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Covid-19: a study on how China handled the epidemic crisis

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前言

2019 年 12 月在中国湖北省武汉市华南海鲜批发市场爆发的新冠病毒传播，然后迅速传播到世界各地，对全人类造成了巨大的健康、经济、环境和社会方面的影响，表明病毒如何渗透和影响每个社会领域。

众所周知，这种病毒具有很强的传染性，可以通过密切接触传播。通过咳嗽、打喷嚏或呼吸道飞沫与感染者密切接触，会发生人与人之间的病毒传播。 新冠病毒感染者的临床表现范围从轻度或非特异性急性呼吸道疾病症状（如发烧、咳嗽、疲劳、呼吸急促）到严重肺炎伴呼吸衰竭。

这种病毒是新兴传染病的一个例子。新发感染是人类面临的严峻挑战，这在很大程度上是由与日益增长和资源需求不断增长的人口相关的问题所驱动的。大流行需要广泛的个人和组织的贡献，在这种情况下，新冠病毒迫使医疗保健专业人员在缺乏科学界公认的统一指南和临床护理实践的情况下采取行动。与此同时，这种病毒的高传染性给患者带来了特别受限和心理疲惫的恢复。此外，为防止病原体传播而采取的措施也引发了许多问题，其中包括阻止受害者家属按照通常的仪式形式哀悼的措施。除此之外，还确定了对危险的新认知，并伴随着道德判断和道德污名化现象。这种类型的威胁需要多部门的方法，社会的不同部门利用他们所有的力量来应对极端事件。

我问自己的研究问题是：中国卫生系统如何应对大流行的爆发？资源是否充足？保险问题是如何处理的？ 新冠病毒患者是否已完全获得治疗？如何管理未感染新冠病毒的患者的住院治疗？有没有考虑到疫情带来的心理问题？如果是，如何？从生物伦理学和人类学的角度来看，如何治疗受新冠病毒影响的患者，尤其是少数民族患者？因此：中国政府从政治角度作何反应？其他国家对中国的态度如何？生物伦理问题是否已在公共领域进行过辩论？

通过这些问题，并通过对中国患者和医院可用资源、感染预防和管理政策以及获得健康这一重要问题的仔细分析，本文的目的是了解中国政府是否以及如何设法做到这一点。通过尊重照顾每一位公民的道德规范来管理大流行病危机。

为此，我将论文分为三个主要章节。

第一章涉及新冠病毒爆发后头几个月的中国卫生和政治管理。我的研究表明，中国医疗保健系统的备灾和预防方法存在固有问题，例如无法提前发现病毒的传播，公立医院不堪重负，

个人防护设备严重短缺以及健康状况不佳工人。结果，这种情况导致了非常高的劳动力和资源成本，导致在流行初期感染病例广泛且呈指数增长。为了限制感染的传播，中国政府采用了创新的解决方案、专业化和先进的系统，包括方舱医院、移动野战医院、在线医院、大数据分析、云计算和人工智能。特别关注了中国公民和组织的自愿承诺，他们通过捐赠、在线咨询、分发医疗材料和创建旨在资助和促进更脆弱和易受疫情影响的人群（如穷人、少数民族、妇女、老人等。

第二章涉及受新冠病毒影响的患者获得医疗保健和保险的机会。在概述了新冠病毒之前的医疗保健情况和邓小平实施的改革之后，我分析了疫情期间如何处理保险范围及其对医疗保健系统的影响，还强调了“非医疗费用”问题保险公司不得不承担照顾老人就医期间的家属的援助费用、差旅费、食宿费。抗击疫情凸显了保险业正确管理、正确发展、正确保险理念和正确商业模式的重要性。公司应该有的正确方法是考虑各种因素来检查问题，例如人口收入、地理位置、技术问题等。

第三章也是最后一章涉及中国的生物伦理学话语及其在新冠病毒流行期间的发展情况。在简要介绍了生物伦理学的含义以及它何时以及如何被引入中国学术和政治话语之后，我提请注意这种流行病如何对全球生物伦理学产生重大影响：事实上在中国，和其他国家一样破坏经济、卫生系统、教育和其他各个部门的世界，其直接后果是破坏了最脆弱的社区。我还想分析强制接种疫苗这一重要问题，以及政府在决策阶段如何必须不仅考虑法律影响，还要考虑道德影响。对此，世卫组织希望建议决策者在决策过程中考虑这些重要的伦理因素：真正的需要、公众的信任、足够的证据表明疫苗的安全性、疫苗的供应和伦理。最后，我提请注意中国的人权辩论问题：疫情的蔓延不知何故把聚光灯转向了中国，使得拘留营问题变得相当热门，当局在拘留营中关押新疆不同地区的维吾尔族。广为流传的新闻揭示了疫情对被拘留人员的健康状况造成的影响，这种影响在不同的形象下得到了强调：人们谴责疫情在拘留所内蔓延的事实是卫生条件差和人满为患，以及中国当局没有透露受病毒感染的人数或中心内的死亡人数。

总而言之，尽管在卫生系统、生命伦理学和分诊系统等方面取得了重大进展，但中国仍有改进的空间。事实上，冠状病毒暴露了中国社会各个方面的巨大问题，包括收入不平等、歧视和人权脆弱性。受影响最敏感的群体是少数民族、老年人、被卫生部门边缘化的农村地区公

民和妇女。大多数国家都存在此类问题，而全球生物伦理学是一个必要的工具，它可以帮助我们了解世界进程如何影响各个国家的措施和战略，从而将这些点联系起来。

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Introduction

In December 2019, an outbreak of pneumonia of unknown origin was reported in Wuhan, Hubei Province, China. Most of the initial cases were related to the Huanan Seafood Wholesale Market, a live animal and seafood market, identified as the "Ground Zero" site of COVID-19[1] and the resulting pandemic. Since then, the disease rapidly spread around the world affecting every continent and posing enormous health, economic, environmental and social challenges to the entire human population.

Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) is the name given to the new coronavirus of 2019 by the International Commitee on Taxonomy of Viruses (ICTV). Instead COVID-19 is the name given to the disease associated with the virus. Coronaviruses are viruses that circulate among animals and some of them infect humans. Genetic evolutionary analysis of SARS-CoV-2 revealed that this virus is genetically related to two bat coronaviruses. Contrary to others SARS-CoV and MERS-CoV, human infections due to SARS-CoV-2 have been reported to a quite large extent outside the epicenter of the infection. Bats are considered natural hosts of these viruses, but many other animal species are also considered sources. For example, the Coronavirus of the Middle Eastern respiratory syndrome (MERS-CoV) is transmitted to humans by camels and the severe acute respiratory syndrome Coronavirus-1 (SARS-CoV-1) is transmitted to humans by the civets.

These type of viruses are positive single stranded RNA virus with a diameter ranging from 80 to 120 nanometer. It can be categorized into four genera namely α-, β-, γ-, and δ. According to WHO, in 2002-2003, more than 8000 people suffered and 774 died of a SARS-CoV-1. In 2012, MERS-CoV pandemic broke out infecting more than 2494 persons and killing over 858 lives worldwide (WHO, 2004, 2013). All these coronaviruses just mentioned responsible for worldwide spread of pandemic are β-coronaviruses.

COVID-19 outbreak in China has caused a major global outbreak and has become a major public health problem. As we know, this virus is highly infectious and can be transmitted through close contact. Human-to-human spread of the virus occurs due to close contact with an infected person exposed to coughing, sneezing or respiratory droplets. The aerosols can penetrate the respiratory system via inhalation through nose or mouth. The clinical spectrum for individuals with COVID-19 infection ranges from mild or non-specific signs and symptoms of acute respiratory

1 As is implied in the name COVID-19, "CO" stands for "corona", "VI" for "virus", "D" for "disease" and "19" represents the year of its occurrence.

illness such as fever, cough, fatigue, shortness of breath, to severe pneumonia with respiratory failure and septic shock.

COVID-19 is a recent example of the complex threats of emerging infectious diseases. Emerging infections are difficult challenges for humanity, driven to a large extent by problems related to an increasingly growing and resource-demanding population. Pandemics, and in this case COVID-19, require contributions from a wide range of individuals and organizations. The concept of "social resilience" emphasizes society's effort to respond to and recover from extreme events. Speed, flexibility and creativity are critical aspects of resilience in responding to uncertainties, both in the ecological and social spheres. These characteristics are not always present when response and recovery takes the conventional approach through the centralized power and authority of national governments. Strong states can mobilize the resources needed to respond to threats, but the risks easily go beyond jurisdictional or administrative boundaries. This type of threat requires a multisectoral approach, where different sectors of society use all their strengths to respond to extreme events.

Traditional health systems' approach to disaster preparedness and prevention has proven intrinsic problems, such as the inability to detect the spread of the virus early, overwhelmed public hospitals, the huge shortage of personal protective equipment and the exhaustion of health workers. Consequently, this situation entailed labor and resource costs, leading to the widespread and exponential increase in infected cases initial phase of the epidemic. To limit the spread of the infection, the Chinese government has adopted innovative solutions, specialized and advanced systems, including upgraded Fangcang and Internet hospitals, as well as high-grade hospitals technologies such as 5G, big data analytics, cloud computing and artificial intelligence. The efficient use of these new forces have helped China going out of this crisis situation. Global health system integrated with new forces is essential not only for COVID-19 but also for unknown infections in the future.

My purpose, through this thesis, is to analyze the pandemic management of COVID-19 in China during the first months after the outbreak reports in Wuhan from an anthropological and bioethical point of view. Were the health facilities ready? Were the medical resources sufficient? Could all patients who contracted COVID-19 be cured? Was health insurance necessary? And if so, what kind? What is the ethics of care? Was it respected in China during the outbreak of the pandemic? Has these topics been debated in the public sphere?

Searches using the WHO website were conducted to gather the number of deaths from COVID-19 and confirmed cases, reports describing disruption to the global healthcare system, and

the progress of the healthcare system in the fight against COVID-19. The search terms included “COVID-19” and “healthcare system”.

To capture China's response to COVID-19, I conducted a systematic review of academic articles on Jstor, Google Scholar, and local newspaper articles on CNKI. Using the same or similar keywords in English and Chinese, I identified relevant articles published between 1 January and 20 June 2022. The analysis of the newspaper articles offers a snapshot of China’s overall response to COVID-19.

The keywords I used are the following: coronavirus (冠状病毒 or 日冕形病毒 *guānzhuàng bìngdú/rìmiǎn xíng bìngdú*), triage (伤员拣别分类 *shāngyuán jiǎn bié fēnlèi*), health care (保健 *bǎojiàn*), medical insurance (医保 *yībǎo*), bioetich (生物伦理学 *shēngwù lúnlǐ xué*), resilience (弹力 *tánlì*), social organization (社會組織 *shèhuì zǔzhī*), NGO (非政府組織 *fēizhèngfǔzǔzhī*), civil society (公民社會 g*ōngmínshèhuì*).

Chapter 1

China's response to COVID-19

1.1 Government's response

In early December 2019, after the discovery of unexplained pneumonia in Wuhan (Hubei province), the overwhelming majority of the public facilities had limited knowledge of the novel coronavirus and low awareness of its severity and strong infectivity. The reason is that the Chinese Center for Disease Control and Prevention (Chinese CDC) failed to detect, inspect, and respond to epidemics, which would have involved notifying the health authority without delay at the early stage.

Chinese CDC is a system divided into three layers consisting of Chinese CDC, provincial and prefecture CDC, and county CDCs. If the sentinel hospital detects suspected cases, it is expected to report the disease information, level by level, to the county CDC, provincial and prefecture CDC, and Chinese CDC, as well as the Ministry of Health. However, in this process, local epidemic data was very slowly transmitted to other levels because it was subject to a very rigorous analysis. Furthermore, Chinese CDC is just a technical sector with limited financial support and inadequate national administrative mandates, which limits its handling of a large-scale public health emergency such as the COVID-19 crisis.

The first epidemiological investigations showed that the initial infections mainly involved some workers of an important wholesale fish market in Wuhan with a population of eleven million people. From a scientific point of view, the Chinese government has shown deep attention and readiness.

On 31 December 2019, the Wuhan Municipal Health Commission reported a cluster of pneumonia cases of unknown etiology in the same city to the World Health Organization (WHO)[2]. Founded in 1948, the WHO is a specialized agency of the United Nations responsible for international public health. It connects nations, partners and people to promote health, keep the world safe and serve the vulnerable. The WHO Constitution states its main objective as "the attainment by all peoples of the highest possible level of health"[3].

On January 9, 2020, the Chinese CDC indicated a new coronavirus, provisionally named 2019-nCoV, as the causative agent of these diseases, which brought certain sequences to the international community. From the communication point of view the political leadership issued, by

2 Official Website of the Ministry of Healt of the Italian Republic. Nuova infezione da coronavirus, il punto della situazione. https://www.salute.gov.it/portale/news/p3_2_1_1_1.jsp?lingua=italiano&menu=notizie&p=dalministero&id=4015

3 World Health Organization Official Website. https://www.who.int/about

all possible means, orders aimed at minimizing the seriousness of the epidemic in progress. Probably, this Chinese obstruction and lack of transparency was born from a hope, which turned out to be vain, that the virus could be circumscribed, as happened in the past experience of 2003. More reasonably, a further explanation lies in the fear of a negative judgment by the international public opinion of Chinese health governance that would have undermined the legitimacy of the leadership of the Communist Party at the national level and China's own race for international hegemony[4].

Thus, shortly after the official announcement of the epidemic of COVID-19, the first actions taken by governments to mitigate the spread of the virus were restricting mass gathering. In fact, COVID-19 is spread from person to person through direct contact. Thus, the spread of respiratory illnesses during the mass gathering is a major public health concerns with the potential of distribution of these infectious diseases. The WHO, in order to reduce the general risk of transmission of COVID-19, recommended some precautionary measures such as avoiding close contact with people suffering from acute respiratory illness, regular hand washing with soap, water or hand sanitizer, maintaining cough etiquette and avoiding unprotected contact with farm or wild animals.

The entire machinery of China started to take coordinated and comprehensive approaches for infectious disease control. The possible initial source of the novel coronavirus, the Huanan Seafood Wholesale Market, was shut down on January 1, 2020. To prevent and control the spread of pneumonia caused by the novel coronavirus, China allocated an additional 9.95 billion CNY (about 1.404 million EUR) in funds for public health service and epidemic prevention and control. Civil society organizations took responsibility of isolating residents in every community and helping solve practical life difficulties. At the individual level, home isolations, social distancing, and personal protection equipment such as face masks were implemented to prevent community transmission nationwide. Thanks to the development of advanced technology, residents have had easy access to information and medical guidance. The public was educated about COVID-19 to comply with the national approach of hand-washing, mask-wearing, social distancing, and universal temperature monitoring cooperatively.

The management of COVID-19 in China can be divided into three stages.

The **first stage** starts on January 20th, when the Chinese CDC and its local branches launched a series of public campaigns promoting hand washing (when and how to wash hands), face mask outside home and stay at home. At this stage, all measures were recommendations only.

During the **second stage**, which begins two days later, January 22nd, China has implemented more restrictive measures, which were escalated quickly during the week of the Chinese New Year

4 Biscop Sven (2020). “Coronavirus and Power: The Impact on International Politics”. Security Policy Brief, No. 126.

(January 24th to 31st) and the following weeks. These measures were initiated and enforced by national, provincial and municipal cross-functional public health coordination workforces, which consisted of health authorities, local CDCs, traffic authorities, community workers, police and even the army, especially in the city of Wuhan. All measures were announced by the government and mandated with legal consequences in case of violation.

The Hubei Province launched Public Health Emergency Response Level II (for major public health event) and in Wuhan and the rest of the province, the restrictions began on January 22nd. Contact trace was mandated on the same day with door to door visits and community workers were subject to inquiries.

Furthermore, Chinese government made some communications at the international level which later were criticized by other governments for lack of transparency and late reaction. On January 23, 2020 at the first meeting of International Health Regulations (2005) Emergency Committee, related to the outbreak of the new coronavirus (2019-nCoV), the Chinese Ministry of Health stated that there were 557 reported cases. The International Health Regulations (IHR) are an international legal instrument that aims to "guarantee maximum safety against the international spread of diseases, with the least possible interference on trade and international movements, by strengthening the surveillance of infectious diseases aimed at identifying, reducing or eliminating their sources of infection or sources of contamination, the improvement of airport hygiene and the prevention of the dissemination of vectors". The IHR is a document legally-binding on 196 countries, including the 194 WHO Member States. It also outlines the criteria to determine whether or not a particular event constitutes a “public health emergency of international concern”[5].

Based on IHR, the Emergency Committee dedicated to COVID-19 has been organized, and its role is to provide advice to the General Director, who makes the final decision on the determination of the Public Health Emergency of International Concern (PHEIC).

The PHEIC is a formal declaration by the WHO of “an extraordinary event which is determined to constitute a public health risk to other States through the international spread of disease and to potentially require a coordinated international response”, formulated when verifies a "serious, sudden, unusual or unexpected" situation, which " carries implications for public health beyond the affected State's national border" and "may require immediate international action"[6].

5 WHO Official Website. International Health Regulations. https://www.who.int/health-topics/international-health-regulations#tab=tab_1

6 WHO Official Website. Q&A (2019). Emergencies: International health regulations and emergency committees. https://www.who.int/news-room/questions-and-answers/item/emergencies-international-health-regulations-and-emergency-committees

Under the IHR, states have a legal duty to respond promptly to a PHEIC. The statement is publicized by international experts from the IHR Emergency Committee which was developed in the aftermath of the 2002-2004 SARS outbreak.

There have been six PHEIC statements since 2009: the 2009 H1N1 pandemic (or swine flu), the 2014 polio statement, the 2014 Ebola outbreak in West Africa, the 2015-16 Zika virus outbreak, the 2018-2020 Kivu Ebola outbreak and the COVID-19 pandemic. Recommendations are temporary and require review every three months. Automatically, SARS, smallpox, wild-type poliomyelitis, and any new subtypes of human influenza are considered PHEICs and therefore do not require an IHR decision to declare them as such. A PHEIC is not limited to infectious diseases and can be seen as an "alert system" and a "call to action".

At the first meeting of the IHR Emergency Committee, the Chinese authorities presented new epidemiological information that revealed an increase in the number of cases, suspected cases, affected provinces and the percentage of deaths in cases by 4% (17 out of 557). They reported fourth generation cases in Wuhan and second generation cases outside Wuhan as well as to some clusters outside Hubei province. Chinese authorities introduced strong containment measures such as closing public transport systems in Wuhan city and other nearby cities. At that time the virus spread even abroad Chinese borders, as the Emergency Committee also received information on the evolution of COVID in Japan, the Republic of Korea and Thailand and on a new possible case identified in Singapore.

The Committee was told that human-to-human transmission was in progress and a preliminary estimate of R0[7] of 1.4-2.5 was presented. The amplification took place in a health facility. Twenty-five percent of confirmed cases were reported to be severe. The source of the virus was still unknown and the extent of human-to-human transmission was still unclear[8].

However, the first meeting of the Emergency Committee dated 23 January 2020 did not lead to a univocal position on declaration of PHEIC, which is the main tool, together with the pandemic declaration, through which the General Director of WHO exercises the functions of the International Public Authority of international institutions (in this sense, P. Villareal, Pandemic Declarations of the World Health Organization as an Exercise of International Public Authority: The Possible Legal Answers to Frictions between Legitimacies, in Goettingen Journal of International Law, 2016, 95).

7 R0, pronounced “R naught”, represents the average number of secondary infections produced by each infected individual in a population that has never come into contact with the new pathogen.

8 WHO Official Website. Statement on the first meeting of the International Health Regulations (2005) Emergency Committee regarding the outbreak of novel coronavirus (2019-nCoV). 23 January 2020. https://www.who.int/news/item/23-01-2020-statement-on-the-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov)

Then, on January 24th, the Public Health Emergency Response Level II was escalated to Level I (the highest level for extreme public health events) in China. From then, measures against the epidemic were coordinated centrally and health resources were reallocated interregionally. One of the major measures was to impose a mandatory lockdown in Wuhan. Going out and entering the city was forbidden and all public facilities were closed, except supermarkets, hospitals, and petrol stations. During the most stringent weeks, only one person per household was allowed to do grocery shopping once every three days. Similar restrictions were quickly mandated in all 15 cities of Hubei Province within 2 days, affecting approximately a total of 57 million inhabitants.

Afterwards within one week the COVID-19 situation dramatically changed the international community. Although the first coronavirus outbreaks were reported in late December 2019, the WHO was slow to react and its General Director Tedros Adhanom Ghebreyesus declared 2019-nCoV epidemic as a health emergency only on January 31, 2020. He admitted that it was a PHEIC, accepted the opinion of the Emergency Committee and issued the Temporary Recommendations under the IHR.

An epidemic was defined by WHO as "the occurrence in a community or region of cases of an illness [...] clearly in excess of normal expectancy". According to the Pandemic Influenza Preparedness and Response: A WHO Guidance Document: “an influenza pandemic occurs when an influenza A virus… acquires the ability to cause sustained human-to-human transmission leading to community-wide outbreaks. Such a virus has the potential to spread rapidly worldwide, causing a pandemic ". The US Center for Disease Control, on the other hand, defined an epidemic as "an increase, often sudden, in the number of cases of a disease above what is normally expected" in a region.

At the initial stages of the epidemic, mathematical models predicted that the most effective combination to reduce R0 (reproduction number) close to 0 was the combination of

1. isolation of positive cases, home quarantine for positive suspects;
2. social distancing of the entire population;
3. closure of schools and universities.

The quarantine of infected individuals alone would not be sufficient as R0 would remain excessively high (above 3, while to have an effect it should be below 2.5). This would happen as there would be high rates of asymptomatic and virus transmission also occurs in the pre-asymptomatic period[9].

9 Nussbaumer-Streit B, Mayr V, Dobrescu AI, Chapman A, Persad E, Klerings I, and oothers (2020). Quarantine alone or in combination with other public health measures to control COVID-19: a rapid review. Cochrane Infectious Diseases Group. Cochrane Database of Systematic Reviews.

Under those instructions, all non-essential companies (both private and not), retails, parks and schools remained closed until mid-March. On February 11th, a more stringent lockdown was enforced in the urban area of Wuhan. Later, on February 16th, it was extended to the rural area. During this period, people could enter and/or exit the communities only in case of extreme necessity and health inspections were mandatory.

In the other areas, similar measures were enforced but to a less extent and for a shorter period. For example, no mandatory lockdown was enforced in Shanghai. Instead, health declaration and body temperature inspections were mandated in all places of transport such as airports, railway stations, bus stations and high-way entrance port. Together with information dissemination on social media, contact tracing of travelers was enabled and implemented. To a less extent compared to those in Wuhan, as a mandatory measure, entrances and exits to communities and cities were under control. Similar to Wuhan, the government announced closure of schools and all non-essential companies, non-essential public transports, retails and parks.

On March 5, 2020, the WHO General Director expressly qualified COVID-19 as an epidemic, stating that "this epidemic is a threat for every country, rich and poor" (WHO, Director-General's opening remarks at the media briefing on COVID-19, 5 March 2020). Since the second half of March the Chinese government started **the third stage** of the measures. In this phase China removed the restrictions step by step, starting from areas with low incidence rate during the pandemic and later in the Wuhan area and Hubei Province. In China, the implementation of a minimum social distance was recommended but not required due to high population density in urban areas.

1.1.1. Politicization of virus and Chinese strategy in international relations

Even if China tried to manage the pandemic situation and apply necessary measures, its disastrously late reaction caused a lot of unrest with its citizens. Biscop (2020) writes: “Such blatant disregard for people’s lives inevitably brought back bad memories of the worst excesses of Mao’s rule. The crisis may strengthen opposition to Xi Jinping within the Chinese Communist Party, which might have consequences for the succession: not everybody was pleased when Xi made himself leader for life (and his anti-corruption drive created many enemies too). In mid-March an anonymous open letter started circulating in China, pleading for a special session of the Party which would critically asses the way the crisis was addressed, and thus Xi’s leadership”[10].

The explosion of COVID-19 became an epochal crisis and a global challenge, which challenged the international relations, especially between the two great geopolitical forces. China

10 BISCOP Sven (2020). “Coronavirus and Power: The Impact on International Politics”. Security Policy Brief, No. 126.

was accused mostly by the United States by hiding the real number of cases at the beginning of the pandemic. The relationship between these countries was already bad before the crisis and mistrust and animosity have grown more with the war on words over who is responsible for the global pandemic. That tactic had consequences in March 2020, when at the G7 meeting no members were able to agree on a joint statement following the US State Department's insistence on referring to the coronavirus as the "Wuhan Virus" (Conley and Liu, 2020, 62)[11].

On March 17, US President Donald Trump tweeted about COVID-19 as the "Chinese virus". On March 18, a CBS News reporter quoted a White House official referring to the virus as "Kung Flu" Trump's briefing notes were changed on March 19 to replace the word "corona" with "Chinese". In the early stages of the January outbreak, Chinese state media referred to the "Wuhan Virus," but the use of geographic terms has since become highly politicized. Officials from the World Health Organization (WHO) have warned against using such terms due to the potential racial profile and have named the COVID-19 virus to avoid stigmatizing a geographic location or group of people. In response to criticism of his use of the "Chinese virus," Trump tweeted about the importance of protecting the Asian American community.

