fairest way is ancillary care.

But if mutations occur, there may be new complications and sequelae from Covid-19. Currently, the policy to reduce risk is to invite volunteers that are already in high-risk areas. However, this may not reduce the risks for participants. It is just protecting those who are in low-risk areas.⁸

Some say the volunteers recruited should be young, e.g. aged from 18 to 25, as they should be in better shape and fitter in tolerating the potential health risks.⁹ Indeed, this is a valid concern. But what is worth noting is that there are also young patients who experienced severe symptoms after recovering from Covid-19 including shortness of breath, pain as if being stabbed during breathing, dizziness, and even loss of memory and concentration.^{10,11} Although until now, there have been no deaths due to human challenge trials, the risks should not be overlooked.

To the second concern, it may seem impractical to conduct such discussion as the mutation has not even occurred yet. But it is of equal importance to discuss such matters and to discuss whether we should conduct the Human Challenge Trials. One of the ways resembles that of influenza vaccines, by reinforcing the scrutiny of the mutation and making sure that the vaccine matches with the circulating type of vaccine. But, if it turns out the costs outweigh the effectiveness, then would it be better if we also take another detour to tackle Covid-19 instead of just putting all the eggs into one basket? What we need to do is to find what is in

common between different strains of the virus. They may still lead to common clinical manifestations despite mutations, such as fibrosis of the lung.

Thus, instead of rushing to invent a vaccine, would it be better if we prioritise the research in anti-fibrotic drugs? The Lancet also mentioned that a considerable number of patients died of Covid-19 due to aggravating pulmonary fibrosis.¹² The journal also claimed that many potential anti-fibrotic drugs could attenuate the fibrosis caused by Covid-19. If succeeded, it already brings profound betterment to the patients. Moreover, what petrified people was the infectiousness of Covid-19 and the irreversible fibrosis (except for those who are undisturbed by Covid-19, still having their masks down and smoking carefreely). If we have the cure for the fibrosis, the patients will have less fear upon contracting Covid-19. Thus anti-fibrotic drugs may be the paramount stepping stone to defeating Covid-19. What's more, the anti-fibrotic drugs can act as part of ancillary care for the vaccine research. It is better to have drugs in our arsenal before we pick up the "challenge".

But some research indicates that about 33.9% of the Covid-19 patients presented with fibrotic changes, does it mean the other 66.1% patients had to wait until their situation aggravates and manifest with fibrosis so that they can be prescribed with the anti-fibrotic drugs?¹³ There are numerous ongoing clinical studies which aim at reducing the virus number in patients. Recently there is a study regarding the drug Ranitidine Bismuth Citrate, which can cause a 1000-fold reduction in virus number.¹⁴ Thus, we have not left out the Covid-19 patients of less severity.

Recently, Russia announced that they invented a vaccine which passed the early stages of testing.¹⁵ They predicted that these vaccines would be available in October. But this also faces the doubts and criticisms from virus experts of

other countries like the US. They are uncertain if Russia's testings are sufficient to ensure the efficacy of the vaccine. And if a vaccine is put into use too soon, it can lead to a mismatch of vaccine and virus. So, we need to strengthen the quality control of the vaccines, making sure that the new vaccines are at par. For Russia's case, international collaboration shall be the resolution. As if conflicts exist between the experts of different countries, setting the international standard is the way. The collaboration also applies to studies of the microbiology of Covid-19, as sorting out the mutations takes time. Lastly, to accelerate the invention of new anti-fibrotic drugs. In the face of such pestilence, shouldn't we avert risk and confront what is more concrete and definite? Shouldn't we find the right antidote, but not skating on thin ice?

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Can a government force its citizens to be vaccinated?

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It is well known that vaccines and vaccination programs around the world have been immensely useful towards lengthening life expectancy and improving quality of life for all groups of people, and humanity as a whole.¹ Vaccine hesitancy, however, remains a hindrance to the full effectiveness of vaccines; no matter how effective a vaccine is at preventing disease, it cannot do so if nobody takes it. Knowing that vaccination programs bring about great public health benefits to society at large, is it possible for a government or public health body to mandate people to be vaccinated? Furthermore, would it be ethical to do so?