US Secretary of State Mike Pompeo has been increasingly critical of China's lack of transparency about the first details of the epidemic and "the disinformation campaign in which the Chinese Communist Party is engaged to try to deviate from what it is really happened here". Trump retweeted a claim from high-profile commentator Andrew McCarthy that China lied about their COVID-19 numbers. Meanwhile, US intelligence released a report to the White House that China was underestimating both total and death toll cases in the country.

According to Conley and Liu (2020, 62), “China used two strategies in its communications: to muddle the waters around where the virus originated and to show what it considers to be its success in managing the epidemic”. There were claims from China that COVID-19 may have originated in the United States. On March 12, Foreign Ministry spokesman Zhao Lijian tweeted: "The US military may be bringing the epidemic to Wuhan," linking it to the October 2019 World Military Games. His statement was backed by fellow ministry spokespersons Foreign Affairs Geng Shuang, who said there are "different opinions" on the origin of the virus. The Chinese ambassador to the United States, Cui Tiankai, denied him. Even just temporarily questioning the origins of the coronavirus through this discussion, Beijing hopes to escape the blame[12].

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11 CONLEY TYLER Melissa and LIU Tiffany (2020). “Great Power Blame Game: The Ongoing War of Words Over COVID-19”. Global policy. The viral world. 2020 Observer Research Foundation and Global Policy Journal, 62-71.

12 CONLEY TYLER Melissa and LIU Tiffany (2020). “Great Power Blame Game: The Ongoing War of Words Over COVID-19”. Global policy. The viral world. 2020 Observer Research Foundation and Global Policy Journal, 62-71. https://www.researchgate.net/profile/Nipun-Jain-7/publication/342638212_Technology_in_the_Times_of_a_Global_Pandemic_Lessons_from_India/links/5efdece1a6fdcc4ca444bed5/Technology-in-the-Times-of-a-Global-Pandemic-Lessons-from-India.pdf#page=62

China took the opportunity to position itself not as the source of the virus, but as a country that helps the others and gives a responsible and humanitarian global power. The government launched the massive soft power campaign to provide assistance to Italy, Netherlands, Spain and Turkey. At the same time, Serbia warmly welcomed the delivery of Chinese products, calling Xi "a brother and a friend". In other words, China did not miss the opportunity to promote the superiority of its system by demonstrating that even Europe needs China's help. China integrated its "mask diplomacy" and tried to use its economic power and dominance in global medical supplies for diplomatic purposes.

And that policy was primarily aimed at the domestic Chinese public. The aid was, of course, gratefully received, regardless of the political agenda, but Europeans themselves were unlikely to forget that without China's initial attempt to hide the epidemic, the world could have limited its spread. This includes the reported number of infected and deceased people in China; even Prime Minister Li Keqiang urged officials not to cover new cases as China was reducing its lockdown measures (BISCOP 2020).

So, nowadays the second largest economy in the world no longer hides the fact that it struggled to eradicate its worst COVID-19 outbreak in two years with harsh lockdowns and mass swabs while adhering to a strict zero COVID-policy, putting businesses and public morale to the test.

1.2 Healthcare system response

The expansion of the COVID-19 epidemic challenged the Chinese health care system. Community hospitals were supposed to slow down the large-scale transmission of the virus but the outbreak exposed the weak capacity of these hospitals, including outdated equipment, low competency of doctors, as well as limited ability for virus testing and monitoring. Most patients refused to go to nearby community hospitals. The bad state of latter also caused problems. People distrust in the competence of community physicians and the quality of diagnostic facilities prompted many patients to instead visit large hospitals for diagnosis and treatment. This situation resulted in further infections among people, overwhelming hospitals with large numbers of patients. In this way, China failed to contain the virus within the community, and community transmission has escalated.

Under these conditions, hospitals failed to efficiently function both for patients infected with COVID-19 and those with other diseases. In some of the cities with numerous confirmed cases, thousands of patients with mild to moderate symptoms of COVID-19 had to be sent home for isolation and observation, potentially exposing their family members to the disease and prompting

high rates of intra family infection. Significantly wider transmission of the virus has been reported in hospitals. Patients with atypical clinical manifestations were also contagious during the incubation period. Similarly, frontline healthcare workers were exposed to a high risk of infection, increasing the transmission to patients hospitalized for other diseases.

The COVID-19 epidemic revealed substantial discrepancies in the Chinese healthcare system, especially in operation of medical institutions and hospitals. It was due to lack of provisions in the legislation which should have been identified and worked out by the policy makers. Chinese authorities had to make coordinated solutions in response to the COVID-19 epidemic. Their main task was to manage and prevent the infectious diseases as well as to reinforce the responsibility of the primary health-care system.

Gong and others (2021) write that "in 2016, the World Health Organization, World Bank, and Chinese government jointly published a report, which proposed enhancing China's health-care system through a person-centered integrated care model"[13]. The main scope of this health-care service model consisted in providing people with high-quality medical services which are focused at a patient's needs. They include not only health promotion, but also preventive care and treatment services throughout a person's life. In response to community outbreaks of highly infectious diseases (such as COVID-19) and their transmission, the integrated health-care systems have potential advantages which may include:

- vertical and horizontal integration of different types of providers and care;
- multidisciplinary teams for high-risk patients;
- integrated e-health across facilities and services; and
- primary care for risk stratification with first contact support.

In terms of efficiency of healthcare system and access to medical resources, urban areas were always more advantaged than rural areas. Meng and others (2019) state that "the number of medical personnel, their education levels, and quality of hospital care varied from city to city, especially between rural and urban areas", as well as reimbursement of healthcare expenses[14].

In addition, Ye (2020) reports that "after the outbreak of COVID-19, the Chinese government mandated that hospitals should treat patients first, and settle bills later"[15]. By January 2020, the government confirmed that tests and treatment for COVID-19 would be completely covered through a combination of medical insurance and government financial support. COVID-19

13 Gong F, Hu G, Lin H, Sun X, Wang W. Integrated Healthcare Systems Response Strategies Based on the Luohu Model During the COVID-19 Epidemic in Shenzhen, China. International Journal of Integrated Care. 2021;21(1):1. DOI: http://doi.org/10.5334/ijic.5628

14 Meng, Q., Yin, D., Mills, A., & Abbasi, K. (2019). China's Encouraging Commitment to Health. BMJ. 365, l4178.

15 Ye, Y. (2020, February 6). Who Is Paying for Coronavirus Patients' Treatment? Sixth Tone. Last accessed April 14, 2020: https://www.sixthtone.com/news/1005178/who-is-paying-for-coronavirus-patients-treatment%3F.

pandemic disrupted the routine of the healthcare facilities and for this reason, in order to control the spread of the virus, a large number of hospitals have had to postpone or cancel outpatient appointments. In fact, between the end of January and mid-March, healthcare services (except emergency care) were largely paused. These drastic containment and mitigation measures significantly affected routine medical services for the public, preventing sicker patients and chronic pain patients from accessing necessary services. Being the epicenter of the pandemic, Wuhan experienced in the beginning a heavy demand in healthcare resources, which over-loaded the healthcare system within a few weeks. In other regions, healthcare disruption was mainly caused by measures taken to prevent and control the epidemic, such as lockdown and social distancing.

The COVID-19 outbreak still poses substantial challenges for the Chinese healthcare system. Kamal and others (2020) report that "in 2018, China had about 997,434 healthcare institutes, including 33,009 hospitals (0.23 per 1,000 persons; 4.1 beds per 1,000 persons), 943,639 primary healthcare institutes, and 18,033 specialized public health institutions (National Bureau of Statistics in China, 2018). To operate this system, China had about 3.6 million licensed physicians (2.6 per 1,000 persons) and 4.0 million registered nurses (2.9 per 1,000 persons). In comparison, in 2018 the United States had 6,146 hospitals (0.18 per 1000 persons; 2.8 beds per 1,000 persons), 1.0 million physicians (3.1 per 1000 persons), and 3.1 million registered nurses, nurse practitioners, and physician assistants (9.5 per 1000 persons)"[16]. Thus, compared to the United States, China had more available hospitals and beds, but fewer physicians and nurses per capita.

With the development of the pandemic over time, healthcare service provision has gradually recovered. By May 15th, overall healthcare service provision reached 85% compared to the same period in 2019 (with some regions reaching 100%). Since March 20th, routine healthcare services were officially resumed in different regions according to their risk categories.

Always standing at the forefront, healthcare workers have represented and represent a major force in tackling diseases and saving lives. In China, at the end of 2019, there were only 6.41 public health professionals per 10,000 population, creating a substantial shortage of medical workers. The sudden epidemic further overburdened the Chinese healthcare workers. With rising cases of infection, the working environment was extremely difficult for healthcare workers in China. One critical concern was the massive shortage of personal protective equipment for healthcare workers. Frontline healthcare workers were waiting for PPE[17] while they were treating patients, which increased their risk of infection.

16 Kamal, R., Kurani, N., McDermott, D., Cox, C. (2020). How Prepared is the US to Respond to COVID-19 Relative to Other Countries? Kaiser Family Foundation. Last accessed April 14, 2020: https://www.healthsystemtracker.org/chart-collection/how-prepared-is-the-us-to-respond-to-covid-19-relative-to-other-countries/#item-start.

17 Personal Protective Equipment

Data from the National Health Commission of the People's Republic of China revealed that more than 3000 healthcare workers had been infected as of early March 2020, 62 of which died. Health workers becoming ill or self-isolating further limited the workforce. During the peak of the epidemic, the shortage of health workers was quite challenging. Furthermore, most health workers suffered from emotional exhaustion. Emotional disturbance, fear, and anxiety over the possibility of contaminating their families were frequently reported during the epidemic. A study involving 1563 health workers revealed that 50.7% of the respondents reported depressive symptoms, 44.7% suffered from anxiety, and 36.1% experienced sleep disturbances.

In their fight against the epidemic, the overwhelming majority of doctors carry the responsibility of safeguarding the health of all people in China. Medical personnel have received increased attention and recognition through this outbreak, including the acknowledgment and protection by the State and the support and respect of the people. With such recognition, most medics have devoted themselves to medical and health care services.

A total of 42,000 health workers across the country have assisted Hubei province regardless of the high risk of cross-infection. During this epidemic, further measures were promulgated to provide incentives to healthcare workers and protect them in all aspects, including subsidies and allowances, work-related injury compensation, psychological health services, and daily needs, among others. Beyond legal right protection, these measures reflect the appreciation of the country for their contributions.

Apart from policy protection measures, a cultural shift in the social status of doctors and attitude toward doctors has been observed. Both doctors and patients have been understanding and supportive of one another in their fight against the virus. Doctors and nurses have received national recognition for their pivotal role in halting the spread of the disease and have gained public support and respect. Cities across the country have lit up their landmark buildings for medical workers, displaying their faces and stories and applauding them.

1.3 Fangcang hospitals

The explosion of COVID-19 placed huge pressure on Chinese medical system. Simiao and others (2020) report that "at the beginning of the outbreak, confirmed cases in Wuhan accounted for more than 60% of all confirmed cases in China as of March 27, 2020. At the beginning of February, 2020, Wuhan could no longer offer any beds available for COVID-19 patients in the hospitals designated for treating the virus"[18]. Thousands of people with mild to moderate symptoms had been sent home for isolation and observation. Suffering from a shortage of hospital beds, Wuhan needed

18 Xinhua News. Noah's Ark: the story of Fangcang shelter hospitals (in Chinese). Feb 19, 2020. http://www.xinhuanet. com/2020-02/19/c_1125598560.htm

an approach to rapidly and massively cope with the increasing number of cases. When the city reached its peak with thousands of new infections per day, the city opened three Fangcang hospitals (方舱医院 *fāngcāng yīyuàn*) on February 5, 2020, by converting exhibition centers and stadiums into shelters[19].

Thomala (2020b) reports that "the first three designated hospitals had 6,754 available beds […], the fourth and fifth designated hospitals added 2,183 beds"[20]. It was crucial as, for example, in Hubei province the hospitals could not offer any beds for those patients who required hospital admission. Moreover, there was also a shortage of supplies and workers. Mirandy and others (2020) note: "As the outbreak in Wuhan reached its most severe point, with thousands of new infections per day, and the outpatient clinics were also being closed due to the outbreak, it soon became evident that temporary hospitals were needed"[21].

The most known examples of the fangcang hospitals are the Huoshenshan and Leishenshan Hospitals in Wuhan. They were actually built during the 2003 SARS outbreak. Already at that time they were equipped with beds and other essential medical facilities for patients with "swine flu" symptomps, even if these hospitals were considered as temporary ones.

First of all, on January 23, 2020 Chinese authorities decided to construct Huoshenshan. The goal was to provide 1,000 beds, as well as a laboratory, radiology department, and other essential departments. The hospital also delivered remote consultations thanks to the support of a 5G base station. Known for its efficiency and speed, China managed to involve 7,000 workers, hundreds of heavy-duty machines and construct Huoshenshan in a very short time. The hospital was officially launched on February 2, 2020. Two days after the Chinese authorities took a decision about construction of Leishenshan Hospital. Being equipped with 1,600 beds, it opened its doors to patients on February 8, 2020.

Steinbuch (2020) says that "Huoshenshan and Leishenshan were built with only a five year expected functional time. It is expected that once the outbreak is over, other hospitals could sufficiently serve infected patients, and these hospitals would close. Some makeshift hospitals have been put "at rest" but not officially closed, in case of a second outbreak. However, it is expected that makeshift hospitals will eventually return to their original purposes"[22].

19 Yue W, Chen K, Wang K, Zhang S, Tao L. Construction of mobile field hospitals under the condition of informationisation (in Chinese). Hosp Adm J Chin People's Liberation Army 2017; 24: 962–64.

20 Thomala, L.L. (2020b). "Increase in the number of beds in designated hospitals in Wuhan in China 2020". Statista, April 3. Last accessed April 17, 2020: https://www.statista.com/statistics/1095434/china-changes-in-the-number-of-hospital-beds-in-designated-hospitals-after-coronavirus-outbreak-in-wuhan/.

21 Mirandy S. Li, Qiufan Fu, MS, and Ting Luo, MPH (Spring 2020). "The Hospital Response to COVID-19 in China". Journal of Health Care Finance". VOL. 46, NO. 4.

22 Steinbuch, Y. (2020, March 11). China Shuts all 16 Temporary Coronavirus Hospitals in Wuhan. New York Post.

Over the following weeks, Wuhan opened an additional thirteen Fangcang shelter hospitals[23]. The progression of bed capacity and occupancy of the Fangcang shelter hospitals are demonstrated in Figure XX.

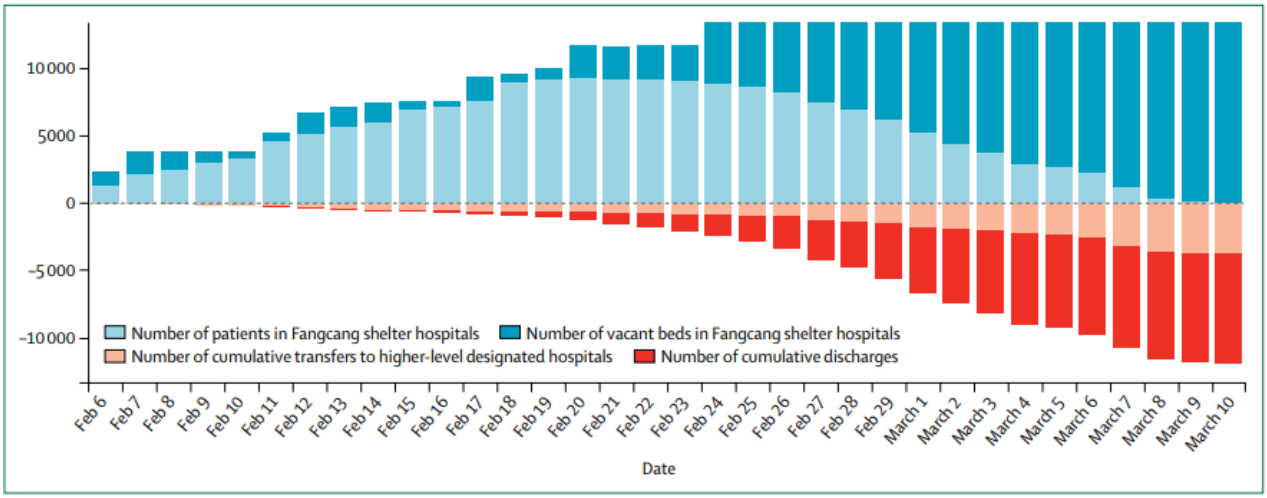

Figure XX: Fangcang shelter hospital patient flows during the coronavirus disease 2019 outbreak in Wuhan, China All dates are in 2020[24].

Source: Simiao Chen, Zongjiu Zhang, Juntao Yang, Jian Wang, Xiaohui Zhai, Till Bärnighausen, Chen Wang (April 2, 2020). "Fangcang shelter hospitals: a novel concept for responding to public health emergencies". Health Policy.

Meanwhile, China continued building makeshift hospitals in other provinces. For example, Xiaotangshan sanatorium, which was originally used for patients with long-term illness, was converted and repurposed into Beijing Xiaotangshan Hospital. The main purpose of construction of the makeshift hospitals was similar to the ones of field hospitals used in war and was aimed at accommodating patients with milder symptoms. They were also equipped with air conditioning and WiFi already at the times of "swine flu".

Mirandy and others (2020) state that after Beijing Xiaotangshan Hospital accepted 680 SARS patients, with 672 successfully recovering, by February 15, 2020 China had opened the doors of nine more makeshift hospitals with 6,960 beds total, 5,606 of which were occupied. They add:

23 The State Council of the People's Republic of China. The State Council Information Office holds a press conference on the progress of the epidemic prevention and control, and medical rescue works guided by the Central Leadership Group (in Chinese). Feb 28, 2020. http://www.gov.cn/xinwen/2020-02/28/ content_5484713.htm

24 Simiao Chen, Zongjiu Zhang, Juntao Yang, Jian Wang, Xiaohui Zhai, Till Bärnighausen, Chen Wang (April 2, 2020). "Fangcang shelter hospitals: a novel concept for responding to public health emergencies". Health Policy. https://www.thelancet.com/action/showPdf?pii=S0140-6736%2820%2930744-3

"By March 10, 2020, over 12,000 patients had received treatment in one of these makeshift hospitals"[25].

Fangcang hospitals made difference to the Chinese healthcare system. They had several advantages and thus have been crucial in the control of the epidemic. First, they were characterized by rapid construction, which facilitates the immediate admission and treatment of patients. The Chinese media specified that "the conversion process, in which buildings that served other purposes (eg, sports venues or exhibition centres) were turned into hospitals, was completed in 29 hours for the first three Fangcang shelter hospitals in Wuhan, providing 4000 beds"[26]. Moreover, they only needed redesign, some medical devices and supplies to support care, monitoring, and sheltered living.

Second, converted from venues, Fangcang hospitals allowed the large-scale provision of beds to admit patients and thereby relieve the burden on the healthcare system. China News (2020) reported that "the 16 Fangcang shelter hospitals that China built over a period of 3 weeks contained 13000 hospital beds. By March 10, 2020, the sixteen hospitals had provided care to about 12000 patients"[27]. The State Council of the People's Republic of China underlined in one of its documents that these shelter hospitals helped to the Chinese authorities to comply with COVID-19 policy of "leaving no patient unattended or untreated", as these medical constructions could accommodate a large number of patients who would otherwise had been confined to their homes[28].

Third, Fangcang shelter hospitals required low cost of building and investments. China converted public venues into health-care facilities and avoided pricy construction of new physical infrastructure. Fangcang hospitals only accommodated patients with no severe symptoms, requiring fewer physicians and nurses. Moreover, admission and diagnosis were unified, simplifying the entire process. Consequently, the utilization and distribution of medical resources were optimized. That's why the running costs of Fangcang shelter hospitals were very low[29].
Fangcang hospitals functioned efficiently during the COVID outbreak. First, they isolated patients with mild to moderate symptoms, allowing the treatment of every patient and the prevention of possible transmission. Patients with mild to moderate symptoms who were quarantined at home

25 Mirandy S. Li, Qiufan Fu, MS, and Ting Luo, MPH (Spring 2020). "The Hospital Response to COVID-19 in China". Journal of Health Care Finance". VOL. 46, NO. 4

26 Xinhua News. Racing to build Fangcang shelter hospitals (in Chinese). Feb 6, 2020. http://www.xinhuanet.com/local/2020-02/06/c_1125540266.htm (accessed Feb 9, 2020).

27 China News. All Fangcang shelter hospitals are suspended: achieving zero cross-infection and zero death; bolstering Wuhan's fight against COVID-19 (in Chinese). March 10, 2020. http://www.chinanews.com/gn/2020/03-10/9120429.shtml (accessed March 15, 2020).

28 The State Council of the People's Republic of China. The Joint Prevention and Control Mechanism of the State Council launch announcement on further shouldering responsibilities and implementing prevention and control strategies (in Chinese). Feb 7, 2020. http://www.gov.cn/guowuyuan/2020-02/07/ content_5475951.htm

29 "Medical teams sent to Wuhan play key role". China Daily. Feb 21, 2020. http://epaper.chinadaily.com.cn/a/202002/21/WS5e4f0f6ca310a2fabb7a256f.html

were likely to expose their family and relatives to risk. Second, Fangcang hospitals implemented a system involving a simple pathway of referral and transfer. The temperature, respiration rate, blood pressure, and oxygen saturation of the patients were measured multiple times daily. Patients whose health status worsened were immediately transferred to higher-level hospitals.

In addition, Fangcang hospitals integrated social engagement and physical support to patients in their treatment program. These mechanisms served as communities for patients, where they could participate in social activities such as reading, dancing, and watching TV. The patients were provided physical comfort by the health workers. Measures such as the construction of Fangcang hospitals and quarantine, among others, led to a large reduction in the increase in the number of patients. More than 12,000 patients were cured during their operation.

As of March 10, 2020 all Fangcang hospitals in Wuhan had been closed the Chinese authorities will be able to avoid long-term, inefficient use of space, which is particularly important in a densely populated city. Anyway, thanks to the experience with Fangcang shelter hospitals during the COVID-19 outbreak, Chinese officials know that they would be able to use these shelters in future public health emergencies at its maximum as well as during other events involving illness or injury on a large or rapidly growing scale, such as mass poisonings or natural disasters.

China, coming out of the lockdown earlier than the rest of the world, helped other countries such as Italy, Serbia, and Iran to construct and operate Fangcang hospitals in their fight against COVID-19. Similar to Fangcang hospitals, field hospitals have been used in the United Kingdom and Spain, and makeshift hospitals have been constructed in Iran to help attend to the isolated patients.

1.4 Internet hospitals

In the last three years the establishment of internet hospitals has got a growing trend in China. On the contrary, before 2017 the number of internet hospitals grew very slowly due to low support of the government. Then, the Chinese authorities started introducing the relative regulations which brought to the growth of numbers of the internet hospitals (Yangyang and others, 2020).

As of January 2019, there were 130 internet hospitals registered in 25 of the 34 Chinese provinces or municipalities (73.5%). They ranged from 0 to 29 per administrative region (Figure X)[30].

30 Yangyang Han, BS, Reidar K Lie, MD, PhD, and Rui Guo, PhD (2020). "The Internet Hospital as a Telehealth Model in China: Systematic Search and Content Analysis". J Med Internet Res. 22(7): e17995. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7424477/

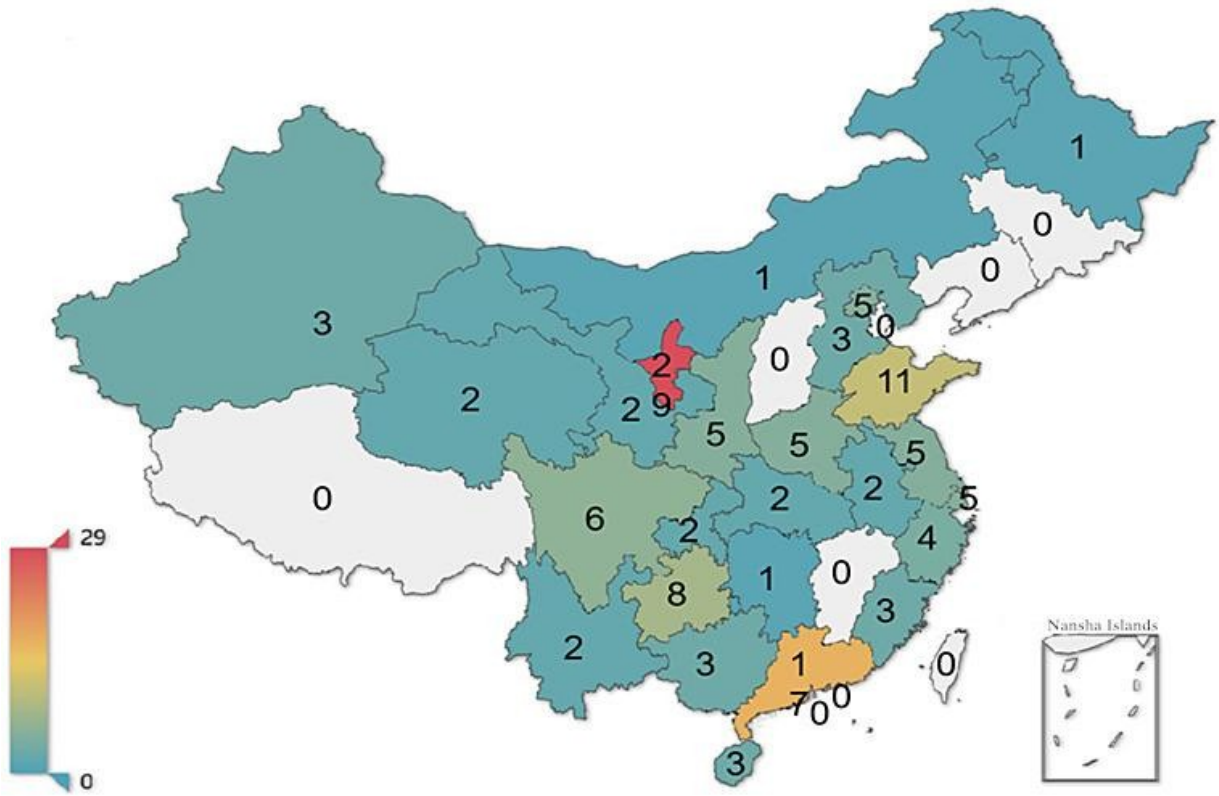

Figure XX. Map of internet hospitals in Chinese provinces.

Source: Yangyang Han, BS, Reidar K Lie, MD, PhD, and Rui Guo, PhD (2020). tps://pubmed.ncbi.nlm.nih.gov/?term=Guo%20R%5BAuthor%5D" ons which brought to the growth of numJ Med Internet Res. 22(7): e17995.

In 2020, the COVID-19 pandemic blocked offline medical diagnosis and treatment channels, putting pressure on medical resources. According to official data, the pandemic prompted 38.2% year-on-year and 45.7% month-on-month declines in medical and healthcare visits in February 2020, and the number of discharged patients fell 35.6% year-on-year and 47.7% month-on-month (excluding Hubei Province)[31].

To solve the dilemma between the demand for medical care and the inaccessibility of medical services, the Chinese government issued a series of policies, such as the incorporation of online medical services and long-term prescription into medical insurance, to empower Internet hospitals and thereby address public health emergencies. It was the right time to open the online hospitals the scope of which was to improve quality and efficiency of medical services. Moreover, they perfectly matched the scope of the Healthy China 2030 blueprint, which was launched by the PRC in October 2016[32].

31 National Health Commission of China;
http://www.nhc.gov.cn/mohwsbwstjxxzx/s7967/202004/e800dde2406f44999df8a47e6cfb3ddf.shtml
32 Deloitte report. “Internet Hospitals in China: The new step into digital healthcare”.
https://www2.deloitte.com/cn/en/pages/life-sciences-and-healthcare/articles/internet-hospitals-in-china-the-new-step-

According to Deloitte report (2021), this national program stipulated the conditions of "Internet + Medical Services" implementation and became a strategic priority. The online hospitals boosted the health care system, they managed to make distinctive steps to advance the establishment of level-to-level diagnosis and the overall health management system.

Later on April 2018 the legal status and regulations of the online hospitals were stipulated in the Online Hospital Administrative Measures (Trial) issued by the State Council. In addition, this document emphasized the core role of "offline medical organizations". The year after the Chinese government made special amendments to the Drug Administration Law, which allowed the direct online sales of prescription drugs, and created new policies on medical insurance. It was the first time that China adopted detailed regulations on internet hospitals, signifying that internet hospitals had entered the stage of standardized development.

In March 2020, at the times when COVID-19 exploded in the whole world, China adopted two main documents named “Opinions on Promoting "Internet+" Medical Insurance Services During the Period of Preventing and Controlling the Coronavirus Pandemic” and “Opinions on Deepening Reformation of the Medical Security System”. These rules:

- established some measures related to direct payment for medicines prescribed from retail drugstores and online medical insurance;
- boosted innovative development of "Internet+ Healthcare" and other service models, gave authorization to online medical organizations to issue electronic prescriptions and settled the direct online medical insurance for diagnosis, treatment and medicine provision.

In September 2020 the general office of the State Council adopted the “Opinions on Speeding Up the Development of New Type Consumption with New Industry Dynamics and New Modes”. This document promoted active development of healthcare service via internet. The doctors could appoint online diagnosis or treatment, transfer the electronic prescriptions and distribute drugs, etc. Afterwards it became possible to reimburse the medicine expenses subject to medical insurance payment standards and policies which were approved on November 2, 2020, in the Opinions on Actively Promoting "Internet+" Medical Insurance Payment issued by the National Healthcare Security Administration.

As we can see, the Chinese government issued a series of online hospital-related policies designed to enhance medical services already before the expansion of COVID-19. The pandemic just accelerated the healthcare market development.

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into-digital-healthcare.html

According to the National Health Commission, starting from 2020 the online consultations increased 20 times. Wuhan University People's Hospital was the first online hospital to obtain an online consultation qualification in Hubei Province and made it within one day. Instead, the General Hospital of Tianjin Medical University added a respiratory medicine department to its online hospital in just 11 minutes[33].

With these favorable policies, Internet hospitals such as WeDoctor and Alibaba Health have emerged, gaining considerable public interest. An Internet hospital is a platform for the delivery of approved remote medical services via Internet technologies for consultation, treatment and diagnosis, as well as prescriptions. Most Internet hospitals are based on physical hospitals where patients receive almost the same medical services as those in physical hospitals, such as prescriptions and health insurance programs. During the pandemic, patients have benefited from online diagnosis, online payment for drugs, door-to-door delivery and other services that meet their needs. Hospitals and doctors became less conservative and the people more aware of online diagnosis and treatment. The online hospitals served as an effective channel for leveraging pressure on medical services. It was especially efficient at the times of pandemic, as they gave access to the medical resources during quarantines and reduced costs.

The COVID-19 epidemic is the first instance in which Internet hospitals were involved in a public health emergency caused by an infectious disease. At the beginning of the epidemic, 42.3% of physical hospitals nationwide established their Internet-based hospitals, alleviating the flood of people in physical hospitals.

Internet hospitals have three advantages that render them suitable to support the fight against the infectious disease. First, internet hospitals provide remote online medical services for patients at home or anywhere, minimizing face-to-face contact with susceptible populations and lowering the occurrence of infection. Second, Internet hospitals provide an optimized resource distribution. Internet technologies help rebalance the distribution of medical services, linking better medical resources in East China with demands in the central and western areas. The Internet enables people to overcome geographical obstacles to health care giving to the rural areas are given the same access to health care as that of urban areas. Patients only need to visit their community health center and village clinic or a pharmacy near their area to consult with skilled doctors based in big cities and obtain a diagnosis. Third, they perform with high efficiency at a low cost. Most Internet hospitals provide online services continuously and have an extensive reach. Using this platform, patients and doctors only need a computer, a laptop, or a smart phone.

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33 Accelerated construction of online hospitals during COVID-19. https://www.cn-healthcare.com/articlewm/20200507/content-1110730.html

Internet hospitals offer different types of online consultations and treatment, including epidemic-related counseling, online diagnosis, psychological counseling, follow-up treatment and home quarantine guidance. These online consultations considerably alleviate social panic. Data from WeDoctor and haodf.com indicate that 20% of their online medical consultations consist of COVID-19 and essential epidemic-protective skills, as well as guidance for home quarantine. Furthermore, doctors and patients, as well as the public seek online support to address their mental health need.

According to the policies of internet hospital management, internet hospitals are only allowed to provide patients with family doctor contract services and subsequent diagnosis for common and chronic diseases. The patients are segmented online based on the diagnosis type:

1. those who require a face-to-face diagnosis (subsequent diagnosis for uncommon diseases and non-chronic disease), and
2. those who are not required for a face-to-face consultation,

For the first group of patients, there is a special process which forms a closed loop of online medical services from consultation and prescription, to payment, delivery and health management. First of all for these kind of patients the doctors are assigned for the treatment and online prescription which is issued electronically. Once the latter is reviewed, the drug distribution is apportioned to designated drugstores. So the patients can choose a home delivery or pick-up at a drugstore nearby.

The second group of patients can benefit from the smart scheduling system which foresees an online examination. Then the doctors create a case report for the initial treatment (first time) to facilitate follow-up patient management and subsequent diagnosis at the internet hospitals.

Through Internet hospitals, patients with chronic or common diseases can complete their regular follow-up consultations without delay. Even under severe conditions, online doctors can instruct patients to visit offline clinics as safely as possible. Furthermore, real-time telemedicine from multidisciplinary experts enhances the efficiency of treatment for acutely ill patients in Wuhan City, sharply decreasing the mortality rate. Last, the administration of medication, prescription, as well as contactless delivery extend the use of Internet hospitals. While COVID-19 has spiraled into a global health crisis, several Internet hospitals in China, such as WeDoctor and AliHealth, have extended their international online services to assist some of the hardest-hit or resource-limited countries.

Internet hospitals have two main operation models:

1. "Hospital + internet" when an online hospital is associated under the offline medical institution; and

2. "Internet + hospital" when and independent online hospital is affiliated to medical institutions.

None of these models can operate independently without an offline hospital. Their advantages and disadvantages are mentioned in Tables XX and XX. Deloitee (2021) considers them across multiple sectors: “medical resources (medical service staff and patients etc.), technical strength and competency in online platform operating, accessibility to width and depth of medical information, completeness of regulatory affairs, patients' experiences and full process (including pre-diagnosis and post-diagnosis management), and the adoption of national health insurance (NHI) etc”.

"Hospital + internet"	**"Internet + hospital"**
Operators have significant experience in medical resources, policies and NHI supports, quality management and patient safety.	Operators have a commercial attitude, they are better at platform operation and user attraction.
A lot of offline hospitals established online medical facilities to extend medical services online and form a large network of hospitals.	These hospitals have strong operations in online business, high innovation capability, and its partnership in ecological chain.

Table XX. Advantages of the two operation models

"Hospital + internet"	**"Internet + hospital"**
It’s difficult to adopt online all the experience of operators.	Service types of operators are limited to health information, prescription renewal and drug re-purchases for common and chronic diseases.
A lot of offline hospitals have difficulties with providing more resources to the online facilities, as they are fully concentrated in offline public hospitals.	These internet hospitals are heavily dependent on offline hospitals and multi-point practitioners. As long as more and more offline hospitals start to launch their own internet services creating competition in the market, the internet hospitals lose their patients and doctor resources.
These hospitals still need a joint group operation, as there is lack of reforms of the overall service mode.	Medical regulation compliance becomes complex as these hospitals involve multiple counterparties, thus, making the online practice

	management more difficult.

Table XX. Disadvantages of the two operation models

Taking into account the pluses and minuses, the Deloitte consultants think that it would be better to combine the features of the two modes. In such way the goals of Healthy China 2030[34][35] will be fulfilled thanks to:

- boosting of medical service efficiency;
- transformation of medical services;
- equal distribution of medical resources;
- extension of the medical ecosystem;
- enhancement of the industrial innovation and reform.

As long as the internet hospitals are becoming trendy among the population, the Chinese authorities should solve several issues to integrate them better in its healthcare system. According to the opinion of Deloitte consultants, they could expand the online platform and upgrade the medical efficiency by reducing the cost of users. They should find some "win-win" solutions both for internet hospitals and its patients so as each of them could save its expenses.

In addition, there are some issues in correct matching of a patient to a certain doctor. Usually the medical personnel of the internet hospitals mainly come from offline hospitals. Even if they gain practice at different institutions, the quality of their services is sometimes scarce.

So, the internet hospitals face two problems in these terms:

- attracting and retaining of high-quality doctors; and
- establishment of stable relationship between a doctor and a patient.

If doctors should be motivated financially, patients instead should get training on efficient use of new technologies.

So, to increase the efficiency of medical services it's also important to foresee concrete methods to support virtual community communications, build online health archives, continuously track the health status of patients and provide post-treatment measures.

Despite the innovative approach and interest of the population to new technologies in the healthcare system, the internet hospitals still do not bring big profit. According to the data of Health Sector Research Institute, "over 50% of internet hospital are still at a loss, and only 13.5% of internet hospitals are making profit of more than RMB1 million"[36].

34 A declaration Xi Jinping announced that made public health a precondition for all future economic and social development.

35 https://www.ispor.org/docs/default-source/publications/newsletter/commentary_health-care_china_2030.pdf

36 Health Sector Research Institute: 2020 Research Report on Development of Hospitals via Internet in China

The internet hospitals earn thanks to:

- medical equipment;
- aesthetic medicine;
- online consultations;
- prescriptions renewal;
- derived consumption from the physical examinations;
- rehabilitation.

Patients pay for these services by the national healthcare insurance (NHI), but the problem is that the legislation does not provide conditions for full implementation of the online healthcare NHI payments. Once it's done, it will raise the entire online healthcare market. Additionally, it will also mitigate the risks connected with electronic prescriptions, medical records security, NHI reimbursement, etc.

As long as the latter is still at an experimental stage, the offline hospitals and pharmacies cannot be completely replaced by the internet hospitals. Thus, the current healthcare system should focus on documentation of NHI, expense control and prescription supervision.

At present, patients can get their prescription after description of symptoms and online examination carried by the doctors. So, the information exchange and security risk prevention and control become crucial in internet hospital operations. The system should provide all the necessary conditions to protect the personal data of the patients and to ensure support for online diagnosis and treatment.

Another issue is the supervision of compliance of the medical processes with related regulations on the e-commerce of drugs. As of now it's not clear who will be responsible in case of a low quality or counterfeit of the drugs purchased online: doctors, pharmacies or hospitals.

China has a large population of chronic disease: heart disease, obstructive emphysema, diabetes, HBV, hypertension and chronic kidney disease. Deloitte experts believe that "the future implementation of internet hospitals should focus more on the unmet needs in chronic disease management, health management, serious illness rehabilitation, community rehabilitation, and elderly care, etc". The Chinese legislation does not give a precise definition to chronic and common diseases. So, it creates difficulties in finding interconnection between doctors, patients and new technologies.

However, due to acceleration of the growth of internet hospitals as a public health and social distancing measure, all the issues will be eventually solved once the authorities provide continuous

release of open-door policies, correct amendments of the healthcare regulations as well as technological development.

1.5 Medical resources

All patients with confirmed COVID-19 diagnosis were institutionalized in China. This led to high pressure being applied on the Chinese healthcare system, especially at the beginning of the pandemic and in regions with a high number of cases.
At the beginning of February 2020, there were 28 designated hospitals for treating COVID-19 patients in Wuhan, providing 8,000 to 10,000 sickbeds. By mid-March, 42,600 healthcare professionals from other regions in China were "relocated" to Wuhan to support the local health staff. By the end of February, 48 hospitals with over 26,000 beds were designated for COVID-19 treatment. Furthermore, temporary hospitals (Fangcang) with over 13,000 beds were setup to isolate confirmed patients with mild symptoms.

Capacity to produce essential protective medical materials (face masks, protective eyeglasses etc.) has increased drastically after the COVID-19 outbreak. On April 8th, China had capacity for producing 3,4 million medical N95 masks, 2,9 million medical isolation face masks[5] and 1,5 million sets of disposable medical protective suits per day.

As the epidemic progressed, almost all tertiary and secondary hospitals across the country experienced a serious dearth of medical resources. Ventilators, gloves, surgical masks, disposable isolation gowns, eye protection, essential medicines, and equipment were inadequate. The number of beds available in the hospitals designated for treating COVID-19 patients was insufficient and this scarce supply of qualified medical resources further aggravated the healthcare burden.
Also aggravating the situation was the fact that the COVID-19 outbreak also coincided with the Spring Festival, the Chinese Lunar New Year, the most important cultural holiday in China. In this period most manufacturers and distributors were on holiday, exacerbating the shortage of protective medical supplies. In addition to the supply shortage, some items were either substandard or expired.
In China, the availability and accessibility of basic healthcare resources substantially varied among regions, and the disparity between the supply and demand of resources for disease prevention and control remained prominent, particularly in the epicenter of the outbreak in the Hubei province.

One tool China has been able to quickly use to respond to the new coronavirus crisis was technology. Many Internet-based companies, such as Alibaba Group, Baidu Inc., and Tencent, have joined the battle at the outset. They have leveraged advanced technologies, including 5G, big data analysis, cloud computing and artificial intelligence to empower healthcare. Artificial intelligence and 5G have been extensively applied in a large number of hospitals, assisting frontline medical

workers. Moreover, 5G enabled robots have been installed at hospitals to offer various automated medical services, including drug delivery, measurement of mobile patrol temperature, hospital disinfection and cleaning, route guidance, and other repetitive tasks. These smart robots, which effectively reduce cross-infection, are widely welcome in isolated wards. Artificial intelligence coupled point of care diagnosis screens suspected infections and closely monitor changes in the physical condition of patients to contain the spread of the disease in hospitals. The artificial intelligence enabled auxiliary diagnostic system enhances diagnostic accuracy and speed while protecting medical workers. Alibaba Group, the Chinese ecommerce giant, has developed an artificial intelligence system that can detect the presence of coronavirus with 96% accuracy in 20 seconds by assessing computed tomography scans, in contrast to the 15 minutes duration required to evaluate humans. The health code is also a disease prevention technology based on big data. Downloaded on mobile phones, the health code shows the places visited by the phone owners and the risk of their close contact with COVID-19 patients, thus lowering the risk of infection for their neighbors.

Furthermore, during the pandemic eHealth functions of telemedicine and mHealth have been developed in China. They were widely practiced as they are through mobile devices, such as mobile phones, patient monitoring devices, personal digital assistants[37], and other wireless devices. While many of the traditionally require in-person visits, the distance and mobility of mobile health[38] can potentially provide secure primary consultations, especially for those who may be at greater risk of severe illness or death from the virus, such as pregnant women or individuals with HIV or other immunocompromising illnesses. These forms of mobile health took advantage of the growing number of individuals with access to mobile phones and the internet to spread relevant health information and services. Providing tailored consultation through digital mobile platforms has been one of its most crucial functions in the age of apps and smartphones[39].

But all these technological achievements seem to be inaccessible to the population in rural areas. As said before, village doctors in China are not as highly-qualified as the ones in big cities and can provide very basic medical services. So people in rural areas are less used to benefiting from internet medical services as they need to be educated to learn how to utilize new technological tools. So, if they get ill, first of all they go for village services and only then they would be referred to a township healthcare centre. However, there are some people who go directly to the county or city hospitals.

37 Pdas

38 It refers to the use of mobile devices for medicine and health practices.

39 Danish Institute for International Studies (2020). “COVID-19: Impact and Innovative responses”. https://www.jstor.org/stable/resrep27518.4

During the outbreak of pandemic China showed its efficiency in building entirely new hospitals within a short period of time, but it is not sure if the new medical facilities meet the villagers' needs. The pandemic might hit the rural areas much stronger than the cities, as the villagers sometimes self-treat first instead of going to a medical institution. Moreover, the services in the city hospitals might be pricy for them, thus they would prefer to avoid additional costs.

This was one of the reasons why the Chinese government launched several initiatives relating to its poverty alleviation resettlement so as to bring people in rural areas closer to medical services. Moreover it promised to cover their expenses for COVID-19 that are not covered by insurance, but people probably wouldn't consider that as the amount on healthcare remain relatively high for them[40].

1.5.1 Contract tracing apps

China was the first country which developed and integrated contract tracing apps (CTAs) to combat the global spread of Covid-19. They were released on February 2020 and primarily used as a means of curbing the spread of the virus and controlling people. CTAs were developed in cooperation with the company Alibaba. Users access the app through Alipay or WeChat and input their phone number, full name and ID number.

After registration the users should report their travel movements, using the health code, or any suspect symptoms. The app automatically collects travel and medical data and assigns users a red, yellow or green QR code. Whereas a green code gives users unrestricted access to public spaces, a yellow code indicates that the person might have had a contact with an infected person and therefore has to be isolated. A red code is assigned to users infected with the coronavirus. The information about the colour code of each citizen is collected at a central location and is constantly evaluated to monitor the situation and to identify hot spots with a high risk of infection. For example, pictures from the Chinese region of Hangzhou, show the systematic checking of the colour codes at the entrance to the subway station[41].

It is very important to access to GPS data of the users for a geographical analysis of the extent of the infection. Once a certain amount of data is available, it is possible to map movement patterns of groups of people, which contain information about who had potential contact with whom and when[42]. This information, consisting of traffic data of individual telecommunication connections, is generated when terminal devices dial into an electronic infrastructure and use it for

40 BMJ (2021). "Could rural China's healthcare deal with covid-19?". ;375:n2759

41 In Coronavirus Fight, China Gives Citizens a Color Code, With Red Flags. Ney York Times. https://www.nytimes.com/2020/03/01/business/china-coronavirus-surveillance.html

42 Johannes Abeler, Matthias Bäcker and Ulf Buermeyer. uCorona tracking & data protection: no necessary contradiction". Netzpoliti.org. https://netzpolitik.org/2020/corona-tracking-datenschutz-kein-notwendiger-widerspruch/

communication. In this way, it becomes possible to analyze and evaluate such data for the law enforcement purposes and to make conclusions about the networking and social contacts of individuals and groups of people. The larger this data set is, the more precisely infection clusters can be geographically localized. In any case, only the addition of various data sources allows for selective and concentrated intervention.

Despite the efficiency of the CTAs in terms of monitoring the spread of coronavirus and identification of hot spots, the app was criticized for collecting a wide range of information on central servers including personal information, location, recent contacts, health status and travel history. Even if CTAs remain a decisive factor in fighting the pandemic, their efficacy depends heavily on people's acceptance. Kostka (2021) reports that "there was an online survey conducted in June 2020 which examined public opinions towards Covid-19 tracing apps in China (N = 2201), Germany (N = 2083), and the United States (N = 2180)". According to this survey, "approval ratings in China surpass those in western countries, with 80 percent of Chinese, 41 percent of German and 39 percent of United States citizens strongly or somewhat accepting CTAs"[43]. Full findings are specified in the Figure 2.

43 Kostka Genia (March 05, 2021). Covid-19 contact tracing apps: why they are so popular in China. https://merics.org/en/short-analysis/covid-19-contact-tracing-apps-why-they-are-so-popular-china

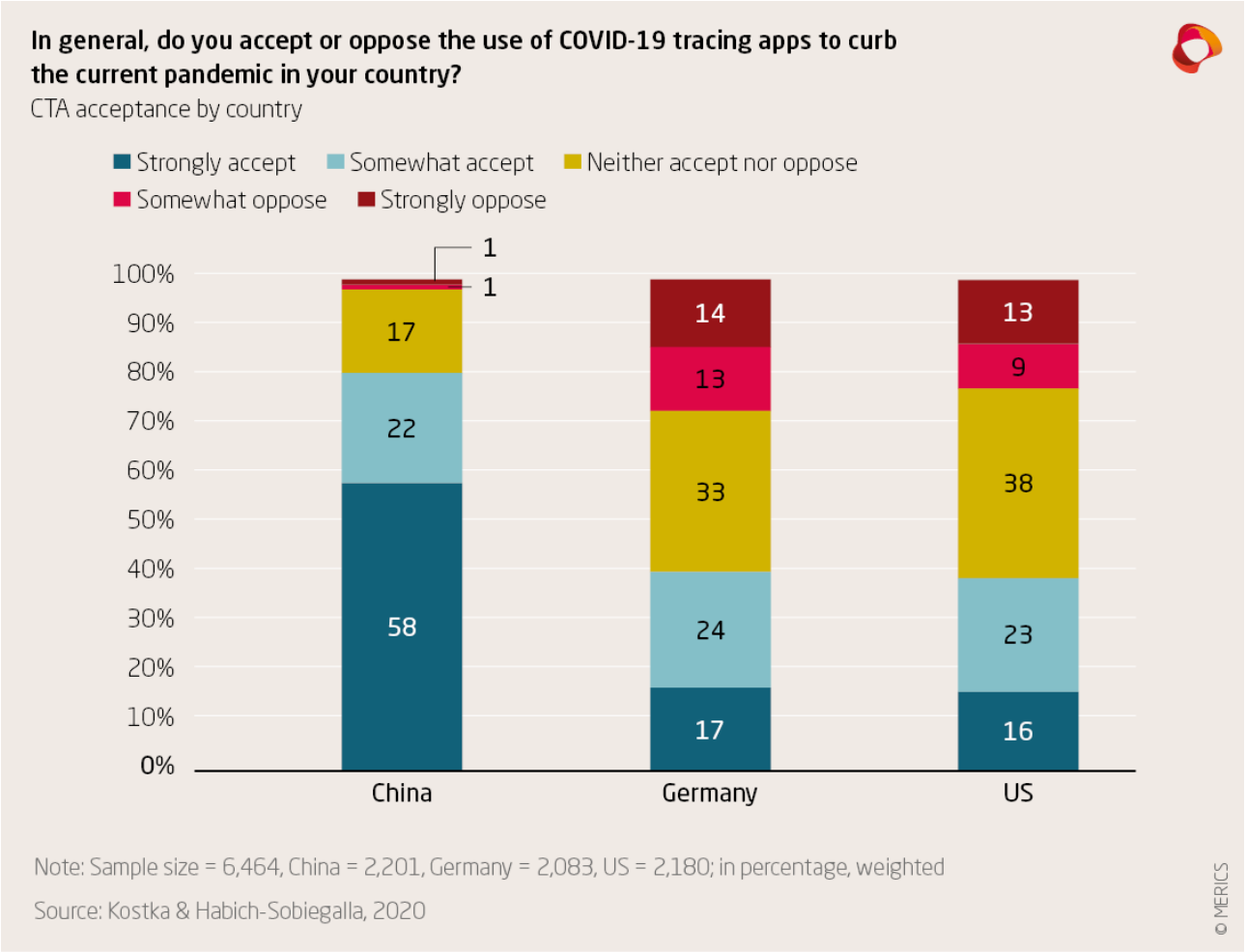

Figure 2. CTA acceptance by citizens in China, Germany and the US.