Credit: HKFP

In the Wellcome Trust's 2019 Global Monitor, the organisation published its findings on public health attitudes worldwide from a group of over 140,000 people from over 140 countries. Among these respondents, only 5% of respondents thought that vaccines were not effective,²

reflecting that trust in vaccination is overwhelmingly high worldwide. However, 5% is not a negligible proportion of the population. The WHO defines vaccine hesitancy as a “delay in acceptance or refusal of vaccines despite availability of vaccine services”;³ of course, within this definition, there are groups who actively oppose and refuse vaccination of themselves, their children and their peers.

Firstly, under special circumstances, organisations and companies are allowed to mandate vaccinations for their members and employees. For example, the CUHK medical faculty itself requires all of its students to take several vaccines. The question is, can a government require a free citizen to be vaccinated even if they do not want to be? There is certainly precedent for this; in the United States, a landmark Supreme Court case titled *Jacobson v Massachusetts*⁴ ruled that states had the authority to enforce compulsory vaccination, especially during the dire circumstances of epidemics. However, it must be said that the value systems of the time that led to this judgment may differ from the current milieu; the Supreme Court, 22 years later, also ruled that it was legal for a mentally ill woman to be compulsorily sterilized in the name of eugenics.⁵ Regardless, the precedent for mandatory vaccination exists; governments can, and have, forced citizens to be vaccinated against their will.

This begs the question, is it ethical for vaccination to be mandatory? An instinctive response maybe yes; surely the good of the people outweighs the good of the individual. However, it is not so simple. The key bioethics principles

concerned are beneficence and autonomy -- does the patient's right to autonomy outweigh the public health benefits lost as a result of this missed vaccination? Are autonomy and beneficence intractable in this case?

If more people are vaccinated in the name of the public good, will this really be able to convince vaccine refusers of the virtue of vaccination? Forcing them to be vaccinated may only further increase resentment and distrust towards the government and vaccines. Additionally, the concept of "the public good" can be much misaligned or misconstrued -- is the public health of the society as a whole, or the preservation of people's right to autonomy closer to "the public good"? There is no correct answer.

However, there may not be any need to weigh beneficence and autonomy against each other and pick a winner; they are not dichotomous. Why do people refuse vaccines in the first place? Commonly cited reasons include:⁶

- Religious concerns, e.g. objections to vaccine components being derived from pigs
- Personal beliefs, e.g. that healthy lifestyles and diets are enough to prevent disease
- Safety concerns, e.g. that the components in vaccines are toxic or carry the risk of autism
- Desire for additional education; parents do not want to vaccinate their children until they know enough about the vaccine

For many of these concerns, they stem from miscommunication or lack of information. Personal beliefs and safety concerns cited for vaccine hesitancy are often just due to distrust or ignorance; if parents were properly informed of the benefits and efficacy of vaccines and factually reassured of their safety, then surely they would be happy to vaccinate their children.



The principle of autonomy includes the element of informed consent; if a mother reads a false article claiming that Vaccine X will cause autism, this is not a fully "informed decision" as she does not have the full and correct facts on the matter. In order to promote beneficence and maximum vaccine coverage without sacrificing the principle of autonomy, public health bodies should work on education programs and disseminate accurate and relevant information about vaccines, as well as actively counteracting false information from being spread. Although the relevant information about vaccines does include lists of potential side effects that may cause people to balk at vaccinations, proper information would undoubtedly improve vaccination rates. Therefore, there is indeed an ethical way to improve vaccination rates without "forcing" people to be vaccinated against their will.

As for people who refuse vaccinations for religious reasons, e.g. contents derived from pigs, perhaps future formulations of the vaccine can be made without such ingredients, making a vaccine that is acceptable for all people regardless of religion. If there are people who, no matter what information is given or how the

Vaccine ingredients are adjusted, still refuse vaccination, then they are still entitled to their choice. However, as previously stated, it is possible for a government to require them to be vaccinated if needed, e.g. during epidemics. In non-emergency situations, then hopefully, the herd immunity arising from high vaccination rates can allow people this luxury of choice without jeopardising public health.

In conclusion, it is indeed possible for a government to force their citizens to be vaccinated; however, for ethical reasons, it should be limited to severe situations such as during an epidemic. In other times, the principle of autonomy should be respected as much as possible; but if the public is better educated about vaccination, then public health can be improved without harming autonomy.