The analysis revealed certain criteria according to which different nations react to the implementation of CTAs.

First of all, people care about their privacy. According to the survey specified in the Figure 2, Chinese respondents expressed distrust towards technology companies in terms of data protection. Anyway they had to accept the implementation of CTAs by the government, most probably, because they usually ignore the risks associated with digital technologies. Chinese cititzens are more used than, for example, Germans or Americans, to the fact that personal data is systematically collected in personalized files, a system known as *dang'an* 档案).

China created an immense data infrastructure long time before COVID-19. For example, Alibaba is symbolic of China's extensive digitalization, it has always been used on a daily basis by the majority of the Chinese population. Alibaba could be compared to Amazon by its large-scale dimensions and services. Chumtong and Stiftung state that "every day, 700 million people in the country access the company's online offering, which ranges from payment systems to sales

platforms and navigation systems"[44]. The authors presume that "Alibaba's customer data alone could be used to obtain insightful patterns of movement of the Chinese population, which could provide information about the spread and infection rate of the virus. It therefore does not come as a surprise that the Health Code app also comes from Alibaba". So, Chinese people are used to sharing personal data such as disclosure of their location, names, contacts, pictures and other by using their smartphones in everyday life. Taking into account that state media in China are censored by the government and they cannot speak much about the multiple purposes for which personal data is used, including surveillance, the population follows, maybe sometimes even unconsciously, the Chinese cultural and political approach to new technologies.

Secondly, Chinese people trust in the effectiveness of CTAs because the adoption rates in the former are much higher. In addition, the health code app has allowed people to access public spaces in China. Therefore, the Chinese citizens might link use of the CTAs to hope that their daily life can start to look normal again with the exception of local outbreaks.

Third, acceptance of CTAs in China, Germany and the United States is highly affected by citizens' trust in the state. According to the survey results, "78 percent of the Chinese respondents say that "they trust their country's government institutions "a lot". However, as research on self-censorship among Chinese survey respondents has shown, these high numbers in the Chinese case must be to some extent discounted".

Fourth criteria is based on conspiracy beliefs. Kostka writes: "While 21 percent of the US respondents and 13 percent of German respondents believe that the Covid-19 pandemic is a conspiracy, in China only 3 percent thinks so. The survey analysis shows that in all three countries those who share a conspiracy belief are less likely to accept CTAs".

Fifth, Chinese people are very much used to be technology adepts. They have a higher acceptance of CTAs, as they have more experience with similar apps[45].

Khalil (2020) considers the creation of CTAs as a part of digital authoritarianism, also known as tech-enabled authoritarianism. This author thinks that authoritarian governments use such technology "not only to control, but to shape the behaviour of its citizens via surveillance, repression, manipulation, censorship, and the provision of services in order to retain and expand political control". China is considered to be one of the main practitioners, and in particular it is spreading its digital authoritarianism model and mechanisms through a combination of technology exports, domestic example-setting, and international engagement[46].

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44 Chumtong Jason, Stiftung Konrad Adenauer (2020). "Phone tracking against COVID-19 Using digital technology against an analogue virus". https://www.jstor.org/stable/resrep25296

45 Kostka Genia (March 05, 2021). Covid-19 contact tracing apps: why they are so popular in China. https://merics.org/en/short-analysis/covid-19-contact-tracing-apps-why-they-are-so-popular-china

Under pandemic conditions, China's pervasive digital surveillance system is on full display. From a public health perspective it is very effective, as it managed to automate contact tracing thanks for its capacity for surveillance and big data analytics. This system combines facial recognition technology, security cameras in both public and closed spaces, social media monitoring, telecommunications tracing, and the tracking of digital passenger information. All this is possible thanks to the data collection via GPS tracking, facial recognition software, and public temperature detection tools which are being highly supported by Chinese technology companies. In addition to grid management system to keep tabs on the Republic's citizens, the government uses a robust human surveillance network. In such way it copes with monitoring of residents who are suspected of breaching quarantine rules[47].

China deployed its existing digital surveillance programs in order to combat the pandemic, but that has felt more intrusive[48]. While surveillance cameras were already omnipresent in the public square, Chinese authorities found an additional excuse in the health crisis to install cameras outside citizens' front doors or even inside their residences. This was made to enforce quarantines, a move formerly reserved for those who had previously been detained or lived within the Xinjiang region[49]. The surveillance camera footage is linked to police smart phones, it flags quarantine breaches and allows police to continually monitor living quarters, thus, increasing the invasion of citizens' privacy.

Moreover, China has expanded its surveillance capabilities in other ways by deploying thermal temperature scanners and facial recognition technology at transport stations and other public places. Supported by such technologies as SenseTime, the cameras are able to identify individuals even when faces are partially obscured with masks. Shawn Yuan (2020) says that "in response to calls by central authorities for more effective tools for combatting coronavirus outbreaks, other Chinese companies such as Megvii are using AI to integrate body detection, facial recognition, and body temperature"[50]. In addition, Ghosh Shona (2020) reports that "wearable technology company KC Wearable has developed 'smart helmets' that it claims are able to detect individual temperatures of passers-by, scan QR codes for personal data, and recognise licence

46 Khalil Lydia (2020). "Digital Authoritarianism, China and C0VID". Lowy Institute for International Policy. https://www.jstor.org/stable/resrep27665

47 "Grid-based Communication Workers Power Up China's Grassroots Coronavirus Fight". Xinhua (1 March 2020). http://www. xinhuanet. com/english/2020-03/01/c_138832911. htm.

48 Yingzhi Yang and Julie Zhu, "Coronavirus Brings China's Surveillance State Out of the Shadows", Reuters, 7 February 2020, https://www. reuters. com/article/us-china-health-surveillance/coronavirus-brings-chinassurveillance-state-out-of-the-shadows-idUSKBN2011HO.

49 Charlie Campbell, "'The Entire System is Designed to Supress Us.' What the Chinese Surveillance State Means for the Rest of the World", Time, 21 November 2019, https://time.com/5735411/china-surveillance-privacyissues/

50 Yuan Shawn (1 March 2020), "How China is Using AI and Big Data to Fight the Coronavirus", Al Jazeera. https://www.aljazeera.com/news/2020/03/china-ai-big-data-combat-coronavirus-outbreak200301063901951.html.

plates, as well as identify people using facial recognition software"[51]. In this way, Chinese authorities are able to collect extensive information via the government's system that requires government-issued ID to access smartphone SIM cards, sign up for social media accounts, and travel on public transport. Using location tracking and tracing through more than 200 million cameras that employ AI for facial recognition, authorities can now integrate this data with information on personal biometrics.

To sum it up, there are people who believe that CTAs produce benefits, but at the same time there are also those who think that the apps do not actually measure the circumstances that are known to be important in COVID-19 transmission and, moreover, they serve as an instrument to support digital authoritarian regime. However, with lockdowns in effect, devising methods to carry out necessary functions at a distance have become priority number one in healthcare system.

1.6 Civil Society Response

Although governments have taken the initiative in fighting the pandemic of COVID-19, civil society engagement (that in this case refers to the organizations or organized individual actions that are not directed by the state and are not primarily profit seeking but voluntary) has been crucial against this proliferating infectious disease, either by reinforcing government-led efforts or by bridging government institutional gaps.

In the paper *Civil Society Responses to the COVID-19 Pandemic*, authors have observed that civil society responses to COVID-19 in China shifted depending on the pandemic stage and crisis level. They identified four roles played by civil society that have enhanced social resilience in China: social donation, service delivery, information dissemination and advocacy.

During the first stage of the virus management I mentioned earlier, the civil society responses mainly involved **donations** of money and medical supplies and voluntary services. In the expansion period, the civil society sector continued to raise donations and provide service to quarantined people. Various platforms for information dissemination were constructed and operated to improve distribution of supplies.

Furthermore, the Chinese authorities revised its regulations regarding charitable organizations. It happened thanks to volunteer initiative of the population to donate to combat the pandemic. On February 14, 2020 the Chinese Ministry of Civil Affairs adopted new policy which gave equal importance to charity organizations and the Red Cross in fundraising activities. The

51 Ghosh Shona (17 May 2020), "Police in China, Dubai, and Italy are Using these Surveillance Helmets to Scan People for COVID-19 Fever as they Walk Past and it May be our Future Normal", Business Insider. https://www.businessinsider. com. au/coronavirus-italy-holland-china-temperaturescanning-helmets-2020-5?r=US&IR=T.

amendments gave freedom to the civil-society organizations to allot donated funds and medical supplies avoiding the transfer to the Red Cross.

After the new case curve flattened, civil society organizations (transnational and not) switched to helping and supporting groups badly affected by the pandemic. According to the White Paper on Fighting COVID-19, a total of 38.93 billion RMB and 990 million items of various materials had been received by the end of May. Furthermore, as of 2 March 2020, preliminary statistics show that online donations to COVID-19 related programs reached 1.57 billion RMB.[52] The huge donations mobilized by the civil society sector have greatly alleviated the shortage of resources, especially in the early stages of the pandemic.

The civil society sector also provided imperative social services, in fact by the end of May 2020, almost 9 million registered volunteers had participated in more than 460,000 project across all China.[53] Considering that there were a lot of groups of non registered volunteers, the actual numbers are higher than reported. Volunteers have actively participated in assisting people in facing quarantine-related constraints: they measured residents' temperatures at toll stations, distributed consumer goods, purchased medicine for quarantined residents, and delivered food to medical workers.

Social media have played an important role in lives of home isolated residents and patients in hospitals. Due to an extreme shortage of beds in medical institutions of Wuhan at the beginning of the pandemic, most of them used social media to ask for help, especially to buy groceries. Hu (2021) reported for metropolitics.org: "Pneumonia patients asking for help" soon became a "Super Topic" on Weibo and helped a number of patients get media attention and hospital beds. As of March 23, 2020, the Super Topic had been viewed more than 5 billion times. […] In the face of lockdown, some homeowners' committees (yezhu weiyuanhui) formed different chat groups on WeChat, organizing group purchases from nearby vegetable, meat, and dairy suppliers"[54].

Another important area of volunteering is online counseling. With the escalation of the virus epidemic, the number of people burdened with psychological stress has extremely increased. The groups requesting counseling services included health care workers, patients and quarantined residents. In these cases, civil society organizations have come forward to provide online advisory services to fill the government's institutional void.

52Cai, Qihai, Aya Okada, Bok Gyo Jeong, and Sung-Ju Kim. "Civil Society Responses to the COVID-19 Pandemic: A Comparative Study of China, Japan, and South Korea." *China Review* 21, no. 1 (2021): 107–38. https://www.jstor.org/stable/27005557.

53Cai, Qihai, Aya Okada, Bok Gyo Jeong, and Sung-Ju Kim. "Civil Society Responses to the COVID-19 Pandemic: A Comparative Study of China, Japan, and South Korea." *China Review* 21, no. 1 (2021): 107–38. https://www.jstor.org/stable/27005557.

54 Hu Beiyi (18 May 2021). "Covid-19 in China: A Civil Society in the Making". https://metropolitics.org/Covid-19-in-China-A-Civil-Society-in-the-Making.html

However, according to the opinion of Hu and Sidel (2020), "the majority of volunteers were organized or even directly managed by state agencies such as CYL branches and Party branches, in addition to NGO-led volunteers and autonomous volunteer groups"[55]. Moreover, the Chinese Ministry of Civil Affairs obliged all volunteers to "submit to the arrangement of local Party committees and government departments and not to provide offline service out of their own (local) region". Previously the authorities made distinctive steps towards development of a state-led volunteer management system and even created a special legal framework. And this extraordinary participation of youth in the epidemic response has low chance to create a civil society force, but at least it might make the power state more flexible.

In order to reduce the disinformation and information inaccuracy, another role of civil society organizations was a distribution of medical supplies through information and communication technologies. An important example of information dissemination has been the "Handbook of COVID-19 Prevention and Treatment" distribution facilitated by the Alibaba Foundation and the Jack Ma Foundation on 18 March 2020. The two foundations collaborated with the First Hospital of Zhejiang Province to compile the handbook and translate it into different languages to share the experiences in combating the virus with other countries[56].

Last, civil society promoted public awareness of marginalized groups. Seeing as the COVID-19 pandemic has disproportionately impacts different societal groups, vulnerable and high-risk groups have required extra support. For this reason several organizations set up special programs to raise public awareness and provide financial assistance for groups, including medical workers, sanitation workers, and volunteers. For instance, the China Foundation for Poverty Alleviation implemented an assistance program for sanitation workers that were infected by the coronavirus. Another example is the Alipay Foundation and Adream Foundation that initiated the "Smart Learning" program. This program has helped children and young people in financial difficulty without phones and electronic devices needed to attend online classes. They donated computers and tablets to them and raised funds to purchase additional educational equipment.

The Chinese government has recognized the great potential of civil society responses to mitigate the damage of COVID-19 in the early stage of the pandemic. As early as January 26, 2020, the Ministry of Civil Affairs supported the mobilization of social resources and donations by social organizations to support Wuhan. However, such collaborations varied between locations and types of civil society organizations. For example, local governments in Zhejiang Province have

55 Hu Ming, Sidel Mark (2020). "Civil Society and COVID in China: Responses in an Authoritarian Society". https://journals.sagepub.com/doi/10.1177/0899764020964596

56 Cai, Qihai, Aya Okada, Bok Gyo Jeong, and Sung-Ju Kim. "Civil Society Responses to the COVID-19 Pandemic: A Comparative Study of China, Japan, and South Korea." *China Review* 21, no. 1 (2021): 107–38. https://www.jstor.org/stable/27005557.

strategically partnered with community organizations to mobilize volunteers, collect donations and medical supplies and provide social services. Volunteers were mobilized to disseminate updated information on the pandemic situation and help community residents purchase and distribute supplies. By harnessing the strengths of civil society, Zhejiang has managed to contain COVID-19.

Regarding **non-governmental organizations** (NGOs) and **government-organized non-governmental organizations** (**GONGOs**)[10], the government decided to collaborate more with GONGOs than civil society organizations. During the pandemic, only five GONGOs (the Hubei Red Cross Society, the Wuhan Red Cross Society, the Hubei Charity Federation, the Wuhan Charity Federation, and the Hubei Youth Development Foundation) were assigned by the Ministry of Civil Affairs to receive donations for Hubei Province. However, the massive donations to Wuhan exceeded the management capacity of the assigned GONGOs, and the public criticized GONGOs for inefficiency in distributing materials to medical workers.

The Law on the Administration of Activities of Overseas Non-Governmental Organizations within the Territory of China, enacted in January 2017, has significantly affected the operation of overseas NGOs (ONGOs) in China. This law could be intended as a main part of the background of transnational engagement of the Chinese civil society sector during the pandemic. According to the Overseas NGO Law, if an ONGO has to carry out activities in China, it has to register with an established representative or submit documents for the record concerning any temporary activities. Many ONGOs, that have a long history of assisting Chinese society in dealing with social problems such as HIV/AIDS prevention and environmental protection, could not full this requirement on time, resulting in major decrease of their activities in China.
In the early phase of the pandemic, China also received assistance from the global community. For example, both Japan and South Korea donated necessary 532 medical materials to China soon after the outbreak of COVID-19. Another example is alumni associations utilizing their alumni networks to collect donations and medical materials for China worldwide. As of May 2020, the Hubei Charity Federation has received donations valued at 200 million RMB from over 300 ONGOs. However, the number would have been much higher if the ONGOs were allowed to operate as before the Oversea NGO Law[57].

While restricting ONGO activities in China, the Chinese government increasingly encourages Chinese civil society organizations to go abroad and help the countries related to the Belt and Road Initiative (BRI) to increase its power influence. Soon after the pandemic's outbreak, the Chinese Association of NGO Cooperation (CANCO) emphasized medical assistance in its

57Cai, Qihai, Aya Okada, Bok Gyo Jeong, and Sung-Ju Kim. "Civil Society Responses to the COVID-19 Pandemic: A Comparative Study of China, Japan, and South Korea." *China Review* 21, no. 1 (2021): 107–38. https://www.jstor.org/stable/27005557.

collaborative action plan for the BRI countries. In May 2020, CANCO collaborated with Chinese civil society organizations in order to provide medical supplies, traditional Chinese medicine, and experience-sharing webinars for over 20 countries.43 Some large foundations, such as the Tencent Foundation and Alibaba Foundation, have also offered medical supplies to almost 150 countries.

On 21 April 2020, the state media *People's Daily* (人民日報 rénmínrìbào) explicitly praised the contribution of Chinese civil society organizations in fighting against the pandemic. However, the lack of institutional channels for participation still hinders the civil society sector from fully achieving its potential impacts. In fact, only the assigned GONGOs were allowed to receive donations for Hubei Province. Many civil society organizations that have proven to be more transparent and efficient in distributing donations and materials were prevented from playing a bigger role in pandemic relief. Second, in the shadow of the Overseas NGO Law, ONGOs' activities and monetary flows are heavily constrained in China, and thus they are precluded from playing a noticeable role in responding to the pandemic.

In the paper *Civil Society Responses to the COVID-19 Pandemic*, authors write that China has adopted the strategy of graduated control of civil society, which is promulgated according to the capacities of the civil society organizations to challenge the state and the value of the public goods they provide.13 In fact, grassroots civil society organizations still find it extremely challenging to obtain formal legal status from the Chinese government.

Experts have argued that the civil society sector has a more community-based approach that is seen as more motivated, flexible and creative than conventional government agencies and businesses. Existing studies of extreme events and disaster management have paid attention to the sector of civil society organizations and have found that the most significant feature of the involvement of these organizations in the response to extreme events is cross-sectoral collaboration. Furthermore, authors have also identified some key factors for successful cross-sector collaboration such as confidence building between civil society actors and the government and transnational links between different civil society organizations.

From this situation it was understood that detection and reporting are of fundamental importance to stem the spread of an epidemic. Relying solely on large public hospitals is not an efficient means of preventing disease. The COVID-19 outbreak has exposed some of the weaknesses of community hospitals, which are supposed to act as guardians for the health of their residents. These weaknesses include the relatively limited capacity of their primary care services, which prevents patients from even visiting nearby community hospitals for diagnosis and treatment and the lack of fever clinics or trained staff, or even hospital beds. Many community hospitals and clinics in China.

Consistent efforts are needed to empower community hospitals and address public mistrust. Feasible approaches could be setting up standard fever clinics and fever screening checkpoints to improve early warnings of infectious diseases; providing medical staff with regular training to enhance their ability to detect infectious diseases during regular medical services; upgrading infrastructure and equipment, strengthening reserves of medical equipment, and boosting primary care services; improving the deployment of Internet and Information Technology, thus narrowing the gap between community hospitals and well-equipped large public hospitals; substantial reform of the general practitioner system (healthcare workers with adequate knowledge in all branches of medicine) and the establishment of an effective primary diagnostic process and a two-way referral system.

Furthermore, to exacerbate public distrust of medical personnel it would be necessary to create antagonistic model of economic interests between doctors and patients should be broken; the monopoly of medical information should be reduced, and a mandatory medical information disclosure system should be established; doctor-patient communication should be given importance, and the information gap between doctors and patients should be narrowed; the construction of medical ethics should be strengthened, and the professional image of the medical staff should be maintained.

Simultaneously, while Internet hospitals have proven to be indispensable in responding to the epidemic, their healthcare benefits beyond the situation have also become evident.

However, some of these benefits are coupled with barriers and challenges that must be addressed. These problems may be attributed to several factors, such as medical reimbursement, willingness of clinicians, and the staff of the Internet hospital. Medical insurance is an integral part of healthcare; thus, online medical reimbursements have to be popularized. With the integration of medical insurance into Internet-based healthcare, a closed loop is formed. Patients can enjoy online consultations, online reimbursement, and drug deliveries without leaving their homes. Patients in rural areas via can be connected to improved medical resources via Internet hospitals. Nonetheless, not all healthcare workers have a thorough knowledge of online healthcare. At a time of need, a large number of clinicians revert to the previous means of interacting with the traditional healthcare system. Online healthcare needs to be integrated into medical education, driving their significant inclusion in clinical practices in the future. Last, to further promote the use of online healthcare in the post-epidemic era, Internet hospitals have to set a better mode and standard. Country regulations, quality of healthcare services, stable social networks, patient privacy, and data security remain top priorities. Thus, Internet hospitals can bring more social value and influence into the entire healthcare system. Overall, human victory over epidemics depends on technological

innovation and scientific development. Indeed, emerging technologies such as 5G, AI, and Internet hospitals played a key role in containing the disease. However, these new forces were not included in the emergency action plan for epidemics. Thus, they should be adapted to the new normal coping mechanism for possible epidemics in the future.

Chapter 2

Health coverage for Covid-19 patients in China and access to healthcare

2.1 Chinese healthcare system before explosion of COVID-19

Before analyzing the current healthcare system and hospitalization in China during the COVID-19 emergency, it is important to make a summary of them in the previous years. I am going to consider the development of the Chinese healthcare system starting from the Deng Xiaoping era, reforms of the 2000s until the period before the explosion of COVID-19.

The Chinese healthcare system was exposed to many changes in the last sixty years. Local scientists and experts gave attention to the bioethics just in the 1960s, thus this science is quite young. Deeper research on medical ethics started in the 1970s. At those times most Chinese citizens could benefit from low cost health services and they were equally available both in rural and urban areas of the country.

Later the Chinese government of Deng Xiaoping took radical socio economic reforms which caused enormous economic growth. In the late 1970s their implementation transformed the Maoist era social welfare system, they fostered economic development and allowed the citizens to make health investment decisions. However, these reforms also caused some negative developments in the areas of public health. The society's resources were significantly reallocated, so their distribution was completely deregulated. The changes in the healthcare environment caused the behavior of the consumers.

In the last twenty years many scientists specified that there are some declines in care utilization (Bloom and Gu 1997; Hesketh and Zhu 1997a; Gao and others, 2001). They were very concerned about the new reforms, as the less advantaged groups, losing the state-provided health insurance, could have much less access to healthcare utilization. People's inequality was not deeply examined, as the government strived for the economic boost by transforming the medical system. So, in the end no one cared about the rural citizens. The change of utilization patterns created a big gap in the understanding of the effects of the reforms among the population.

All parts of the country were struck by evolving economic development and institutional changes. For instance, Akin and others (2004) report "differences in changes to health insurance coverage across communities during the 1990s. However, an informed policy response to non-random reductions in utilization also requires a clearer understanding of the distribution of changes in access to care"[58].

In the meantime the bioethics was evolving together with the healthcare system. Tristram Engelhardt, Jr. (1980), a Ph.D., M.D., is Rosemary Kennedy Professor of the Philosophy of

58 Changes in access to health care in China, 1989–1997

Medicine at the Kennedy Institute of Ethics, Georgetown University, traveled around China in summer 1979 and met with government officials, physicians, philosophers, judges and others to collect the information about the bioethics in China. This is what he noted in his article: "Free health care is provided only to a portion of the population. We were informed, for example, that members of communes and factories were completely covered out of the resources of the communes; others were usually not covered. We were also told that in many cases parents were required to pay at least half of the costs of their children's medical care, and the third or fourth child received no free care. However, medical care is provided at a cost that does not appear to limit access. Moreover, there seemed to be an implicit judgment that concern for costs is salutary; communes and factories as units are required to consider the amount and nature of medical care and the conditions under which it will be provided. As a result, the general appointments of the commune hospitals we visited would have made any charity hospital in the United States appear luxurious in comparison" (Tristram Engelhardt, Jr., 1980)[59].

In the 1980s the Chinese Association for Medical Ethics was founded and the courses on biomedical bioethics became obligatory (Hennig, 2006). Medical students were taught by the first important textbooks, among which there was the "Medical Ethics" published by Qiu Xiangxing in 1983. Additionally, the Ministry of Public Health adopted the first legal regulations on medical ethics[60] and all this supported the development of the bioethics at the initial stage.

Even if, on one hand, the reforms of Deng Xiaoping boosted the economy, on the other hand, they brought to the breakdown of the Cooperative Medical System in the countryside and the destruction of the Labor Insurance Scheme in big cities (Wu 2003 cit. in Zhao 2006). At those times there were three main types of medical insurance before the transformation of the healthcare system:

- Government Insurance Scheme;
- Labor Insurance Scheme;
- Cooperative Medical System.

The first type was financed directly by authorities at various levels and was targeted at employees of public organizations (staff of cultural, health, educational and research institutes and to students at colleges and universities). The second one gave full or partial medical care coverage to people working in state or collective enterprises and their family members. And the last one gave benefits to the countryside citizens. This system worked thanks to the contributions from participants and was greatly sponsored by the collective welfare funds.

59 H. Tristram Engelhardt, Jr. (1980). "Bioethics in the People's Republic of China". The Hastings Center Report , Apr., 1980, Vol. 10, No. 2, pp. 7-10. https://www.jstor.org/stable/3561270

60 Hennig Wolfgang (2006). "Bioethics in China". European Molecular Biology Organization. EMBO reports. Vol 7, N. 9

Since the beginning of the integration of Deng Xiaoping reforms, these health insurance schemes started deteriorating. That was a cause why most Chinese lost their guaranteed access to free or highly sponsored health services. In addition, due to the rising market cost of health care, it became increasingly difficult for the poor people to obtain adequate care.

Another negative aspect of those reforms was a rapid increase in inequality in the distribution of income and wealth (Wu and Perloff (2004, cit. In Zhao 2006). During Mao era there were unique wage standards which were established by the government and applied across the country with moderate variations, so the income difference among the Chinese population was not big.

However, in the 1960s and 1970s the authorities set the development and economic growth as the main priority of socio economic reforms. Government regulations on economic equality were replaced by those that fostered rapid economic growth and new reforms have broken the "iron rice bowl". This brought to a dramatic increase of the income inequality which has grown at a frightening rate over the last fifty years. Chinese population had to face huge interregional and intraregional differences in socioeconomic conditions. The standards of life in urban and rural areas differed a lot. People started losing their jobs as a lot of enterprises and factories went bankrupt during those years.

During the period 1979–1991, the Chinese government concentrated on transformation of hospital incentives. It introduced prepayment and co-payment systems, in addition, it established fee-for-service, allowed private ownership, gave more independence to hospitals, and stipulated other forms of insurance. In addition, western companies provided with new technologies. These interventions together with privatization increased the cost of medical care and made health insurance less affordable for the Chinese population. Then at the beginning of 1991 the government introduced risk pooling and deductibles in the health care system. In such way China tried to lighten the burden of state-owned enterprises and to make the access to health insurance more affordable (Du 2009)[61].

Later on it also made an attempt to support the population and at least to follow some ethical norms. In 1998 the Ministry of Health of China issued a provisional document which stipulated certain procedures to be followed while making any biomedical research involving humans in China. In particular, it stated that ethical reviews are "based upon the principles of ethics accepted by the international community". Additionally, it provided duties of investigators, rights of people participating in research, legal framework for requesting their consent, and the administrative management of ethical reviews and legal responsibilities (Hennig, 2006).

61 Du Juan (2009). "Economic reforms and health insurance in China". Soc Sci Med. 2009 Aug; 69(3): 387–395. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7116972/

But at the beginning of 2000s the economic difference in the society did not change much. In the last twenty years, China's health services were commercialized as part of market-oriented economic reforms and became increasingly profit driven. The National Bureau of Statistics (2004, cit. in Zhao 2006) registered that urban unemployment rates varied at 3-5% in most provinces. Even if this level is not considered high by international standards (Zhao 2006), unemployed people and their families lived in difficult conditions, also because the government provided inadequate unemployment benefits. Moreover, citizens of the countryside faced harvests, natural disasters, or other types of crises which also affected their economic situation. In addition, they lost their health care benefits because of the reforms in China's health care system. According to Wu (2003: 234 and 244), "in the late 1970s, more than 75 percent of urban employees and retirees were covered by the Government Insurance Scheme or the Labor Insurance Scheme, and such benefits often extended to their immediate dependents. The Cooperative Medical System operated in 90 percent of villages throughout rural areas, although the level of benefits provided by the system was modest".

Taking into account the cost of health care which rose sharply in the last twenty years, all the above-mentioned changes made a negative impact on people's access to medical services. According to the data of the Ministry of Health, since 1990 per capita income in 1999 increased by 288 percent in big cities and 222 percent in less developed areas. And so did the fees for medical care. Rao and Liu (2004: 51) report that "the cost of visiting doctors rose by 625 percent and in-hospital treatments by 511 percent during the same period".

The economic difference between urban and rural areas was tremendous. In 2003 in the large cities, the average annual income declared was seven times and the average expenditure six times the level of the countryside (Zhao, n.d.). In many rural areas the income level was below the internationally recognized poverty line of one dollar per day.

Inequality in income distribution and poverty affected the availability and accessibility of health services. This also brought to fluctuation of mortality levels among the Chinese population. Due to low incomes people did not get enough decent nutrition, and such situation was a very serious problem in China in the 2000s. According to the report published by the World Health Organization in 2000, 10 percent of kids who did not reach the age of five were underweight (WHO 2004); in humble countryside the measurement was more than 20 percent[62].

The level of nutritional intake was especially critical in the countryside. Due to the low income, the poor population found it difficult to get health care. According to the data of the National Health Services Survey, in 2000 people in the countryside spent typically 144 yuan on

62 Zhao, Zhongwei. "Income Inequality, Unequal Health Care Access, and Mortality in China." *Population and Development Review* 32, no. 3 (2006): 461–83. http://www.jstor.org/stable/20058900.

health care. Constituting 12 percent of the average annual income, it faintly exceeds the average cost of a sole medical visit which was 112 yuan in the same year.

The life of people in less developed rural areas gets complicated also by a hygienically inadequate environment. As shown in Zhao's "Income Inequality, Unequal Health Care Access, and Mortality in China", sanitary facilities with drainage systems and access to tap water are nearly universal in medium and large cities. On the other hand, in most rural areas, families using toilets with water drainage systems represent less than 5% and less than a third of residents use tap water (Zhao, n.d.). About 90% of sanitation facilities are considered unsanitary in rural types 3 and 4. Despite notable progress in improving drinking water and sanitation facilities in recent years in rural China, inadequate supplies of drinking water and a lack of sanitation remains the main factors likely to contribute to the high mortality rate from infectious diseases and the high prevalence of digestive system diseases (Zhao, n.d.).

Apart from people's living standards and environmental issues, there is also another factor which influences population's health – its knowledge, education and availability of information on health and disease prevention. Normally people living in the countryside have scarce information on how the healthcare system works. According to a research carried out by the Center for Health Statistics and Information of MOH in 2004[63] in large and medium-sized cities, about three quarters of respondents reported obtaining health information and two thirds of respondents cited books, journals and health care as primary sources of knowledge; but, in rural areas of types 3 and 4, only 36% of people reported having information about it and less than 10% cited sources. In cities, almost 95% of respondents reported that they knew or talked about diseases such as HIV / AIDS and less than 40% in rural areas. Behaviors such as disease control and the use of preventative measures such as vaccinations are given by people's awareness and knowledge of health. In some of China's less developed or remote rural areas, such as parts of Henan, Guangxi and Yunnan, people faced dramatic spread of HIV / AIDS due to their low awareness of such illness (Office of the State Council AIDS Working Committee and United Nations Thematic Group on HIV / AIDS in China 2004).

Furthermore, in the urban and rural economic difference there was another important topic – access to health insurance. It was estimated that 79% of China's rural population and 45% of China's urban population were not covered by health insurance in the 2000s.

Due to the vulnerability of people in rural areas and the shortage of insurance, the government adopted the New Rural Cooperative Medical Scheme. According to the 2003 National

63 Zhao, Zhongwei. "Income Inequality, Unequal Health Care Access, and Mortality in China." *Population and Development Review* 32, no. 3 (2006): 461–83. http://www.jstor.org/stable/20058900.

Health Services Survey, in comparison with the beginning of 1990 people who possessed different types of insurance constituted less than one-third. In large and medium-sized cities the coverage of the population by the insurance looked as follows:

- Government or the Labor Insurance Scheme – 10%;
- Basic Medical Insurance – 40%;
- Other types of health insurance coverage – 10%;
- No health care coverage – 40%.

In the countryside the situation was even worse. 80% had no health care coverage at all and just few of the people in rural areas had access to the Cooperative Medical System or other health insurance schemes.

Despite the big financial difference between urban and rural areas, China continued to commercialize its healthcare system and get some profit from it. If in 1980 China spent 14.3 billion yuan in this sector, then in 2002 the total health expenditures rose to 568.5 billion yuan. This increased the gross domestic product (GDP) of the country from 3.2 percent to 5.4 percent. As usually it happens, this growing financial burden fell largely on individuals. Rao and Liu (2004: 37) report that the health expenditures of people augmented 110 times: from 3.0 billion yuan to 331.4 billion yuan, and "government health spending as a percent of GDP decreased from 1.1 percent to 0.8 percent, but the total amount spent by individuals as a percent of GDP increased from less than 0.7 percent to 3.2 percent".

Furthermore, the Chinese government invested in medical facilities in urban and more developed rural areas. They could provide almost the same numbers of doctors and hospital beds and the types of healthcare and medical treatments like in industrialized countries. Instead, the rural areas lost their qualified medical professionals, the number of which decreased because of the inadequate government investment in health in less developed rural areas. While the quantity of medical experts working in county-level hospitals or other health facilities rose from 1.3 million in 1977 to 1.5 million in 2003, the rural areas suffered from lack of healthcare professionals. As Rao and Liu (2004: 35) report the countryside lost almost 1 million village doctors and 2.6 million health workers during the same period. Such outflow increased much more the difference in quality and accessibility between medical services in China's large cities and its less developed rural areas.

The cost of medical treatment varies, too, and it depends on the seven types of areas: North, Northeast, East, South, Middle, Southwest and Northwest China. According to the National Health Services Survey, "about 28,000 people out of nearly 200,000 respondents reported illnesses during

the two weeks before the enumeration. Slightly more than half of them visited doctors for treatment, and a total of 26,000 visits were recorded"[64].

Obviously, such visits cost much higher in large and medium-sized cities than in less developed rural areas. There are two main factors which influence the high fees:

- in large and medium-sized cities people can benefit from advanced treatments and tests which are quite expensive; and
- medical personnel in large cities get higher salaries than in rural areas which also increases the labor costs.

All this augmented the cost of visiting doctors and heavily struck the wallets of the population. Taking in consideration the average incomes in these areas, a single visit cost almost 50% of a person's monthly salary.

Facing financial difficulties, half of the sick people preferred not to refer to a doctor, but to treat the disease themselves and 13 percent had to skip the cure at all. While the proportions of such people were close to 50 percent in rural areas, there were 3 percent of all patients in big cities who could not afford the treatment because of its high price.

The latter also influences the decision making on receiving in-hospital treatment. In 2003 nearly 3% of the participants of the survey were put into hospital for a total of about 7,000 times for treatment[65]. In large cities, each in-hospital treatment lasts an average of 21 days, in rural areas – twice less. In addition, the average total cost for in-hospital treatment depends on the geographical position of the medical institution. Usually it is much higher in large cities than in less developed areas. In general, the average cost of in-hospital treatment approximates or exceeds a person's average annual income, which is expensive by international standards. Zhao (2006) reports:

> "Largely because of the high cost, 43 percent of in-patients in all surveyed areas asked to be discharged from hospitals before the date recommended by the doctor. This proportion is highly related to the level of socioeconomic development, income levels, and the extent of coverage by medical care schemes in each area. As expected, the majority of persons asking for an early release did so because of economic difficulties. In large cities, 41 percent of patients who wanted to be discharged early attributed this to high costs. In addition, a large number of patients who were recommended for in-hospital treatment declined it, with the figure varying from 23 percent to 36 percent across the seven types of areas. Again, economic difficulty was the major consideration in such decisions. In small cities and rural areas, 75 percent of those who declined in-hospital treatment cited cost. In medium-sized cities, the proportion of patients declining in-hospital treatment for financial reasons is noticeably lower than in all other

64 Zhao, Zhongwei. "Income Inequality, Unequal Health Care Access, and Mortality in China." *Population and Development Review* 32, no. 3 (2006): 461–83. http://www.jstor.org/stable/20058900.

65 Zhao, Zhongwei. "Income Inequality, Unequal Health Care Access, and Mortality in China." *Population and Development Review* 32, no. 3 (2006): 461–83. http://www.jstor.org/stable/20058900.

areas. This is most likely caused by reporting or coding problems in one of the districts (Lubei district in Tangshan, Hebei province), where 85 percent of those who declined recommended in-hospital treatment reportedly did so because they felt the treatment was unnecessary and only 9 percent cited financial difficulty. If Lubei district is excluded, the proportion of patients in medium-sized cities declining in-hospital treatment because of financial difficulties increases to about 63 percent, virtually the same figure as recorded in large cities".[66]

To sum up to this point, we can see how the reforms taken by Deng Xiaoping started splitting the population by economic factors. Striving for financial growth and commercializing the healthcare system, the Chinese government cracked the society into those who have money and can afford necessary medical treatments and those who do not.

However, following the years of the spread of the "swine flu", Disease Control and Prevention System (DCPS) were subject to transformation in mainland China (Li and others, 2016). The government kept focus on expansion of DCPS infrastructure and made it a national health policy priority. Within the next 10 years the Chinese authorities augmented significantly funding of the 31 provincial and 2,858 county-level centers. Of course, the financing and the efficiency of the DCPS operations were always subject to a relative improvement.

In 2007 the Chinese authorities implemented the Urban Residents Basic Medical Insurance the scope of which was to increase coverage for urban unemployed citizens, including children, students, elderly people without previous employment, and unemployed people (Li and others, n.d.)[67]. In 2009 the Chinese government set the goal of expanding health insurance and implemented additional reforms. They were aimed at strengthening the capacity of primary care and improving essential medicine policies. Plus they were created to transform the model for receiving funds by public hospitals and primary care facilities, and to deliver essential public health packages. In such way China managed to increase the rate of health insurance coverage to 95% by the end of 2019 (Yip and others, 2019)[68].

To transform its healthcare system China spent a lot of money. Starting from 1995 until 2018 the total health expenditure increased 27.4 times: from 215.51 billion CNY to 5912.2 billion CNY. At the same time as a percentage of GDP it increased from 3.51% to 6.57%. In 2018, health expenditure per capita was 4237 billion CNY[69]. In general, the healthcare system was mainly financed by three sources:

66 Cai, Qihai, Aya Okada, Bok Gyo Jeong, and Sung-Ju Kim. "Civil Society Responses to the COVID-19 Pandemic: A Comparative Study of China, Japan, and South Korea." *China Review* 21, no. 1 (2021): 107–38. https://www.jstor.org/stable/27005557.

67 Mirandy S. Li, Qiufan Fu, MS, and Ting Luo, MPH (Spring 2020). "The Hospital Response to COVID-19 in China". Journal of Health Care Finance". VOL. 46, NO. 4.

68 Mirandy S. Li, Qiufan Fu, MS, and Ting Luo, MPH (Spring 2020). "The Hospital Response to COVID-19 in China". Journal of Health Care Finance". VOL. 46, NO. 4.

69 Zhao, Zhongwei. "Income Inequality, Unequal Health Care Access, and Mortality in China." *Population and Development Review* 32, no. 3 (2006): 461–83. http://www.jstor.org/stable/20058900.

- tax-based governmental funding - 27.7%,
- social health insurance - 43.7%; and
- private out-of-pocket payment - 28.6%.

In 2018 the government provided hospitals, including public ones, with additional funding and service-based revenues. The share of public hospitals was bigger than the one of private hospitals and they provided 79% of sickbeds in the country. Zhao reports that "in 2018 there were 997,433 healthcare facilities, 6519,700 hospital beds, 3607,156 doctors and 4098,630 nurses in China". All hospital beds nationwide provided 3.43 intensive care unit beds per 100,000 population (Chinese Society of Critical Care Medicine). In addition, the authorities integrated a general practitioner system, the number of which constituted 308,740 at the end of 2018 (Xu and others, 2020).

Later in 2003 when the country faced the outbreak of the "swine" flu, the Chinese government strengthened financial support to public health institutes and sponsored the construction of new infrastructure, public health service delivery and provision of necessary capacity.

Nowadays, being a highly centralized country, China allocates its resources in various circumstances. In common, the Chinese health system can be divided into four levels: national, provincial, municipal and county-level authorities. The main health authority on the national level is the National Health Commission (NHC). It manages different types of issues connected to the national health policy, healthcare service provision, public health and health emergency management. NHC collaborates with such authorities as Ministry of Civil Affairs, National Development of Reform Commission and National Healthcare Security Administration. Their main scope is to cover the functions of financial forecast, funding and insurance management in the health system (Zhao, Z. (n.d.). *Income Inequality, Unequal Health Care Access, and Mortality in China)*.

Currently all public medical establishments get full financing from the government. It also supports and encourages private investment in the healthcare market. However, it comes without saying that most healthcare resources are concentrated in urban areas than in rural ones.

Thus, before struggling with COVID-19 China had still to cope with challenges which followed all the above-mentioned reforms. Rural areas had much less medical resources than urban areas (J. Xu et al., 2019). It means that there is still big difference between large cities and less developed areas of China, between rich and poor people. So, the first ones have more access to healthcare benefits and necessary treatments in the hospitals than the second ones. This factor would still exist at the management of medical system during COVID-19.

2.2 Development of insurance system in China before COVID-19

The spread of the epidemic has posed a major challenge to the medical insurance work. Before the analysis of the influence of COVID-19 on it, I would like to give an introduction to the public health insurance expansion in China.

There are three main stages of the progression of public health insurance in China. The first one refers to the period from 1949 to 1978 when the country experienced various economic reforms. The Chinese government established the programs which were the primary step to the insurance programs. More details can be found in Table XX.

Type of the program	Target	Source of financing
Government Medical Insurance (GMI)	state employees and workers	government
Laobao Medical Scheme	employees of state-owned and collectively-owned enterprises	operating profits of state- and collectively-owned enterprises
Rural Cooperative Medical Insurance (RCMI)	countryside residents	individual farmers' contributions, collective agriculture and enterprise activities at rural community level

Table XX. Types of initial insurance programs operated from 1949 to 1978.

Overall, providing the services through public clinics and hospitals, these programs were quite basic.

The second stage followed the take-off of market-based reforms and started around 1980. It brought new problems to the healthcare system. During this time, the government decreased the financing of public providers and that was the reason why the RCMI and Laobao nearly collapsed. As long as they faced huge financial challenges, they had to charge the enrollees to pay for the program and in such way they could get the major financing. Such approach put in financial difficulty a lot of people in both rural and urban areas, as they had to pay out-of-pocket for medical services without reimbursement from their state-owned enterprise employers or rural communities. Such expenditure accounted for 69.9, 76.4, and 70.3% of total health expenditure in 1993, 1998 and 2003, respectively (Ministry of Health 2004).

In order to resolve this issue, the government started to reform the medical insurance schemes. It tried to implement the changes gradually to cover different segments of the population. The chronology of the main policies is stated in Table XX.

Year	Name of Insurance Program	Significance	Enrollment
1998	Urban Employee Basic Medical Insurance (UEBMI)	Chinese government aimed at removing the profit burden and increasing the effectiveness of state-owned and collective enterprises.	mandatory
2003	New Rural Cooperative Medical Scheme (NRCMS)	Ministry of Health, Ministry of Agriculture and Ministry of Finance adopted a new medical insurance system for the population in rural areas.	voluntary
2007	Pilot Reforms on Developing Urban Resident Basic Medical Insurance (URBMI)	State Council implemented a new policy which provided children, other non-employed people and those, who do not have UEBMI, with access to the basic medical insurance for urban residents.	voluntary

Table XX. Development of Chinese insurance programs which covered rural and urban residents.

Sources: State Council 1998, State Council Policy Document No. 3, 2003, State Council 2007

The Chinese government made primary steps in improving the insurance programs by exercising UEBMI first in Zhenjiang and Jiujiang (State Council 1998). So, employed citizens of big cities were the first covered. Having obtained positive results of this experiment, the Chinese authorities started applying new policies to the majority of the population in order to provide everyone with public health insurance.

Five years after citizens of countryside, finally, got a special insurance program dedicated to them – NRCMS (State Council, Policy Document No. 3, 2003). It was cooperatively financed by families, local and central governments. Even if the admission to this program depended on family's and individual's willing, this program was able to cover 93% of the countryside population by 2008 (Ministry of Health 2009).

Instead, the URBMI was targeted at vulnerable groups of people in urban areas and was launched in 79 cities (State Council 2007). It importantly fostered the development of basic medical insurance coverage.

All the three insurance programs have different targets and various characteristics in terms of coverage period, benefit package and premium submission. People can benefit much more from UEBMI than the other two schemes. If we compare UEBMI and URBMI, we will find several differences which are specified better in Table XX.

	UEBMI	**URBMI**
benefit package	Richer	Provides less benefits
premiums	Paid monthly by employers and employees, no sponsorship from government. In general, higher	Paid annually and based on the amount of sponsorship from the government. In general, lower
benefits after retirement	Available upon the minimum length of enrollment (25 years for men and 20 years for women)	Available only upon the annual premiums payment

Table XX. Difference in UEBMI and URBMI

All the above-mentioned insurance schemes were developed by the government. Instead, the private insurance companies face some obstacles in developing their own programs. Mainly, there are two reasons for this:

1. In general there is no advanced culture among Chinese to pay enthusiastically the premiums upfront and bear the risk of not using the insurance at all.
2. The government does not provide full freedom for the private insurance companies. That's why it was also difficult for the foreign ones to enter the market.

However, there are three big private insurance companies which mainly cover domestic life and health issues. They are China Life Insurance Company, Pacific Life Insurance and Ping An. They could start their businesses once China became part of the World Trade Organization (WTO) in 2001. Huand Ying (2008) reports that the year after "the government adopted the Foreign Insurance Company Regulatory Law, allowing joint-ventures of only up to 50% foreign ownership

before 2004 and up to 51% beginning in 2004". However, nearly 42% of health insurance market is in the hands of the government.

Usually private companies provide two kinds of health insurance:

1. The one which covers the cases not covered by public health insurance, and it is dedicated mainly to families and individuals who already benefit from social health insurance – with lower premium payments;
2. Another one which gives a wide package for those who do not have social health insurance – with higher premium payments.

In order to compete somehow with the schemes provided by the government, the private companies try to offer such supplementary benefits like services for second medical opinions, direct reimbursement to providers, advanced registration, VIP ward reimbursement, etc. (Hou & Zhang, 2017).

2.3 Healthcare management in China during COVID-19

Before facing COVID-19 China's healthcare system was quite fragmented, thus, the government's capacity in supervision and policy coordination was not enough strong. For example, health digitalization became a crucial part of medical reforms in China (Li and others, 2019). But the problem was in data collection and processing. If the National Health Commission (NHC) managed electronic health records, the data about insurance claims was sorted by the National Healthcare Security Administration. The two institutions could not effectively cooperate to share this information and to deal better with medical documentation.

In addition, there were constant tensions between local authorities and central government. Each of them, trying to handle public health crises, was defensive and strove to cover up the arisen troubles so as to maintain stability (*weiwen* 维稳). That was a main reason why Li Wenliang, a doctor who was one of the first to reveal a new type of coronavirus, was arrested for sharing information with colleagues (GONG and LI. 2022)[70]

However, at the times of COVID-19 the healthcare system in China had to fluctuate and adapt to the new realities. If we compare Chinese preparedness to face the pandemic with the American one, we will see some strengths and weaknesses at both parties.

According to the report of National Bureau of Statistics in China (2018), "in 2018 China had about 997,434 healthcare institutes, including 33,009 hospitals (0.23 per 1,000 persons; 4.1 beds per 1,000 persons), 943,639 primary healthcare institutes, and 18,033 specialized public health

70 GONG Xue and LI Xirui (2022). Chapter "China and the World Health Organization Not an Easy Road for Either" in a book of Anoma P. van der Veere, Florian Schneider, Catherine Yuk-ping Lo "Public Health in Asia during the COVID-19 Pandemic. Global Health Governance, Migrant Labour, and International Health Crises". https://www.jstor.org/stable/j.ctv2b07tn8.7

institutions. To operate this system, China had about 3.6 million licensed physicians (2.6 per 1,000 persons) and 4.0 million registered nurses (2.9 per 1,000 persons)". Instead, Kamal and others (2020) state that in the same year "the United States had 6,146 hospitals (0.18 per 1000 persons; 2.8 beds per 1,000 persons), 1.0 million physicians (3.1 per 1000 persons), and 3.1 million registered nurses, nurse practitioners, and physician assistants (9.5 per 1000 persons). Thus, China was more ahead with the number of available hospitals and beds, but "lost the competition" with the United States in terms of the quantity of physicians and nurses per capita"[71].