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A pandemic on board – Is denying access for a ship to dock within its country’s borders ethically justifiable?

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What was once considered an ideal holiday getaway, cruise ships are now seen as incubators of the deadly virus in the ongoing Covid-19 pandemic. Over the course of four months, a total of 40 cruise ships had confirmed positive cases on board, resulting in desperate attempts to mitigate the spread of the virus. *Diamond Princess*, one of the first of many cruises to be caught in this dire situation, saw over 700 infections and 14 deaths after docking at a Japanese port for a 14-day quarantine.¹ As the cruise-ship pandemic escalated, governments began to respond by turning away cruises and restricting their entry into their country. As of September 2020, countries such as Australia, Canada, New Zealand and the United States have set up restrictions to turn away cruises carrying any infected individuals.²



Passenger quarantining on cruise ship *Diamond Princess* in March 2020. Credit: Kate Munsch (Reuters)

“I’d rather have the people stay ... I like the numbers being where they are. I don’t need to have the numbers double because of one ship that wasn’t our fault” stated President Trump.³ The ‘numbers’ allude to the worldwide charts delineating new and total Covid-19 cases, a measure used by many to monitor the progress of the disease, essentially a representative of a country’s performance in attenuating its spread. By placing so much focus in comparing and collating numbers, have we inadvertently neglected the wellbeing of individual patients and the need to attenuate the spread of the virus, merely to have a presentable statistic?

To state the obvious, compromising the wellbeing of patients at the expense of a ‘statistic’ is unjustifiable. Ethical concerns arise when considering the beneficence and non-maleficence of patients, such that their health should rightfully be prioritised in order to ensure optimal treatment for a cure and to limit the spread of the virus. However, besides the unwarranted objective to manipulate statistics, is denying access for a cruise to dock within their country’s borders ethically justifiable?

It is a race against time to limit the spread of the virus and treat those who have unluckily diagnosed. Thus, in viewing the principles of beneficence and non-maleficence, it would be optimal for the countries closest in reach to provide immediate help and treatment in order to alleviate

the situation. Providing instant care to patients would not only better the chances of recovery for those infected, but would also lessen the risk of spread for the many other healthy individuals stuck on board, therefore prioritising the best interest of all stakeholders on board.

On the other hand, one must consider the resources and medical support available in each country. *Diamond Princess*, for example, accounted for more than half of the world's Covid-19 cases outside of mainland China at the time. Japan – where the cruise had docked after reporting cases on board – was still slowly trying to adapt to the management of the pandemic. Having to manage a sudden surge of patients from the cruise on top of the gradual intensification of local cases would have unequivocally placed an unanticipated burden on both local medical professionals and local patients in need of treatment. It is essentially a double-edged sword in a situation where resources are limited, and the country's own management plan has not yet been concrete – beneficence and non-maleficence would be at risk for either local patients or patients on the cruise, in which one group would garner adequate resources and care at the expense of the other group's precluding.

It is, however, difficult to define 'sufficient preparedness' in terms of a country's capacity to take in additional patients under their wing. If anything, this current pandemic has denoted the perplexity of gathering adequate help, medical resources and hospital space, in which even the most well-developed countries face scarcity and are never absolutely prepared. Taking this into consideration, would the lack of 'sufficient preparedness' still justify denying access for cruise ships to dock at their borders, if this means that overseas visitors will *always* be stripped from their right to healthcare? The principle of justice necessitates fairness and equality for all individuals in their access to medical help, and although most public healthcare systems charge foreign visitors higher prices, the responsibility to provide this care still remains. Denying cruise-ship patients help



would leave individuals stranded from their fundamental right to healthcare. Thus, although docking regulations protect patients both locally and onboard from potential risks that arise from disproportionate resource allocation, it omits the accountability that countries have for the well-being of overseas visitors by depriving them from these basic rights.