The effects of COVID-19 have long gone far beyond the scope of personal health and it became a mass health event. According to Wang at the times of the new coronavirus the median time to:

3. first hospitalization was 4.5 days (1-16 days);
4. diagnosis was 5 days (1-16 days);
5. transition from severe features to critically ill (when the patient had respiratory failure and required tracheal intubation tube or invasive mechanical ventilation, or shock, multiple organ failure, etc.) was 8 days (1 to 19 days)[72].

In addition, after the outbreak of the new virus, the Chinese authorities gave the instructions to the hospitals to take care about the treatments first and "settle bills later" (Ye, 2020). The officials had to choose between the population's health and the economic profit from the medical cures, thus, by January 2020, the government implemented a combination of medical insurance and government economic sustenance to sponsor the amount of tests and treatment for COVID-19.

To sum it up, we should admit that the country achieved the financial progress of the healthcare system thanks to various reforms, but it was the population who had to pay a price for it by its health and sometimes even lives.

2.3.1 Influence of COVID-19 on insurance system in China

The spread of the epidemic has posed a major challenge to the medical insurance work.

First reason is because the public has panic about the disease. If the medical insurance policy cannot be put in place in a timely manner, the medical insurance reimbursement policy cannot be guaranteed. This may force patients with mild symptoms to take a fluke and treat themselves at home, avoiding visiting the hospital for getting proper diagnosis and delaying the cure of the

71 Mirandy S. Li, Qiufan Fu, MS, and Ting Luo, MPH (Spring 2020). "The Hospital Response to COVID-19 in China". Journal of Health Care Finance". VOL. 46, NO. 4.

72 Wang Yue, Ge Long, Zhang Nan, Qi Xinhong. "From "SARS" to Novel Coronavirus Pneumonia - Coping strategies and experience of my country's medical insurance system" 1994-2020 China Academic Journal Electronic Publishing House http://www.cnki.net

disease. The cost of diagnosis and treatment for critically ill patients is relatively high. Since such patient must receive timely treatment, the patient is discharged significant amount of money. Thus, financial constraints caused the sudden increase of coronavirus patients, because they were not sure whether to go to a medical institution or not (Li Yiping[73]).

During the expansion of COVID-19, the average hospitalization cost for patients with mild symptoms and young adults at the initial stage was 12 288.53 yuan[74]. If it was a severe case subject to an intensive treatment, the medical institution would charge more. The financial pressure was huge. Once the capital chain breaks, medical institutions will not guarantee the admission and treatment of patients. Then the best possible solution to block the spread of new coronavirus was to provide high-frequency and full coverage insurance across the whole country.

Meanwhile, the Chinese people had to deal with propaganda, calling on residents to adopt a stay-at-home strategy. The enterprises and institutions suffered from huge economic losses due to the suspension of production. So, if they had to pay an employee a basic medical insurance, such expenses would cause a huge burden and great pressure on enterprises[75].

In order to effectively support enterprises to resume work and production, the medical insurance, finance, and taxation departments jointly issued documents thanks to which the part paid for employee medical insurance can be halved. After preliminary calculation tax reduction measures are widely implemented across the country, which can reduce the burden on enterprises by up to 150 billion yuan and support the resumption of work.

During the epidemic prevention and control period, due to the lockdowns, the number of chronic disease patients has increased. Taking medicine regularly has become a prominent contradiction, and it is also a problem involving people's livelihood. The medical insurance management system provides convenient services for the people, allowing long-term medication to be taken slowly. Rationally the increase of the amount of single prescription drugs for STD patients reduced the number of patients' visits to the doctor. The number of visits to the medical institution reduced the crowds and ensured the security.

In response to such sudden "catastrophic health expenditures", it was necessary to guarantee the core responsibilities of dealing with major diseases, and do a good job in the expenses estimating work, solve the burden of patients, hospitals, enterprises and institutions.

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73 Wang Yue, Ge Long, Zhang Nan, Qi Xinhong. "From "SARS" to Novel Coronavirus Pneumonia - Coping strategies and experience of my country's medical insurance system" 1994-2020 China Academic Journal Electronic Publishing House http://www.cnki.net

74 Wang Yue, Ge Long, Zhang Nan, Qi Xinhong. "From "SARS" to Novel Coronavirus Pneumonia - Coping strategies and experience of my country's medical insurance system" 1994-2020 China Academic Journal Electronic Publishing House http://www.cnki.net

75 Wang Yue, Ge Long, Zhang Nan, Qi Xinhong. "From "SARS" to Novel Coronavirus Pneumonia - Coping strategies and experience of my country's medical insurance system" 1994-2020 China Academic Journal Electronic Publishing House http://www.cnki.net

The Chinese government adopted a series of policies to solve effectively the above-mentioned problems. It implemented a "Two Guarantees" strategy of "free local treatment".

In the early stage of the outbreak, the National Medical Insurance Administration cooperated with the Ministry of Finance, the National Health Commission and issued two emergency telegrams to the national medical insurance system.

The scope of "two guarantees" is to ensure that:

- designated medical institutions are not pre-empted by the total amount of medical insurance, if there is no timely treatment;
- implementation of the strategy of "free local treatment" is in line with the prevention and control of major epidemics.

It allows the patients to be treated locally and nearby; "free" means that patients will not avoid treatment or give up treatment due to cost problems. “Rescue” requires medical institutions to accept all the receivables, and pay after the first treatment. In such way the medical institutions involved in the treatment of patients can provide sufficient liquidity and protection against medical treatment in the current institutional environment.

In regards of the characteristics of the epidemic, the medical insurance and financial systems adopted a special reimbursement policy. Firstly, The National Health Commission's "New Medicines and Medical Treatments” covered by the Diagnosis and Treatment Plan for Pneumonia provide that all medical service items are temporarily included in the scope of medical insurance fund payment. Secondly, the government ensures timely payment of patient expenses, especially for the use of medical assistance resources. Doctors and patients are treated first and then settled, and reimbursement is no longer carried out by transferring to another place for medical treatment. The payment ratio is reduced to allow people to refer to the hospitals and to minimize the risk of infection. Thirdly, hospitals which provide intensive treatment can get the funds prepaid by the medical insurance department. So, this reduces the pressure on hospitals to pay in advance, and patients' medical expenses are no longer included in the hospital's total budget control indicators. Moreover, the allocation and settlement of medical insurance funds will open up a "green channel" for confirmed and suspected patients in a unified manner. After the medical insurance, critical illness insurance, medical assistance, etc. are paid in accordance with the regulations, the individual’s burden is partly subsidized by funds.

The above-mentioned measures played a vital role in preventing the spread of the epidemic. Ensuring that medical institutions receive all their dues and ensuring that patients are treated properly, the government is both a humanitarian requirement and a safeguard for public health and safety, on-site isolation of confirmed and suspected infectious disease patients. Observation and

local treatment can reduce the chance of transmission. In order to ease the pressure on medical institutions to advance funds, medical insurance agencies issue special funds prepaid by medical institutions for treatment of new coronavirus pneumonia. As of February 19, special funds reached 171.79 billion yuan, of which 30 was pre-allocated by Hubei[76].

However, after some investigation, it was found out that some patients with COVID-19 disease failed to reach their settlement on time. There are the following reasons why it happened:

1. No medical insurance card: some patients are in a hurry when they seek medical treatment, forgetting to bring the medical insurance card. Due to traffic restrictions during the epidemic they were not able to go home to pick up the card in time, especially if they were subject to isolation due to illness of patients or their family members. Some of them could not get the medical insurance card, because it went to the doctor at another hospital.
2. Medical insurance card blocking. Due to suspend of participation in insurance and seal co-ordination, insurance payment did not arrive on time.
3. Swipe of the medical insurance card and its presentation in the previous hospital. After visiting a doctor in another medical institution, some patients simply left their insurance documents there.
4. No availability of a medical treatment in different places. Some individuals couldn’t get in touch with the health care bureau.
5. No support of insurance programs for some generations. For example, currently the medical settlement system in Jiangxi Province supports only the second-generation social security card.
6. Medical insurance card inactivated. Some COVID-19 patients, especially those from other residences, could not activate it.

The instant settlement rate and fee settlement rate are much lower than average, for a number of reasons. Among them, not carrying the medical insurance card by time is the main reason for settlement accounted for 86.84%, which was closely related to the epidemic. In addition, traffic control, community blockade, personnel isolation and remote filing procedures are very complicated.

In order to solve the emerging issues, insurance industry representatives adopted relative countermeasures.

1. Patient settlement and online reimbursement

76 Wang Yue, Ge Long, Zhang Nan, Qi Xinhong. “From "SARS" to Novel Coronavirus Pneumonia - Coping strategies and experience of my country's medical insurance system” 1994-2020 China Academic Journal Electronic Publishing House http://www.cnki.net

In order to reduce the gathering of people and the risk of spread of the epidemic caused by COVID-19, patients in hospital could benefit from free reimbursement policy. Most medical institutions innovated the service method and provided hospitalization. While the patient was admitted without deposit, the discharge settlement was made by medical staff and outpatient and emergency reimbursement was made through WeChat. Hospital used various technological ways to withdraw the payment like "Do it online" by letter, telephone, etc., WeChat, Alipay, self-service machines, "Contactless" method of payment and QR code payment function.

2. Paperless medical insurance settlement materials

The hospital inpatient settlement materials are in PDF. The medical institutions use formatted electronic discharge record and electronic ID photo, they produce outpatient and emergency settlement materials using electronic invoices or photo. The hospital staff fills in a relevant form, takes a photo, and send it to the medical insurance company.

3. Open up a postal settlement channel for medical insurance cards

For the cases when a foreign patient does not carry the medical insurance card, the hospital has established an express mailing channel for medical insurance cards to realize non-face-to-face settlement of insured patients. The process is the following: the patient is discharged home first, and the medical insurance card is mailed to the hospital. After receiving the medical insurance card the hospital medical insurance staff helps the patient to apply for the record, then swipes the medical insurance card for settlement, and finally a guarantee card is delivered to the patient. This prevents patients from going back to the hospital for settlement procedures. It also reduces crowd gathering during the epidemic and flow[77].

However, insurance companies had also to deal with non-medical costs and provide a universal health insurance coverage. Such costs include expenses linked to costs of loss of productivity, carer costs, travel, food and accommodation costs for family members who care for older people during their medical visits.

The first category includes the costs which patients have to bare due to being sick and consequently absent at work. They are obviously higher for elder population than for younger generations as the first might be more experienced and earn more. Basically, the patients should be reimbursed for the time they could spend at work and get paid while they are sick. But it is difficult to obtain the numbers as they may differ according to business sectors and occupations.

Carer costs include the expenses associated with the assistance of paid and voluntary carers. If the work of the first ones can be measured by the hours spent with the patients and the quality of the service, the second ones can create confusion in the estimation of the reimbursement. Despite

77 SARS-based restocking and long-term and short-term impact analysis Xu Xian, Liu Binglei, Yang Xuanyi (“A_Study_on_th...-term_impacts_许闲 (1)” file)

their service is unpaid, they bare supplementary expenses through travel and food costs, individual household costs, or lost earnings, but not out-of-pocket payments. So, it is quite hard to estimate general costs and include such data in the insurance coverage.

Instead, travel, food and accommodation costs should be calculated on the basis of the distance of the family members who assist the elder patients and their access to public transportation. So, such expenses would include costs on their lodging, nutrition and moving from one part of the city to another.

According to the 2015 China Health and Retirement Longitudinal Survey, non-medical costs, being a substantial part of total healthcare costs, especially for older people, constitute around 18 per cent of total inpatient costs. Obviously, citizens of countryside feel heavier burden due to disastrous health payments and suffer from health payment-induced poverty rather than urban populations. That's why the legislators were highly recommended to implement new regulations that simplify repayment of non-medical costs, particularly for the old people in rural areas.

Even if at one point these costs can be considered insignificant from a health perspective, they can instead positively influence the quality of the health care provided to patients. When old people do not get necessary foods, transportation or lodging for the family members accompanying them, their health conditions can be deteriorated. It is particularly crucial for patients from poorer socioeconomic groups, especially those who live in rural areas. This situation creates inequalities between different social groups.

There are some empirical studies that focused on a narrow range of non-medical costs. For example, Yang (2019) states in his paper that "Heinrich and others inspected primary care service operation and costs among older people aged 75 and above in Germany and identified that costs associated with carers, assisted living and transportation accounted for approximately 18 per cent of the total patient care costs"[78]. The scientists specify that the reimbursement of non-medical costs connected with provision of additional care to elder people, especially those who suffer from dementia and cognitive impairments, are important to the overall patient costs. Obviously, they might vary depending on the socio-economic status and geographical location of the patient.

Elder people who live in rural areas as well as their family member who accompany them might need to travel from countryside to a bigger city in order to get a proper healthcare service which might not be available at their residence. So, this means that they will have high non-medical costs and not all people can afford them. In relation to this, Chinese scientists Zeng Yi, Chen

78 Yang Wei (2019). "Understanding the Non-medical Costs of Healthcare: Evidence from Inpatient Care for Older People in China". Cambridge University Press. https://www.cambridge.org/core/journals/china-quarterly/article/abs/understanding-the-nonmedical-costs-of-healthcare-evidence-from-inpatient-care-for-older-people-in-china/9308368CDAEDD162CC1D44556A4F9749

Huashuang and Wang Zhenlian together examined the application and price of healthcare taking into account the demographic characteristics of older people in 22 provinces in China. According to their results, “females who were disabled and without children were more likely to incur high health and social care costs. Scholars have also argued that patient costs usually account for a significant proportion of household expenditures and tend to be higher for older people with chronic illnesses” (Yang, 2019).

The fight against the epidemic has highlighted the importance of the proper management of the insurance industry, its development, philosophy and business model. The insurance companies should not look at issues on a case-by-case basis, but solve them taking into account many factors: the diversity of costs, earnings of the population, their geographical residence, deep-seated issues with technology, etc. Their schemes should be based on a comprehensive review, summary and reflection. Tracing back to the source and analyzing the reasons will help them to make this fight against the epidemic more efficient.

2.3.2 Significance of the insurance during epidemics of COVID-19 and main problems.

A number of special service initiatives have been widely praised by governments at all levels, society and consumers.

But from an objective point of view, in the process of fighting against the epidemic this time, including the previous major disasters involving society, the insurance arranged by the risk management system can still play a very limited role in risk protection and economic compensation. Some experts think that it is insufficient, thus the insurance program should be supported by donations. Donations can be provided by any industry, business, and through a market system and an arrangement of economic contracts they can provide damage compensation and disaster relief to disaster-stricken enterprises and individuals.

The ability of post-reconstruction to provide services for public security, social stability and sustainable economic development is the unique ability and due role of the insurance industry. But it’s not clear what is the relationship between insurance, social governance system and capacity modernization.

Insurance can play a very limited role in the face of major disasters. The soul of the system is through professional knowledge, scientific management and institutional arrangements, not only solving the damage that disasters may bring to people's production and life. It can also improve the risk awareness and management level of the whole society, stabilize the economy and life, peace of mind, and well-being of society.

However, in this fight against the epidemic, there is a lack of social risk management responsibilities in China's insurance industry. Especially in the process of helping enterprises, small and medium-sized service-oriented enterprises need support to overcome the difficulties together. For technical reasons, such as public safety and public health risks, catastrophe risks, all of them face many challenges. But through these phenomena, people can still see a deeper reason – the development of the insurance industry. The social risk management responsibilities of the industry continue to be diluted and marginalized.

The pandemic has given the insurance industry an opportunity to clear the source of the second original, that is, to re-understand the fundamental problems of insurance development, clarify the theory of development and concepts, and define the mode and path of development.

At the beginning of the birth of the system, whether it is theory or practice, it has been clearly defined. The nature, function and role of its social risk management were determined. But with the development of the industry, they gradually blurred and deviated from the tendency to take risks. In this process, two viewpoints played an important role:

- the scope of insurance is not only risk management, but also wealth management;
- insurance belongs to the financial category which creates a boundary problem.

Therefore, insurance can and even should better reflect financial attributes. In fact, any theory serves the needs of social development and practical interests.

The reason behind the popularity of these two trends of thought is the limitations and choices of the insurance industry itself. Whether starting from the industry ideal of becoming bigger and stronger, or considering the corporate goal of maximizing value, the basic logic is to hope that through financial risk management and capital utilization there will be a break through the limitations of traditional insurance.

From the perspective of this epidemic, what the insurance industry has done is more of a temporary cramming. For example, after the epidemic, there were more than 70% people who were insured for their lives. Under the premise of not increasing premiums, insurance companies quickly expanded the scope of responsibility of 1210 insurance products to cover the insurance coverage caused by the new coronavirus.

As for compensation for accident, disability and critical illness, from the perspective of the industry's social responsibility, this approach is not only justifiable, but also worthy of recognition. From an industry and professional perspective, this approach is debatable. Since the liability can be extended for free, it means that the original pricing is problematic and it is too high.

The method of dealing with the single, actuarially puts the important basis of insurance business into a difficult situation. Objectively speaking, in recent years, the insurance industry has

deviated from the main business. The basic reason is the professionalism of risk and lack of ability of risk management. This undoubtedly provides space for the insurance industry to play its role and to develop its business.

The industry should strengthen the theoretical and practical research on risk management, gradually integrate industry forces, set up special institutions, increase research and development investment. At the same time, it is necessary to strengthen cooperation with relevant external scientific research institutions and colleges to consolidate the service capacity building and scientific development of the industry. Through this epidemic, the insurance industry has to strengthen the sense of purpose, clear positioning, to realize that there are also social and market risks. The main destination of the insurance is the arrangement of management system, provision of a better service to the customers, reflection on the social value of the industry.

As far as the current development of China's insurance industry is concerned, a close attention should be paid to the modernization of the social governance system and capabilities. In recent years, the country set such goal by reconstructing two relationships, namely the relationship between government and society, the government relationship with the market. It can not only improve administrative efficiency in an all-round way, promote the modernization of social governance, but also solve the relative problems faced by administrative departments.

The conflict between limited resources and relatively unlimited responsibilities. In this process, insurance is undoubtedly an important support for the reform of the administrative management system and undertaking platforms, because the law of large numbers in insurance determines that it has a significant social character. This sociality is innate, as the market system arrangement and the marketability of insurance are self-evident. Looking to the future, insurance can become a government risk management, disaster prevention and loss prevention and an important force and resource allocation platform for disaster relief. It may further enlarge financial resources, and at the same time, efficiently allocate social assistance resources and modernize governance capacity.

From the perspective of social risk management, in the process of responding to major natural disasters and public emergencies, China has adopted the national system model that is a management system in which the government is the main body, giving financial support, and a centralized force handling major events.

The national conditions of the country reflect the advantages of the political and social system, and it is a great contribution to its effectiveness. But facing the future, especially in the reform of the administrative system and in the context changes in financial management models,

including the reconstruction of public safety and public health management systems, it is necessary to give measures in a progressive manner with the times.

The national system has a broader connotation, especially to give play to the decisive role of the market in resource allocation. Insurance is undoubtedly an important connotation and participant in the new national system, but it is not only involved in major public safety and public health emergencies. In the management process, the key and core is to solve the positioning, especially the question of what to do and what not to do, and define the role of the insurance in the society governance system. It is particularly important in the management of major public safety and public health emergencies like this new coronavirus.

The epidemic is a public health emergency, the management of which usually can be divided into emergency management and risk management. The first one refers to the effective prevention, timely control and elimination of public health emergencies after the occurrence of public health emergencies. It is important to protect public health and life safety, and maintain normal social order. The risk management refers to the prevention, control and elimination of public health events, safeguard of human health and public health, stabilization of social order and economic activities, and taking measures.

The risk management of public health emergencies can be divided into three stages.

During and after the event.

In the process of participating in the management of public health emergencies, the insurance industry should, under the overall framework of public management, focus on the ex post phase, that is, to give full play to the positive externality of insurance. At the same time, it should keep focus on the use of market mechanisms and insurance systems to solve the compensation, recovery and stability of society, economy, enterprises and families, determination and ongoing issues, especially sustainability issues.

The scope of insurance business is focusing on the development of business interruption insurance, profit loss insurance, cancellation insurance, etc., and fostering the economic recovery function of insurance. During the epidemic of COVID-19, China Export and Credit Insurance Corporation developed and promoted the pre-shipment risk insurance, which was well resolved. It played a positive role in stabilizing foreign trade.

From the government's perspective, insurance should be incorporated into the social governance system. Some local governments have adopted rural housing insurance, natural disaster public liability insurance. The way of insurance and government poverty alleviation and assistance insurance solves the financial pressure of transfer, assistance and post-disaster reconstruction that

may occur due to various disasters. In the future, where conditions permit, China can also try to carry out public liability insurance to solve public health emergencies.

From the perspective of stabilizing the economy and society, propaganda, education and policy guidance.

The insurance companies should focus on sustainable development issues, strengthen the risk awareness of the whole society, and build systems and capacity to solve supply and demand.

It is to guide the insurance industry to pay close attention to product and service innovation in the field of sustainable development, increase effective supply, and improve service to society and the economy.

From the perspective of insurance participation in the field of public safety management, a prominent problem is the technical basis of risk management, especially the data. Data and actuarial foundations, such as risk management in public health emergencies, and catastrophe risk management, are faced with insufficient historical data and are difficult to support.

Solving the existing problems requires a combination of technology and systems. On one hand, through the means of science and technology, China can solve the problem of data acquisition, especially the problem of dynamic data acquisition. On the other hand, through system innovation, the problem that restricts the operation is solved. In recent years, the insurance industry and government cooperated together in terms of production safety, travel safety, medical disputes, carrier liability, campus-side risks and food safety, etc.

Technological empowerment, innovation and exploration, to achieve theoretical and technological breakthroughs

In the process of the insurance industry's fight against the epidemic, it once again proved the importance of technology empowerment and innovative exploration, especially when it comes to traditional rationale.

The essence of insurance belongs to cognitive science, and the biggest change brought about by modern technology is cognitive science. Therefore, the insurance industry should pay close attention to the issue of technology empowerment, that is, the management technology and business model of insurance through technological innovation, even insurance theory may bring change. From a technical point of view, under the influence of the Internet, big data and blockchain technology, the basic areas of insurance business activities, such as collection, predictions and credit, will undergo fundamental changes. This transformation is not only reflected in the efficiency and possibility of operation and management, but will also change the insurance function.

From a theoretical point of view, the changes brought about by technology are not only business and management models, but also fundamental theories, such as the definition of insurable interests, the application of compensation principles, the distribution of liability for notification, etc.

From the perspective of traditional insurance business, the changes brought about by technology empowerment are mainly concentrated in the three areas of collection, forecasting and credit.

First, the Internet will fundamentally change the possibility and efficiency of collections, Internet insurance and mutual insurance. It is the way how the insurance will be developed in the future. At the same time, the popularization of 5G technology will fundamentally transform the speed and cost of information interaction, which will make it easier for applications and business users to change. Business model innovation provides unlimited possibilities.

Second, technologies such as big data and artificial intelligence will fundamentally change traditional prediction science, including actuarial foundations. It will not only make forecasting more accurate, but it will also drive the evolution of forecasting towards foreknowledge. Next, it will challenge the scientificity and rationality of traditional insurance.

Third, the blockchain will become an important basic resource for rebuilding trust, and comprehensively improve the efficiency and fairness of the maintenance of the social credit system. It will undoubtedly challenge traditional insurance fundamentally, and return mutual insurance based on technology empowerment.

From the perspective of public safety and public health management, the changes brought about by technology empowerment include two aspects.

1. One is change versus risk.

In particular, the perception of insurable risks. Traditional risk perception and quantification are based on historical knowledge and data. There are still problems such as time lag. At the same time, the Internet has brought the convenience of efficient and low-cost sharing of data, which fundamentally changed risk perception conditions and possibilities. Not only has the capability of traditional risk management been greatly improved, but it has also changed the no wind protection risk, traditional perceptions, expanding the range of insurable risks. In this epidemic prevention and control, real-time big data sharing can help prevent epidemic risks. The analysis and control offer new possibilities. At the same time, they also build a good foundation for product development and technical services in the insurance industry.

In addition, in the process of epidemic prevention and control, car insurance has also become a social concern. A key point is how to distribute points for transportation companies, another aspect is the calculation of premiums for a large number of private cars being parked.

Although the supervisory authority has issued a report on Hubei and related transportation, and the taxi industry has launched a support policy for auto insurance, PICC Property & Casualty has also launched the practice of deferring auto insurance premiums during the epidemic, there are some pro-scientific and institutionalized issues. Facing the future, the Internet of Vehicles technology will provide new possibilities for the scientific pricing and operation of auto insurance.

The industry should take this fight against the epidemic as an opportunity to combine the next comprehensive reform of motor vehicle insurance, strengthening the application of technology in risk pricing and business management.

2. The second is to change the innovation of risk management model.

Technology empowerment also provides new possibilities and paths for the innovation of insurance management models.

The most typical model is "insurance + technology + governance", which is to use technology empowerment as the basic force for the iterative development of insurance. During the epidemic, some insurance institutions, such as China Life Insurance, Pacific Insurance, China Ping An and Taikang Insurance, etc., use their own Internet medical services platform. It not only improves the efficiency, but also alleviates the contradiction of the medical resource shortage, and gets the customer's attention. Some insurance institutions, such as PICC, Hengqin Life and Zhong An Insurance, use such technologies which have launched an identity query, epidemic monitoring and work resumption management platform. It provides enterprises with risk management for resumption of work as well as with favorable support for the government's epidemic prevention and control.

From the perspective of better exerting social risk management functions, the insurance industry should become a high-end and professional risk and risk management research, a think tank that provides government and society with intellectual support and policy advice on health and disease management.

There should be a strong professional research ability on diseases, especially the risks of various infectious diseases. Regrettably, as it stands now, the vast majority of insurance institutions do not have specialized risk and disaster research institutions. The industry lacks high-end think tanks, and research on related topics is mostly project-based and phased. The good news is that in this fight against the epidemic, Taikang Insurance Company spent 100 million yuan to initiate the establishment of "Taikang Public Health and Epidemic Prevention Fund", focusing on public health, disease prevention and epidemiology research in basic fields.

After the epidemic, the industry must conscientiously summarize and consolidate the results of fighting the epidemic, comprehensively enhance product innovation, technology iteration and

serve the society. First of all, in this fight against the epidemic, the insurance industry has urgently included the new coronavirus pneumonia into the scope of insurance liability.

After the fact, the industry needs to intensify its research on risks, especially public safety and public health risks, and gradually and standardize these risks. The industry should seriously reflect on the problems exposed by the epidemic, find and analyze the reasons, comprehensively enhance the concept and ability of scientific development in the industry.

The impact of the epidemic on the business development of insurance companies is certain. From the overall situation, the impact on the life insurance industry is greater than property insurance industry. Businesses may face cash flow matching risks, and individual companies may face solvency risks. It can be seen that the epidemic has affected insurance companies themselves. The business ability and risk management of the industry, especially the business philosophy, development model and risk response ability, have raised challenges.

The impact of the epidemic on the economy is obvious. This will undoubtedly bring difficulties and pressures to the allocation of insurance assets. The industry should be more aware of the characteristics and laws of changes in the external environment, and re-examine the issue of insurance profit models, especially underwriting.

Moreover, the insurance companies should improve the efficiency of recruitment, training and management in an all-round way, for the morning meeting, attendance, assessment and the innovation of performance management. While the fittest of personnel, marketers with relatively high quality, strong learning and adaptability, and the ability to use modern scientific and technological means stand out, some relatively low-level personnel are eliminated naturally.

The insurance companies can take advantage of the situation, and promote the transformation and upgrading of the industry. Through disaster, it is possible to improve awareness of risk and risk management, and, at the same time, there will also be new issues that inspire to apply new innovations.

Insurance, as a special industry of social risk management, in the face of major disasters, should not only publicize and popularize risk management, but also apply all the knowledge to promote the penetration and coverage of insurance and to fight the epidemic.

This sub-real risk education class has played a positive role in raising the risk awareness of all the people, including the improvement of public health risk awareness. The insurance industry should take full advantage of this opportunity to increase the popularization of scientific risk concept, the publicity and education of risk management concepts through various methods and channels.

In this fight against the epidemic, there are still individual insurance companies that take advantage of the epidemic, making small favors to acquire customers and solicit business. Such approach has brought a negative impact on the industry image. Instead, the insurance companies should take this epidemic as an opportunity to promote the concept of sustainable development, the innovation of insurance theory, model, technology and service. From the perspective of global development trends, insurance can strengthen the whole society's awareness of sustainable development and achieve good economic results.

Moreover, the insurance companies should take this epidemic as an opportunity to promote the building of resilience management capabilities. Judging from the situation in this fight against the epidemic, they all have different levels of the effectiveness of enterprises. In such critical situation they should demonstrate the ability to withstand extreme natural events without catastrophic loss, injury, and reduced productivity with substantial external assistance or reduced quality of life. The insurance industry should guide enterprises to establish resilience management concepts, guide and help enterprises to cultivate risk immunity and risk management.

The characteristics of integration and industrial chain are highly concerned with the problem of upstream and downstream risk contagion and isolation. At the same time, people should take insurance as an important component and force of resilience management to improve the ability of enterprises to deal with major natural disasters and public emergencies. An important premise is that the insurance industry and enterprises should strengthen their own resilience capacity building.

Another advantage which could be taken from this epidemic is promotion of critical illness insurance. It can be a starting point to include statutory infectious disease risks into the scope of insurance coverage. The national resident medical security system is based on "Basic Medical Insurance + Critical Illness Insurance".

As a basic framework, the insurance industry is involved in the operation of critical illness insurance. A prominent problem is to focus more on the competition for share, while ignoring secondary development and improvement of service capability. Although in the process of epidemic prevention and control, medical insurance and finance have adopted a model of full payment, but this is not a long-term problem. Relevant government departments are starting to establish a standardized and normalized mechanism to solve medical problems in major public health emergencies.

The insurance industry should seize the issue of medical expense protection. In terms of including statutory infectious diseases into critical illness insurance, they should improve security amount, develop personalized products and services.

After this pandemic, the country will be more advanced in terms of healthcare mechanisms and it will gradually strengthen vaccine development and supervision. According to the "Vaccine Management Law" promulgated in 2019, the country will implement vaccines. In connection with this, the insurance industry must carefully summarize and analyze the experience and problems in handling compulsory traffic insurance, and improve the experience and management of compulsory insurance. In accordance with the characteristics of vaccines, they should also create a comprehensive and full-scale service for vaccine development, production, circulation, and vaccination.

Another opportunity which is given by this epidemic is the possibility to link importance of the development of insurance against major public events. It is a good chance, first, to break through the traditional theory and technology to develop business interruption and cancellation insurance products specifically for public health emergencies (communicable diseases). Second, production and service enterprises can develop products in different categories. Special attention should be paid to hotels, catering, entertainment, transportation, travel agencies, retail enterprises, financial enterprises, small businesses, etc. Insurance companies should establish a corresponding technical and service standard system to lay a foundation for scientific management and risk management services. Third, district service network could be constructed to strengthen the community of the industry. In terms of insurance, it can provide service support for major public event insurance, as well as pension insurance and long-term care insurance. It can also become the grass-roots resource and basic force of the government's public health management. Fourth, banks can suspend operations. Insurance and cancellation of insurance are the basic conditions for the financing of service enterprises, strengthening credit risk management, and promotion of the financial supply of service enterprises. Fifth, whether it is a public health emergency, or business interruption insurance and cancellation insurance, it involves a lot of specialized technology. Not only the relevant insurance knowledge is required, but also the knowledge of business operation and management accounting. Therefore, insurance companies should provide technical reserves and specialized personnel training.

The sixth is to take this epidemic as an opportunity to vigorously promote the transformation of the industry's model based on technological innovation. In this fight against the epidemic, a series of isolation and closure measures led to challenges to traditional business models, especially marketing and customer service models. It gave birth to the technology, online and contactless mode of payments.

Although nowadays technology application and simplification initiatives have become part of our life, it needs some kind of evolution. Therefore, it is necessary for the industry to

comprehensively summarize the scientific and technological innovation in this epidemic, explore and practice, take the implementation of the "Business Specifications for Electronic Insurance Policy" as an opportunity, strengthen the application of biometric identification and electronic signature technology, and apply these practices.

From the perspective of customer service, efficiency improvement and technology empowerment, the insurance companies should sort out and deeply review many management systems and customary practices in the industry, truly focus on customers, and promote industry transformation based on technological innovations.

This epidemic became a test both for the country and society, for enterprises and individuals. For all of them it is enough to have a deeper understanding of the existence of risks and the significance and value of risk management. But they should definitely make this fight against the epidemic a key factor in promoting the transformation and upgrading of the insurance industry.

In general, the way the government took measures on insurance policies was developed from the experience and lessons of infectious diseases such as influenza, and can be further used as the base for rapid response to catastrophic health events. It is necessary to standardize medical insurance emergency measures for public health emergencies to establish a mature and long-term emergency support for epidemic prevention and ultimately ensure public emergencies smooth transition.

Chapter 3

Bioethics in China and its development during COVID-19

3.1. Definition of ethics of care and its significance in China

Bioethics is the multi-disciplinary study of ethical, social, medical, political, theological, philosophic, technological and legal issues that arise in biomedicine and biomedical research. It suggests the discussion about health care, moral discrimination in society, relationship between anthropological activities and the environment. Bioethics is concerned with ethical issues in public health and is focused on the conduct of research[79]. The definition specifies that bioethics is a complex interplay of different disciplines. In addition, it is strictly connected to scientific progress with the most essential and delicate issues that individuals, families, and communities might be challenged in real-life situations, such as the quality of life, its value and the way people want to live.

Globally bioethics studies ethical features of correlations and collaboration between and among nations or regions of the world. It includes the issues about the role of such international institutions as WHO and the way it executes its power over the governments which constitute a global society. As I have already explored in Chapter 1, on political arena there were strong "battles" between different countries which accused one another in the explosion of COVID-19 pandemics. After such debates it is important to underline that the use of diplomacy in the international relations is an integral part of global bioethics.

On April 12, 2021 the Ethox Center of Oxford University presented an online conference named "Vaccine Diplomacy During the COVID-19 Pandemic", where narrators criticized vaccine nationalism and called for "vaccine cosmopolitanism." According to the report of Macklin (2022): "One participant pointed out that Russia and China have taken the lead in distributing vaccines to countries that lack them". The orator made an assumption that in such way these governments tried to gain some dominance over the states to which they have provided vaccines. Such actions might be perceived as "good" vaccine diplomacy, as Russia's and China's volunteer intentions are quite sceptical and most probably they would like to obtain influence over the beneficiary countries[80]. But it does not mean that global bioethics should exclude politics from its researches. As it has been stated above, diplomacy is its integral part.

79 National Institute of Environmental Health Sciences. Bioethics. https://www.niehs.nih.gov/research/resources/bioethics/index.cfm, Wikipedia. Bioethics. https://en.wikipedia.org/wiki/Bioethics

80 Macklin Ruth (2022). "A new definition for global bioethics: COVID-19, a case study, Global Bioethics", 33:1, 4-13, DOI: 10.1080/11287462.2021.2011001. https://doi.org/10.1080/11287462.2021.201100

Even if the origins of bioethics are international, some issues are anyway linked to the history and religion of certain nations. It might be difficult to find a cross-culture consensus or an immediate solution, sometimes only the time will help to resolve the bioethical problems.

Bioethics has arisen and bloomed as an instrument to address ethical issues emerging from the advances of biomedical sciences shortly after World War II. In 1947 the International Court of Justice sentenced several Nazi doctors and produced an international code - "The Remburg Code", the code of ethics for medical experimentation and research specification. Bioethics takes its roots from this event[81].

With the continuous development of medicine and biotechnology application, the West began to pay attention to the ethical issues related to life, and defined the concept and criteria of "death". Relying on bioethics research institutions such as the Heart, Kennedy Institute of Ethics, etc. and the founding of specialized journals on bioethics or large medical journals, the bioethics column produced rich academic achievements in bioethics. Bioethics education is to cultivate individual respect for all life, including a behavioral teaching that loves and cherishes oneself and others. Bioethics education as a part of the practical research of bioethics is not only a kind of ethical education to study the relationship of life, but also a life education for bioethical relations. Early bioethics education was based on the life relationship, life knowledge, and life morality.

In the second half of the twentieth century, the phenomenon of ignoring life and despising life became more common and had severe consequences. The U.S. government infiltrated life education into school education in the late 1970s and made it popular. Australia emphasized that each child was "unique", integrating rational curriculum design into primary education. Japan in the 1980s put forward "surplus education", the starting point of which was to encourage young people to cherish and love one's own life and the life of others.

With the development and rise of biology, especially biomedicine, science and technology the escalation of the "contradiction" between science and the humanities got coupled with the ubiquity of bioethics. A new round of educational reform movement started in the 1980s. The rise of modern times put forward "science-technology-society" new educational concept, countries established bioethical societies and research institutions to strengthen research and talent in bioethics education.

In 1997, UNESCO adopted the Universal Declaration on the Human Genome and Human Rights. It is an important document, the content of which made ethical issues in the field of science and technology a matter of the world discussion. Article 20 of the document specifies the following: "States should take appropriate measures to promote the principles set out in the Declaration,

81 Ding Jianfei, Zhu Hui. "Overview and Reflection on Bioethics Education and Research in COVID-19" 1994-2020 China Academic Journal Electronic Publishing House http://www.cnki.net

through education and relevant means, inter alia through the conduct of research and training in interdisciplinary fields and through the promotion of education in bioethics, at all levels, in particular for those responsible for science policies" (UNESCO Universal Declaration on the Human Genome and Human Rights, 1997)[82].

On the example of Japan we can see that the Bioethics Society was established in 1988 to promote interdisciplinary research. In 2001, medical ethics and bioethics were included in the Medical Education Core "Syllabus of the Heart". In 2003, the relevant knowledge content of bioethics was incorporated into the content of the physician qualification examination, and a special training centre was established. An interdisciplinary education was held for related personnel, especially medical workers and medical students.

In comparison with other countries, Chinese bioethics education research was not only relatively lag and neglected, but it was even despised for a long period of time. To a certain extent, it can be said that domestic bioethics education research is in the background of constantly dealing with the problems of life, it is driven by practical problems. In the early 1980s, Professor Qiu Renzong introduced bioethics in his article "Death" published in "Medicine and Philosophy". It touched such topics as euthanasia, organ transplantation, gene cloning, brain death, etc. and aroused great concern in the domestic academic circles[83].

But the world was in a bigger shock when in the recent times, precisely in November 2018, Dr. He Jiankui and collaborators revealed that two genome-edited babies were born in Shenzhen (Greely, 2019)[84].

After this case there have been a number of studies on bioethics education related to medicine. Scientists discussed the use of emerging biotechnologies and the whole society attached great importance to bioethics education and research. The level of bioethics education and its research is still not high. The level of research is uneven, and its teaching content and teaching methods are not rich enough. Difficulties such as the lack of closeness between theory and practice still exist. The former domestic bioethics education and its research mainly focus on the following tendencies: modernization, systematization, and development of bioethics education and its research.

In order to face the challenges emerging from the progress of biotechnologies in the life sciences, Chinese government started drafting and adopting China Biosecurity Law (CBL) in 2019. The explosion of COVID-19 pandemics accelerated the approval of this legislative act as well as

82 UNESCO Universal Declaration on the Human Genome and Human Rights, 1997 http://portal.unesco.org/en/ev.php-URL_ID=13177&URL_DO=DO_TOPIC&URL_SECTION=201.html

83 Ding Jianfei, Zhu Hui. "Overview and Reflection on Bioethics Education and Research in COVID-19" 1994-2020 China Academic Journal Electronic Publishing House http://www.cnki.net

84 Greely Henry T. (2019). "CRISPR'd Babies: Human Germline Genome Editing in the 'He Jiankui Affair'", Journal of Law and the Biosciences 111–183.

other regulations on biosecurity and biosafety in China. Thus, the Standing Committee of the PRC National People's Congress passed the CBL on October 17, 2020, and it became effective on April 15, 2021 (Wang and others, 2022)[85].

Forming a precise legal framework on biosecurity and biosafety in China, CBL covers the following eight biosecurity issues:

1. security management of human genetic resources and biological resources;
2. risk prevention and control system;
3. research, development, and application of biological technology;
4. epidemic control of infectious diseases;
5. security management of pathogenic microbials laboratories;
6. biosecurity capacity building;
7. prevention of bioterrorism and threats of biological weapons; and
8. counter-measure for microbial resistance.

The main goal of CBL is to protect biological resources, human and environment health, and promote the development of biotechnologies in an ethically responsible manner. Being the first legal act which is merely dedicated to biosecurity and biosafety in China, it was verbalized under three main principles: prudent development, risk prevention, and whole process management. According to Wang and others (2022)[86], the CBL consists of 10 chapters, 85 articles, 4 articles and 3 chapters of which clearly state bioethical issues from the four main forms specified in Figure XX.

85 Wang Leifan, Wang Fangzhong and Zhang Weiwen (2022). "Bioethics in China's Biosecurity Law: forms, effects, and unsettled issues". Journal of Law and the Biosciences, 1–15. https://doi.org/10.1093/jlb/lsab019

86 Wang Leifan, Wang Fangzhong and Zhang Weiwen (2022). "Bioethics in China's Biosecurity Law: forms, effects, and unsettled issues". Journal of Law and the Biosciences, 1–15. https://doi.org/10.1093/jlb/lsab019

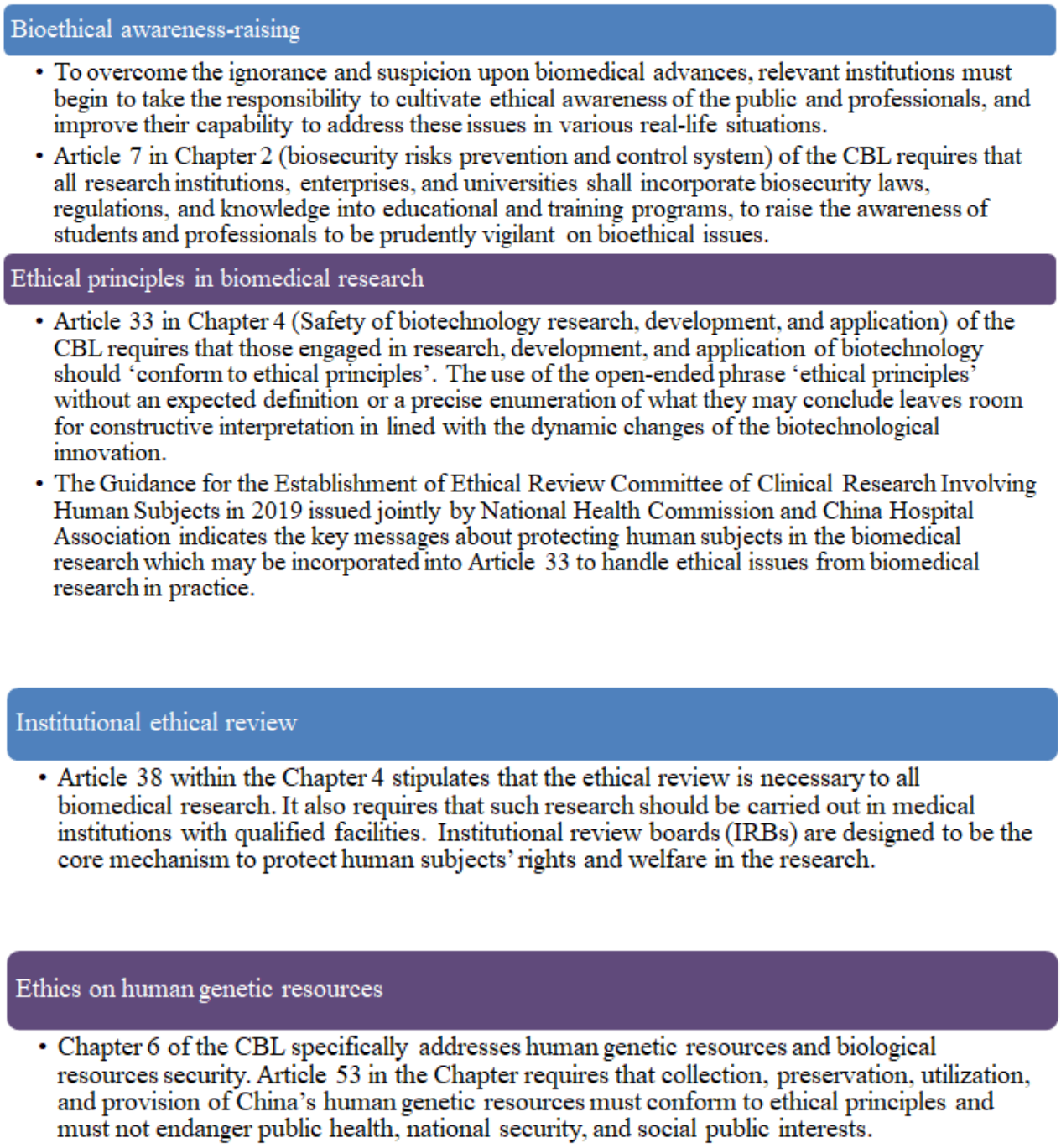

Figure XX. Four main forms of bioethical issues stated in the CBL.

The above-mentioned case of Dr. He was considered so scandalous that it caused the adoption of two main legal acts:

1. Regulations of the PRC on the Administration of Human Genetic Resources in 2019 issued by the China's State Council (the Regulations 2019); and

2. Guidance for the Establishment of Ethics Review Committee for Clinical Research Involving Human Subjects in 2019 issued jointly by the National Health Commission and Chinese Hospital Associations (the Guidance 2019).

The first one stipulated specifics of the requirements on human genetic resources[87]. For example, Article 22 of the Regulations 2019 states that "the use of China's human genetic resources for international cooperation in scientific research should go through the ethical review of the countries (regions) where the parties are located". An the Article 27 says: "Under special circumstances, when transporting or mailing human genetic resources materials out of China for international scientific cooperation, the ethical review must be conducted and the exporting certificate of human genetic resources materials shall be obtained from the Ministry of Science and Technology of the PRC".

Instead, the Guidance 2019 was a legal basis for dissemination of Institutional review boards (IRBs) in China. Their main goal is to protect the human rights in biomedical research, however, scientists say that they do not work properly. According to the regulation, subjects of the researches should be well informed about medical risks and should give consent on the experiments and relevant treatments. And this basic principle was not followed in Shenzhen, for example, where scientists held a revision of the IRBs' performance in 48 medical organizations. It turned out that more than 50% of researchers did not get any information about their rights and ethics.

Nonetheless, Chinese authorities made first distinctive steps in creating a special legal framework to foresee the education, ethics and protections of human subjects which participate in any biomedical research. And these two legal acts form a strategy which can be adapted to the changes of biotechnologies and bioethics. Anyway, some measures should be improved and be more compliant with the regulations. It is very important during such pandemics as COVID-19.

3.2 Influence of COVID-19 on bioethics and anthropology in China

It comes without saying that the current pandemic of COVID-19 made its own impact on global bioethics. First of all, it influenced the vulnerable communities as the new virus brought negative effects on economy, healthcare system, education and other sectors. As I investigated in the previous chapters, some classes of the Chinese society had to experience the inequality in access to the medical care and treatments during COVID-19. Moreover, they did not get timely training and information about the preventive measures, as at the beginning the Chinese authorities tried to hide

87 Regulations of the People Republic of China on the Administration of Human Genetic Resources, Order of the State Council of the P.R.C., No.717, May 2019. The Regulations amended the Interim Measures for the management of Human Genetic Resources, issued by the State Council, June 19, 1998.

the fact of explosion of the new virus. Then, when it was too late, people could get a more transparent data about the status quo in the country.

Secondly, due to the "masks policy" introduced by China and implementation of other preventive measures such as vaccines some people might have been treated unfairly. Scientists and therapists might have tested new vaccines on vulnerable communities before introducing them to a wide category of people. Pharmaceutical industry took an advantage of this situation either by increasing the sales of masks and medicines sometimes even taking advantage of the lacuna in the legislation.

Thirdly, the integration of the tracking systems which helped to reveal a chain of contamination ruined the people's privacy. Thermal imaging cameras and other technologies could violate the rights of vulnerable communities and cause discrimination. (Odeh and others, 2021)[88]

If the first argument was discussed a lot above, the topic of vaccines should be reviewed carefully.

It is obvious that the vaccination helped different generations to fight with different kinds of diseases in history. During COVID-19 there were various debates on the topic whether to make the vaccines mandatory in order to achieve public health goals and, if so, in which way, for which categories of people and how. Usually governments do not tend to oblige communities to take certain measures, as they might violate one's liberty and autonomy, but they give recommendations.

Making vaccination mandatory should be justified by a clear and valuable social goal, like protecting public health. When it becomes obligatory, it imposes directly or indirectly several restrictions in cases of non-compliance. If an individual is not vaccinated, he might be limited in travelling, working in open spaces, attending schools, restaurants, bars, etc. It is also important to note that WHO does not support the imperative instructions on COVID-19 vaccination, making it obligatory. Moreover, the international organization emphasized the necessity to develop information campaigns and give equal access to vaccines to all the classes of the society (World Health Organization 2020)[89]. Furthermore, on February 5, 2021 WHO deliberated a position paper stating that "national authorities and conveyance operators should not require COVID-19 vaccination as a condition of international travel" (World Health Organization 2021)[90].

88 Odeh Mohammed, F. Kharbat Faten, Yousef Rana, Odeh Yousra, Tbaishat Dina, Hakooz Nancy, Dajani Rana and Mansour Asem (21 May 2021). "iOntoBioethics: A Framework for the Agile Development of Bioethics Ontologies in Pandemics, Applied to COVID-19". METHODS article.
https://www.frontiersin.org/articles/10.3389/fmed.2021.619978/full

89 World Health Organization. COVID-19 virtual press conference 7 December 2020.
https://www.who.int/publications/m/item/covid-19-virtual-press-conference-transcript---7-december-2020

90 World Health Organization. Interim position paper: Considerations regarding proof of COVID-19 vaccination for international travellers. Geneva: World Health Organization; 2021
(https://www.who.int/news-room/articles-detail/interim-position-paper-considerations-regarding-proof-of-covid-19-vaccination-for-international-travellers).