Beyond these rules and regulations, another point to consider is the reprehensibility of cruise passenger detainment. The principle of utilitarianism calls for minimisation of suffering and maximisation of well-being, which would make on-board quarantine the suitable measure to protect the wider community, that is, the country's local population.⁴ In view of Kant's 'Categorical Imperative', however, no person should be treated as a 'means' in order to reach an 'end'.⁴ As such, although keeping all passengers – whether tested positive or not – locked in the cruise can thwart the spread of the virus beyond cruise boundaries, this is at the risk of endangering those that are healthy onboard, being in close proximity to possibly infected patients for two weeks. It is not only a health consideration but also a mental turmoil for those who have to live in a constant state of worry and distress for two weeks.⁵

In a short few months of the pandemic, affected cruises saw a total of seven suicide attempts. The principle of justice calls for fairness amongst all individuals to receive care and treatment – but is it really fair to confine hundreds to thousands of passengers within a small space at the risk of continual spread and hindrance to mental health? Do current cruise quarantine measures indicate that moving uninfected individuals outside of the cruise to safer facilities is a risk that outweighs the dangers of spread within the cruise, further confirming that confining passengers is indeed a ‘means’ to reach an ‘end’?

Management of cruises under a destructive pandemic is complex with many layers to dissect. Docking and cruise quarantine regulations safeguard the wellbeing of the country’s patients, but the potential damage on board goes beyond the mere spreading of a virus. Interweaving considerations of mental health and adequacy of care are, therefore important when justifying these critical regulations.

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Defending doctors' right to strike in public health emergencies

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A stitch in time would have saved many more than nine

More than 7 months ago, The World Health Organization (WHO) made the assessment that Covid-19 could be characterised as a pandemic.¹ Since then, countries all over the world have, to some degree adopted strict disease control measures, including social distancing and mandatory mask-wearing. However, back in late January, world health experts remained bewildered and reluctant² and as we will see below, government official responses were sluggish. Extraordinary actions would be needed to kick-start the control of pandemic. It may thus be the time to revisit the bioethics controversy regarding the two-phase industrial actions deployed by Hong Kong's medical professionals in early February to call for stringent border control³ in those early days. Before such evaluation, however, I will try to organise the policy debate in chronological order, thereby reconstructing the situation Hong Kong's public sector medical staff faced at that time.



HAEA members on strike demanding the border closure with Mainland China. Credit: Philip Fong (AFP)

Timeline of Events Leading to Medical Workers Strike

Hong Kong received its first confirmed Covid-19 case on Jan 22.⁴ By Jan 29, the city recorded 10 cases, all of which were imported cases with affected patients describing recent travel history to Wuhan, China.

On Jan 27, WHO published an advice describing its stance “against the application of any restrictions of international traffic” and instead suggesting mainly exit screening for symptomatic patients in countries or areas with ongoing transmission (i.e. People’s Republic of China), despite admitting that “Given the large population movements, and the observed human to human transmission, it is not unexpected that new confirmed cases will continue to appear in other areas and countries.”⁵

It was in this context that the Hong Kong policy debate began.

On Jan 23, a staff union of the Hong Kong public hospitals, Hospital Authority Employees Alliance (HAHE) cited how the **loopholes of border screening led to imported cases**, before warning the government that should it fail to deliver effective preventive measures at boundary control points (which includes **refusing “all travellers entering Hong Kong via Mainland China”** until the epidemic is fully under control) before 1 February, the union would not rule out an escalation of actions, which included the initiation of industrial actions.⁶

On Jan 25, Dr. Ho Pak-Leung, head of the University of Hong Kong's Centre for Infection, called for restrictions on people coming from areas such as Wuhan with large scale outbreaks for about ten days after expressing concern about the supply of the surgical masks in Hong Kong at that time. He said that imposing restrictions at the border and barring people from Mainland areas with significant Covid-19 spread was "the single most effective measure" that Hong Kong could take. He further pointed out that all the five cases identified in Hong Kong at that time were people who came from Wuhan.

In response, Chief Executive Carrie Lam had rejected calls for a temporary ban on arrivals from the Mainland, saying it was inappropriate and impractical. Prof. Gabriel Leung, head of HKU medicine faculty, concurred.⁷

On Jan 26, Prof. Yuen Kwok-yung, Chair of Infectious Diseases of the Department of Microbiology of the University of Hong Kong, said he was not against the idea of closing border crossings per se. However, he questioned the effectiveness of such a move.⁸

Meanwhile, HAHE stated their five demands:⁹

- Barring the entry of any travellers from China into Hong Kong
- Promoting the use of masks
- Ensuring enough isolation wards for Covid-19 patients
- Following up the cases which involved Covid-19 patients escaping from hospitals, and
- Providing sufficient support to medical staff

The union said it would stage industrial action on February 3 if authorities fail to address the above demands and it was not ruling out the possibility of going on strike afterwards.

On Jan 28, Chief Executive Carrie Lam announced that all cross-border rail routes between the mainland and Hong Kong would be halted starting at midnight on Thursday and services at six border checkpoints would be

suspended, but other major border control points such as Lowu and Lok Ma Chau would remain open. Also, business travellers and those coming to Hong Kong for family reunions or other 'legitimate' or 'humanitarian' reasons would still be allowed in.¹⁰

In response, Arisina Ma, the head of the Hong Kong Public Doctor's Association, said such decision to restrict but not halt the inflow of Mainland arrivals to Hong Kong might be inadequate to ward off the widening outbreak of Covid-19 as leaving open extremely busy crossings like the one at Lowu meant there was still a significant possibility that infected people could make their way in.¹¹

Eventually, HAHE initiated a two-phase industrial action.

In Phase 1 (Feb 3), non-emergent services of HA would be stopped in a manner similar to the arrangement under extreme weather conditions. If HA failed to propose a solution to the 5 demands mentioned above, Phase 2 (Feb 4-7) would kick in. All members of HAHE would be mobilised to go on strike, resulting in limited emergency services.¹² On Feb 7, members of HAHE voted on a proposal to continue striking. Since the threshold (at least 6000 members in favor of continuing the strike) was not reached before the deadline (4:30 pm), the strike ended.¹³



On Feb 3 i.e. the day the industrial action started, the government announced that more border crossings would be closed, leaving just the Hong Kong International Airport, Shenzhen Bay, and Hong Kong-Zhuhai-Macau Bridge open.¹⁴ A day later, Prof. Gabriel Leung reverted his stance, saying that Hong Kong's best bet to slow the spread of Covid-19 in the territory was to bar anyone arriving from places with community outbreaks – essentially meaning Mainland China at that time of the pandemic,¹⁵ echoing the first demand of HAHE.

In short, when Hong Kong's medical staff in the public sector decided to go on strike, they were facing a public health situation in which quick, and some might say preemptive,¹⁶ responses were desperately needed, or else the populace at large would be exposed to serious health risk. In the meantime, policies from the government often lagged behind despite being called on multiple times.

After contextualising the strike, we will evaluate the doctors' participation in it to evaluate whether it is ethical to temporarily suspend medical duties to patient care in pursuit of public health causes.

To strike or not to strike

One prominent opposition to doctors' participation in the strike came from Dr Lam Tszt-Yuen, then Vice President of the Hong Kong Medical Association, who said that although doctors may share different opinions with the government, affecting patient care would be a dealbreaker while the Hippocratic Oath stated that doctors should care for their patients wholeheartedly.^{17,18}

In contrast to Dr Lam's views, I would like to draw attention to the current policies regarding medical ethics by World Medical Association (WMA), an international organisation representing physicians, promoting the highest possible standards of medical ethics and providing ethical guidance to physicians through its Declarations, Resolutions and Statements.



Its constituent members include Hong Kong Medical Association,¹⁹ which represented more than 70% of Hong Kong's registered medical practitioners in 2019.²⁰ The Code of Professional Conduct published by the Medical Council of Hong Kong (MCHK) incorporated the WMA-published International Code of Medical Ethics, as well as stating that "the Council will have regard to the International Code in the exercise of its disciplinary power".²¹ Under this background, WMA's viewpoint on the ethics of industrial action by doctors is authoritative.

The International Code states that "A PHYSICIAN SHALL strive to use health care resources in the best way to benefit patients and their community", supplemented by the Statement on Health Promotion quoted in the Medical Ethics Manual which further states that "Medical practitioners and their professional associations have an ethical duty and professional responsibility to act in the best interests of their patients at all times and to integrate this responsibility with a broader concern for, and involvement in, promoting and assuring the health of the public."²² When taken together, both statements suggest that adopting direct actions to promote community-wide public health is a duty on par with that of caring immediate patients. Considering the collapse of public health systems worldwide due to

Covid-19 outbreak²³ and the subsequent effects,²⁴ the public health risk apparently exceeded that of the individual patients in the short term. The first demand of HAHE, i.e. shutting the border was a reasonable means to achieve public health security, confirmed by the endorsement of microbiologists and public health experts as aforementioned. In this sense, the industrial action is justified.

If one argues that the public health interest did not exceed that of the immediate patients, the health interest of the medical staff themselves would likely tip the balance in favour of the strike. Numerous reports in the early days of pandemic indicated that staff lacked proper personal protective equipment (PPE),²⁵ which not only went against the Hospital Authority's legal responsibility as an employer for safety and health of employees at work under Cap. 509,²⁶ but violated the WMA Declaration of Geneva. This international code of medical conduct was most recently amended in 2017 to add a clause stating that physicians should attend to their "own health, well-being, and abilities, in order to provide care of the highest standard"²⁷ The fact that lacking PPE, increased the disease risk of medical staff and indirectly reduced the availability of staff caring for future Covid-19 patients brings us to the next question: "Do poor working conditions justify strikes?" As will be explained below, WMA will give a resounding "YES".



In 2012, WMA published a statement on the ethical implications of collective actions by physicians, by stating that "Physicians may carry out protest action and sanctions in order to improve direct and indirect working conditions that also may affect patient care. Physicians must consider not only their duty to individual patients, but also their responsibility to improve the system such that it meets the requirements of accessibility and quality." and that "If involved in collective action, NMAs [National Medical Associations] should act to minimise the harm to the public and ensure that essential and emergency health services, and the continuity of care, are provided throughout a strike."²⁸

HAHE's strike fulfilled the stated requirement because limited emergency services were still provided even in the second stage of walkout⁹ and their petitions were mainly about the improvement of infection control in the working environment,²⁹ which in turn was directly related to patient care. Therefore, it is my opinion that the strike was justified at least in terms of physician's ethical conduct. Further discussions within the ethical frameworks of other medical professions would be deeply appreciated.

Ongoing Conflict

Shortly before this article was penned (Oct 14), Hospital Authority issued an email on Oct 9, 2020, to employees who joined the strike this past February, indicating that they must explain their absence on each day during the strike period. If absent workers participants failed to come up with an explanation by Oct 23, 2020, they would be deemed to agree with the number of absence days as stated in the email.³⁰ There have been reports that even doctors who did not participate in the strike were counted as doing so.³¹ It is telling that in 2013, WMA, in response to a proposal by the Slovakian government to outlaw all industrial action by health professionals, deplored any attempt to criminalise physicians who were pursuing their basic civil rights to fight for their working conditions

and questioned whether such law will comply with Article 1 of the International Labour Organisation Convention Against Forced Labour.³² That said, one must wonder what awaits Hong Kong's health professionals ahead. Perhaps their struggle will inevitably dissipate in the whirlpool of vicissitudes, as the poignant epilogue of *Blade Runner* goes:

“All those moments will be lost in time, like tears in rain.”
~ Roy Batty

Or will they?

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Food for thought: Heroism, moral obligations and ethics in medical professionals during the Covid-19 pandemic

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What is heroism? It is an abstract concept, of which the definition varies depending on the individual's moral values and beliefs. Common connotations or qualities of a 'hero' are selfless, dedication, sacrifice and bravery. Heroism is often assumed in certain professionals such as firefighters, astronauts, and, of course, healthcare workers. The SARS outbreak in Asia and the current Covid-19 pandemic reinforce the concept of medical heroism. Doctors and nurses around the world dedicate themselves to the frontline, despite the contagious despair and fear at the beginning of outbreaks like soldiers defending their home countries. To many, such dedications, or heroic acts, especially under extraordinary circumstances, are greatly appreciated and respected; however, some may think that this is nothing beyond the call of duty - it is their job to save lives after all. This boils down to the moral obligations bound to healthcare professionals.



There is no doubt that medicine is at heart a moral community, but what are the boundaries of these moral obligations?

In my opinion, the strike can be justified from an ethical perspective, considering two of the pillars of medical ethics: non-maleficence and justice. The Belmont Report lays down the fundamentals for medical ethics. The most well-known is the principle of non-maleficence, that is, to do no harm.

A common argument against the strike is that being absent from their assigned medical duties places patients' welfare at risk in hospitals, and that the life of patients has been reduced to levers.

Projected Shortfall of Doctors (Full-time Equivalent)

Year	2016	2020	2025	2030
5 th Percentile	80	320	596	829
	(0.7%)	(2.6%)	(4.4%)	(5.7%)
Best Guesstimate	285	500	755	1007
	(2.4%)	(3.9%)	(5.5%)	(6.8%)
95 th Percentile	690	989	1296	1575
	(5.7%)	(7.5%)	(9.0%)	(10.3%)

Source: Hong Kong Foundation²

However, if the government insisted on not shutting down the border, despite recommendations by medical experts, it may have caused more harm to the public with high virus surges, further burdening the already immensely short-staffed and under-resourced healthcare system.

For instance, a healthcare manpower review conducted by the Food and Health Bureau in 2017 estimated that there will be a shortage of 500 doctors by 2020 and 1,007 by 2030,² not to mention the compounding factors of the aging population and the flu season.

However, it is also worth noting that emergency services were maintained during the strike to guarantee patients receive life-saving treatment. The strike could have been avoided had the government responded directly and promptly to demand by medical workers to close the border. The intention behind the strike is key to justify medical strike. This will be further discussed with the concepts of deontology and consequentialism

Next is the principle of justice. Fairness is the core component of justice, and should be ensured in medical decisions, including an equal distribution of scarce resources. However, equal distribution may not be feasible under a pandemic because of the unusually high demand and dependence for medical personnel.

During the early phase of the Covid-19 outbreak, there was an extreme shortage of resources in the community as well as in hospitals. Citizens were desperately searching for masks and hand sanitizers while healthcare workers were combating against the newly identified virus with a scant supply of surgical masks and personal protective equipment (PPE). For instance, local news reported that in February 2020, 43,000 N95 masks and 13,000 full PPE were allocated to the Hong Kong Police Force, compared to less than 300 N95 masks and 2,000 full PPE that were distributed to the Department of Health, according to the government documentation.³ Furthermore, it has been reported by frontline healthcare workers that in February 2020, all N95 masks in the wards were being confiscated by the respective hospital without any prior notice and the administrative process of recording and reporting entry of mask usage also added to their stress.⁴ Frontline workers were expected to handle high risk cases despite being ill-equipped. As previously mentioned, medical professionals are expected to uphold the moral obligations of saving lives. However, with this reference, should medical workers have to put their lives at risk when there is a disproportional and inappropriate allocation of resources? How do we distribute limited PPE amongst essential workers? On the other hand, if a proportion of medical workers were infected due to the shortage of PPE, it would be more challenging to handle future virus cases, which is a threat to public health justice obligations.

There are also controversies over the acceptable level of risk - is facing a viral risk a normal or known risk for medical professionals? Who should assess and decide the extent of risk? The guideline *Good Medical Practice* by the UK General Medical Council suggests that it is not acceptable for doctors to reject patients because of the associated risks of their medical condition.⁵ Nonetheless, the code of ethics by the American Medical Association suggests that balance should be made between the immediate and future benefits for patients.⁵

Should medical workers have to put their lives at risk when there is a disproportional and inappropriate allocation of resources?

Last but not least, the medical strike will be discussed briefly in the lights of deontology and consequentialism. Deontology states that actions can be justified based on the associated intention or motive, regardless of the consequences. This is in contrast to consequentialism, which can be understood colloquially as “the end justifies the means”.⁶ From the deontological perspective, the medical strike can be considered as a moral action based on the aforementioned justifications—intention for the greater good, beneficence. As for consequentialism, it is sometimes difficult to assess or prove whether a consequence directly resulted from the action in question. In this case, we don’t know for sure whether the partial shut-down of the borders (as opposed to the demand of a comprehensive closure of borders) directly resulted in the drop of Covid-19 cases. However, the government did indeed close the border to all but essential services.

In conclusion, medical professionals are often bound by medical heroism and moral obligations, of which boundaries are not clearly defined. This raises questions about certain actions such as medical strikes. The justification by the ethical principles of non-maleficence and justice, as well as the two important schools of thought deontology and consequentialism, were discussed.

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