However, the decision of the governments on making vaccination mandatory must consider not only legal, but also ethical aspects. World Health Organization (2021)[91] suggests the policy-makers to contemplate the following ethical considerations:

1. Real necessity

Vaccination may be imposed as obligatory only for the purpose of accomplishment of an important public health goal which should be clearly specified by a legitimate public health authority. Mandates on vaccines should not violate rights and liberty of the people, and they can be applied only if they significantly increase the prevention of the disease spread and mortality. If there is an important number of individuals who do not desire to be vaccinated and such behaviour might bring a substantial harm to the healthcare system, the government should work on dissemination of the information regarding the reasons for the mandate and use all the effective channels for such campaign. The authorities can do so if such actions will allow them to achieve the public health objectives.

2. Public trust

The authorities must ensure that the mandatory vaccinations do not bring negative consequences on public trust, on reliance on the science and vaccination, especially among vulnerable or marginalized people. The latter might perceive such mandates as another form of discrimination, oppression or inequity.

3. Sufficient evidence of vaccine safety, efficacy and effectiveness

The government should provide the population with clear data and proof that the vaccine is safe and efficient in preventing serious infection and it prevents hospitalization. Otherwise it will fail in accomplishing the objective of protecting public health. Despite the safety of the vaccine, the authorities should also provide with no-fault compensation schemes to protect the population from any harm which might happen due to vaccine. Otherwise, it would be ethically incorrect to necessitate such people to seek legal remedy.

4. Supply of vaccines

People for whom the vaccines are mandatory should have direct access to them, and the government is responsible for supply of the authorized vaccine.

5. Ethics of decision-making

The authorities should remember about transparency, ethics and human rights while taking decisions on mandatory vaccination, taking into account all the categories of the population.

Unfortunately, all these recommendations were missed in the vaccination process in China, even if legally it did not seem so. In April 2021 the Chinese National Health Commission

91 World Health Organization (2021). “COVID-19 and mandatory vaccination: Ethical considerations and caveats”. https://www.jstor.org/stable/resrep35607

recommended voluntary vaccination against COVID-19 based on consent of individuals. In practice, it was managed by local governments and their actions were contradictive to the main guidelines issued by the central government. Basically, the first ones introduced parallel legal acts making COVID-19 vaccination obligatory for all residents in their jurisdictions which violated the Chinese Constitution and laws. In such way, unvaccinated individuals were deprived of several fundamental rights, services, and benefits (Huang and Feng, 2021)[92].

Then, in July 2021 following the zero-COVID policy President Xi Jinping launched forced vaccinations and "set a target of fully vaccinating 1.1 billion people, or 80 per cent of the population, by the end of October" (Wang, 2021)[93]. Moreover, there was a case in Hunan when the police took some individuals directly from their homes, brought them to the hospitals and injected the vaccines against their will. Wang (2021) reports about the situation in other parts of China: "In Minhe, the authorities announced that they would cut off welfare, retirement or health-insurance benefits for anyone who refused vaccination. In Huludao, schools conditioned student enrolment on the vaccination of the pupil's entire family, including parents, siblings and grandparents. Unvaccinated netizens in Xiaochang and Chongqing have complained that local officials harassed them by constantly phoning them, visiting their homes or taking them to government facilities to question them. In Nanchang, the government said it would pay people who reported on unvaccinated neighbours".

After mid-July 2021 some local governments reviewed or cancelled the policies on mandatory vaccination due to public opposition. Anyway, there were many other cities which even punished the unvaccinated individuals if they revealed to be positive for COVID-19 infection in some areas (Table XX.). According to the Articles 8 and 9 of the PRC Legislative Law, local governments are not entitled to implement any legal act with punishment. Consequently, the authorities in the cities mentioned in the Table XX below had no statutory authorization.

92 Huang Zhengzong, Feng Zehua (12 November 2021). "Public Health and Private Life Under COVID-19 Vaccination Policies in China: A Legal Analysis". Volume 2021:14 Pages 4627—4638. https://doi.org/10.2147/RMHP.S336434

93 Wang Yaqiu (September 28, 2021). "China's use of force and coercion to drive up its COVID-19 vaccination rate is not the answer". https://www.hrw.org/news/2021/09/28/chinas-use-force-and-coercion-drive-its-covid-19-vaccination-rate-not-answer

Jiangxi Province	Shanxi Province	Anhui Province
•Nanchang •Ganzhou •Jingdezhen •Shangrao •Fuzhou •Yichun	•Jincheng •Changzhi	•Hefei •Anqing •Suzhou •Fuyang •Liuan •Huaibei •Tongling •Bozhou •Chizhou •Huainan

Table XX. List of local governments which issued the mandatory vaccination policies with post hoc punishment[94].

Zhang (2022) reports: "As of June 4, 2022, about 87 percent of people in China had been fully vaccinated against the coronavirus COVID-19". The main vaccines used against coronavirus COVID-19 in China are: Sinovac, Sinopharm (Beijing), Sinopharm (Wuhan), CanSino and ZF2001 developed by Anhui Zhifei Longcom[95]. The statistics of fully or partly vaccinated people is shown in Figure XX.

94 THE PAPER. Three days 24 places to issue notices! The COVID-19 infected individuals in these situations will face severe penalties. https://m.thepaper.cn/baijiahao_14153518. (in Chinese)

95 Wenyi Zhang (2022). COVID-19 vaccination rate in China 2021-2022, by status. https://www.statista.com/statistics/1279024/china-coronavirus-covid-19-vaccination-rate/

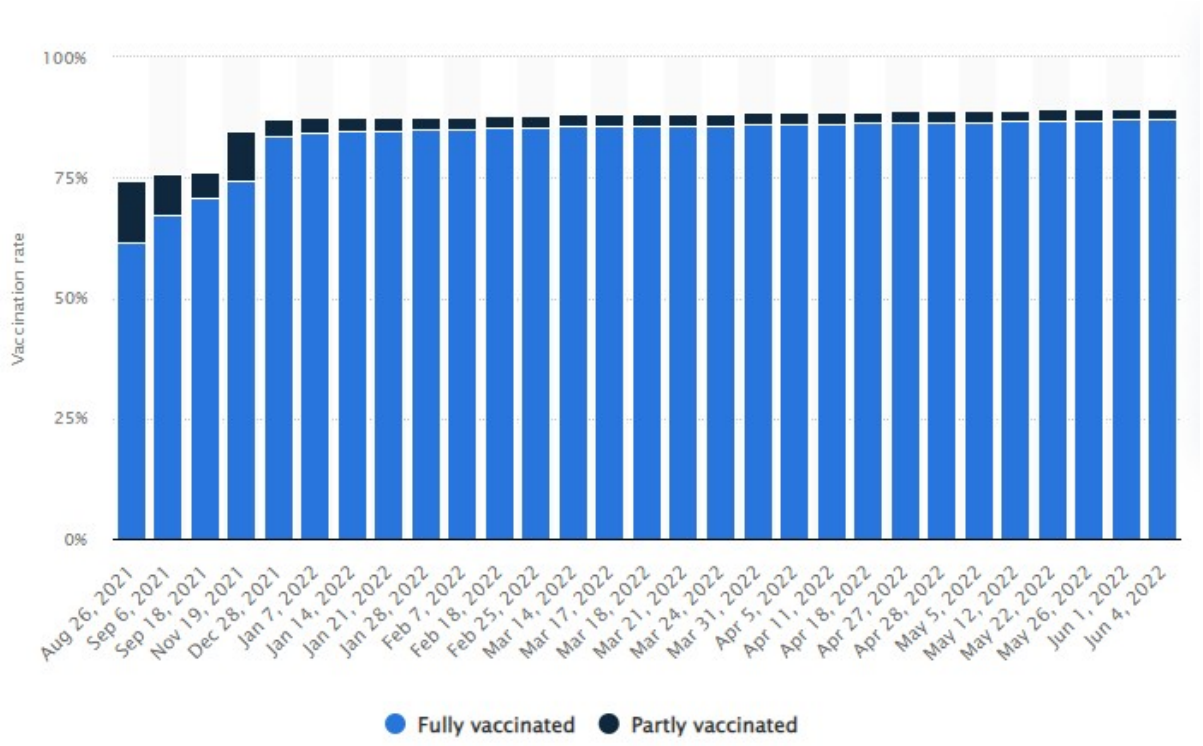

Figure XX. Share of people vaccinated against COVID-19 in China from August 2021 to June 2022.

The main reasons why China reached such a high vaccination rate are implementation of mandatory policies by the local governments, promotion of zero-COVID policy by the central government as well as restriction of the movement for unvaccinated citizens and fundamental rights of the people. Being a socialist country, China stresses collective rights and interests rather than individual ones, that's why people's privacy falls out of scope.

But this philosophy instead worked very well at the beginning of the pandemics when the international community called everyone to put on a mask. While this simple rule was not properly followed by famous officials and diplomats, Chinese people, following individual responsibility and group solidarity, wore masks to protect themselves and others from infection. It is quite common for East Asia to avoid distribution of the disease by face covering and it has become a part of their culture. Hong Kong and China anticipated the whole world by recommending people to wear masks in public on 24 and 31 January 2020 respectively, while the other part of the globe started imposing penalties for not covering the face by April 2020. Taiwan, for instance, was not even challenged by shortage of masks (Macer and Hon, 2020)[96]. Apparently, the spread of COVID-19 was reduced by face-covering, as Chinese had already had experience of using masks during "swine flu" epidemic.

96 Macer Darryl, Hon D. (May 2020). "Wearing Masks in COVID-19 Pandemic, the Precautionary Principle, and the Relationships between Individual Responsibility and Group Solidarity" - Eubios Journal of Asian and International Bioethics. EJAIB Vol. 30 (4)

Instead, the international community did not start immediately utilizing them and had to get used to the masks, even if the recommendation to wear them in times of an epidemic and pandemic was issued by WHO in a special guide "Non-pharmaceutical public health measures for mitigating the risk and impact of epidemic and pandemic influenza" in 2019. This regulation says that the masks should be used by "asymptomatic individuals in severe epidemics or pandemics in order to reduce transmission in the community".

From ethical point of view the responsibility for making vaccination and wearing masks belongs both for policy-makers and individuals. And they bear certain responsibility also in terms of management of the healthcare system and functions of the medical institutions. Neves (2020) highlights that there two models of executing triage systems: "first-come, first-served" and "high-severity, high-priority"[97].

The first one reminds a lottery model: when it is difficult to make a decision based on fairness, reasonableness, method of "drawing lots" is used in the extreme situations. Anyway, this kind of decision-making does not impose proper responsibility on authorities or other powerful bodies. However, medical institutions, its personnel bear their own responsibility by fulfilling their duties.

The second model gives more attention to those patients who have serious pathologies and diseases. From a human point of view it would be imperative and at the same time not very efficient, as the real treatments might be necessary also for the patients who do not experience such big suffering, but they will benefit much more from the cure.

Anyway, from ethical point of view a human's life and health are precious and doctors should strive to allow them to keep their values. During COVID-19 pandemics it becomes crucial, but "first-come, first-served" and "high-severity, high-priority" triage systems do not always guarantee the safety of people's lives. They do not work when there is lack of medical equipment, medication, personnel and when the cases are between life and death.

At the beginning of the pandemics, when there was scarcity of resources, and number of mortality reached unseen levels, it was clear that bioethics principles and processes were fundamental in response to pandemic operational spheres. There are several ethical challenges such as request of the consent and prioritization of healthcare workers which are subject to discussions. Obviously, COVID-19 experience will reshape ethical policy ad principles, and new appraised lessons will be fundamental for the next pandemic.

COVID-19 has also another significance, which is to remind human beings to re-examine their own actions, the internality and unity of biological populations, and then to understand the

97 Neves Maria Patrão (May 2020). "Ethical implications of 'Rationing' vs 'Rationalization'" Eubios Journal of Asian and International Bioethics. EJAIB Vol. 30 (4).

distinction and relationship between "microbiome" and "human kingdom". This requires returning to the basic cognition of the attributes of life and re-exploring the inner connection between culture and nature.

According to anthropological genetic research, modern Homo sapiens originated in Africa, and the scientific name is Homosapiens, abbreviated as "human beings". The species is about 20 formed 10,000 years ago, and then gradually came out of Africa and spread all over the world. Different cultures are bounded by domains, languages, customs, etc[98]. Chinese anthropologist Li Ji translated Homosapiens into Chinese as "the arguing Hemo", emphasizing the integration of human beings in biology and culture[99]. In short, culture can be understood as the repetition of human behavior. Individual repetition is called "habit", group repetition is "custom", a custom over three generations is a "tradition". And all the behaviors of human society are based on the inherent biological properties and premise. So, in contrast to hereditary biological endowments or defects, all cultures are man-made and nurtured.

Now, being challenged by COVID-19 and confronting the "human world", people need an anthropological turn in cultural concepts and knowledge systems. Xiangxu focuses on the biological, cultural and philosophical aspects of anthropology on the basis of the biological nature of the world, and focuses on the biological aspects as a whole[100]. Different, but we are all biological human beings, and we all need to take anthropology as a holistic view. Emphasizing that we are all biological human beings means returning to the body on the natural origin, caring for life, and fundamentally understanding and caring about eating, drinking, birth, old age, sickness and death, understanding the individual existence of human beings is not only about the external gorgeous words, fame and fortune, but also the internal organs, limbs that all human beings have.

The body and mind depend on the stable and fragile respiratory system, digestive system, and perhaps more importantly, metabolism and self-immunity. We are all biological human beings, and it also means coexisting with all things, one with the world, and being aware of the vast amounts that the human community excretes into nature every day.

At the same time, the virus attacks and spreads to individual cells. Ran[101] did not obey the social order of human beings, nor did he pay any attention to the changes of mood and anger oriented by public opinion. As the epidemic continues to spread and worsen, what is being tested

98 Xu Xinjian 徐新建 " Social evolution caused by the epidemic" 2020:疫情引发的社会演变, Journalof XuzhouInstituteof Technology (SocialSciences Edition) Vol.35 No.4 Jul.2020

99 Xu Xinjian 徐新建 " Social evolution caused by the epidemic" 2020:疫情引发的社会演变, Journalof XuzhouInstituteof Technology (SocialSciences Edition) Vol.35 No.4 Jul.2020

100 Xu Xinjian 徐新建 " Social evolution caused by the epidemic" 2020:疫情引发的社会演变, Journalof XuzhouInstituteof Technology (SocialSciences Edition) Vol.35 No.4 Jul.2020

101 Xu Xinjian 徐新建 " Social evolution caused by the epidemic" 2020:疫情引发的社会演变, Journalof XuzhouInstituteof Technology (SocialSciences Edition) Vol.35 No.4 Jul.2020

will be human biological limits and cultural capabilities. Perhaps only then can we seriously think about the meaning of life.

The dilemma that the world has to face is that the root cause of the "new crown" pandemic that broke out in 2020 can spread across countries in a short period of time. One is the framework of globalization that countries are striving for and beginning to bear fruit. That's why, in the eyes of many thinkers, the resulting catastrophe could lead to the end of globalization, a world permanently cast in the cage of nation-states, and even a return to the age of the tribal jungle.

In late March 2020, experts from Chinese universities predicted three outcomes of the new pandemics, the lightest being the structural nature of the world economy. Experts believed that:

1. Under the low-intensity scenario, the impact of the global epidemic would be effectively controlled in the next three to four months, and the world economy would fall into a structural temporary state. It would take one to three years to recover from depression.

2. In the medium-intensity scenario, if the vaccine had not been successfully developed in the short term, the impact of the global epidemic would last for several years, and the international order would be disrupted. Overwhelming impact, restructuring would take five years or even longer.

3. In a high-intensity scenario, the impact of the global epidemic far exceeded our imagination, and the impact had reached a level related to the rise and fall of human civilization.

There is no "recovery" problem, only the problem of how to build a new world and a new civilization[102].

The WHO's General Director declared: "Humanity has fallen into a full-scale war against the virus. We - all countries and individuals - will be completely torn apart by the virus if left unchecked"[103].

In the long history of human beings, wars originating from viruses are not uncommon, but precisely because of the help of the globalization structure after entering modernity. The threat intensity and devastating blow of the new coronavirus is likely to be unprecedented. In this sense, the current ideological community has a great influence on the future of the world.

Although there is no lack of political insight, many judgments are still obviously limited by the old words and new international habits, and continue to use the trend extrapolation method to make judgments.

In this regard, it is urgent to change the existing thinking mode, jump out of the cognitive limitations of the human center, improve human self-esteem from the overall connection of earth creatures and rethink the structural traps of nation-state and market growth.

102 Xu Xinjian 徐新建 " Social evolution caused by the epidemic" 2020:疫情引发的社会演变, Journalof XuzhouInstituteof Technology (SocialSciences Edition) Vol.35 No.4 Jul.2020

103 Xu Xinjian 徐新建 " Social evolution caused by the epidemic" 2020:疫情引发的社会演变, Journalof XuzhouInstituteof Technology (SocialSciences Edition) Vol.35 No.4 Jul.2020

3.3 Debates about the impact on bioethics and human rights in China

After the explosion of COVID-19 there were long-standing debates on the ethics of research in place. They became louder when developed countries could already use advanced medical interventions, while poor countries suffered from shortage of everything. The question was whether it was ethically acceptable to conduct placebo-controlled trials in such governments. This debate was noticeable also during the AIDS epidemic when Europe and U.S. benefited from preventive medications and developing countries did not even have access to them. The same issue arose with the vaccines for COVID-19: while prosperous states fulfilled their vaccination plans, countries with low income economies could not even dream about it.

This kind of problem appeared not only from inequality and/or discrimination, but also from low cooperation at the international level. Instead of preparing a globally coordinated response, some states were busy with blaming each other for spreading COVID-19 around. So, each country had to adopt its own method of struggling with the pandemics which was not always ethical.

Rich states did not really want to share their vaccines, having plenty of them, with other communities. Macklin (2022) says: "The United States is one example, and even member countries of the European Union are exhibiting what has come to be called "vaccine nationalism". The failure of countries to honor the cooperative arrangement known as COVAX with the World Health Organization (WHO) is a breach of their previously stated endorsement of that plan. The introduction of vaccine certificates or "passports" has been subject to the criticism that it is exclusionary and unjustly limits the freedom of movement. The recent accounts of fraud in creating such passports may even cross a legal boundary. And some critics contend that the Chinese government is hiding important information about the origins of COVID-19 in their refusal to open all records to WHO scientific investigating teams" [104].

China faced real critics of the international community when it created obstacles or did not disclose the whole information about the origins of the pandemic, when WHO arrived to make the investigation. This international organization issued its report on March 30, 2021 and called for additional studies (WHO Home/News, 2021). However, the WHO employees did not have access to biological samples, thus, such low transparency from the Chinese side was criticized by the scientists. Gorman (2021) wrote: "A point of contention was whether the virus might have arisen from a laboratory incident in Wuhan, China, where the first signs of the pandemic appeared. The task of the WHO mission did not include an investigation of security or procedures at the Wuhan

104 Macklin Ruth (2022). "A new definition for global bioethics: COVID-19, a case study". Global Bioethics, 33:1, 4-13, DOI: 10.1080/11287462.2021.2011001. https://doi.org/10.1080/11287462.2021.2011001

laboratory. One infectious disease expert in the U.S. said that China wants "to create reasonable doubt that the virus started in China"[105].

The lack of transparency was also underlined in Gilbert's (2020) memories, when she got a letter from her colleagues Renzong Qiu, Renmin University of China in Beijing, and Ruipeng Lei, Huazhong University of Science and Technology in Wuhan: "They described a lack of transparency — days in January with no reports of new cases — and misinformation, such as a statement from the Wuhan Health Commission that the infection was mild and was not transmitted from person to person. They asserted that "faked, misleading information shifted the public's attention from the epidemic and inhibited the efforts by medical and public health staff to control it." They further charged that provincial officials may have broken the law — Article 37 of the Law on Infectious Diseases, to be precise, which, they wrote, "stipulates that the relevant departments of the people's government shall not conceal, make false reports, or delay report of the epidemic situation of infectious diseases"[106].

This case, when China tried to hide the real facts and the international community searched for evidence, shows what a truly global bioethics is. The main role in this issue should be given to WHO, the world's leading public health organization. However, it had limited power to force China to erase the barriers and allow full transparency of its laboratories for inspection. So, such behaviour could be perceived as low responsibility for the health of the international communities which is incompliant with the principles of bioethics.

However, China allowed even more serious breach of ethics and human rights in its own country. The spread of the epidemic, having in somehow turned the spotlight on China, helped to give a notable topicality to the problem of internment camps, in which the authorities hold the Uyghur minority in various areas of Xinjiang. They are defined by the Chinese government as "re-education" institutes (Zenz, 2019)[107].

First of all, it is worth highlighting that, even before the end of 2019 an important US press released the contents of some secret documents of the Chinese government concerning the existence, purposes and characteristics of the internment camps scattered in the Xinjiang region, on the issue of the existence of special detention facilities, the United Nations Committee on Racial Discrimination issued its opinion in 2018 when China sent its periodic report. On that occasion, the Committee, in response to the statements of the Chinese delegation declaring that in the Xinjiang region the recognition of fundamental freedoms and rights was guaranteed without any form of

105 Gorman, J. (2021). Origins of virus need more study, but what kind?" New York Times, April 9, 2021. A-4.

106 Gilbert Susan (2020). "Chinese Bioethicists Speak Out on Covid-19, and Others Follow". THE HASTINGS CENTER REPORT. VOLUME 50, NO. 2 • MARCH-APRIL 2020

107 ZENZ A. "Thoroughly reforming them towards a healthy heart attitude: China's political re-education campaign in Xinjiang". Central Asian Survey, 38, 2019, pp. 102-128.

discrimination against the Uyghur minority, stated on the contrary that it was seriously concerned about the content of numerous reports received, which denounced the adoption by the Chinese government of a series of measures and provisions that appeared to be highly damaging to the fundamental rights of the members of the Islamic minority in question. In particular, the Committee dwelt not only on the content of measures involving serious and unjustified limitations on the exercise of fundamental rights - from severe and unjustified limitations on freedom of religion, movement and opinion, to the use of mass surveillance systems, profiling systems and the use of biometric data (Steenberg and Rippa, 2019)[108] - but highlighted the content of numerous reports denouncing the existence of a series of detention facilities in which people were arbitrarily detained - the exact number was not known, but some reports they referred to about 1 million individuals - mostly belonging to Islamic minorities and the Uighur one in particular, who were not formally indicted (CERD, 2018)[109]. The Committee also highlighted the fact that the Chinese authorities, who defined these structures as "vocational training centers", intended to host individuals responsible for minor crimes, continued to fail to provide explanations about the number of people detained, the conditions and times of detention. The Committee had therefore sent a series of requests to the Chinese government to provide official data relating to the location and number of camps, the number of people detained, the number of students, refugees and asylum seekers of Uyghur ethnicity forced to repatriate and subsequently interned, requests to which the Chinese government does not appear to have, up to the present time, been followed up.

The issue of internment camps had also been examined, more or less in the same period, by the United Nations Human Rights Council on the occasion of the 3rd cycle of universal periodic review relating to China: the Chinese government, once again called to offer explanations, he had defined the re-education camps as "vocational skills education and training institutions", which had been committed for the express purpose of countering terrorism in the Xinjiang region and whose objectives were to help "the few people who had been exposed to and affected by extremism to shake off terrorist and extremist thoughts", through a series of training and work activities (UN Human Rights Counsil, 2018)[110].

The news disseminated in particular by the international press and the documented reports of various NGOs shed light on the impact that the epidemic has had on the health conditions of the people detained in the camps, an impact that is evident under different profiles. The various reports,

108 STEENBERG R., RIPPA A. “Development for all? State schemes, security, and marginalization in Kashgar, Xinjiang”. Critical Asian Studies, 2, 2019, pp. 274-295;

109 Committee on the Elimination of Racial Discrimination, (CERD) Concluding observations on the combined fourteenth to seventeenth periodic reports of China (including Hong Kong, China and Macao, China, 19 September 2018, CERD/C/CHN/FCO14-17, par. 40(a).

110 UN HUMAN RIGHTS COUNCIL, Report of the Working Group on the Universal Periodic Review, A/ HRC/40/6, 26 December 2018, par. 26.

in fact, denounce the fact that the spread of the epidemic inside the detention centers was facilitated by poor hygienic conditions and overcrowding, as well as the fact that the Chinese authorities did not disclose the number of people affected from the virus or the number of deaths within the centers (Davidson, 2020)[111].

It was also denounced that already during the early stages of the spread of the epidemic, when the Chinese government had taken measures to contain the epidemic severe, if not draconian, an unspecified number of people detained in the camps would have been forcibly transferred to other regions of the country, in particular in the south-east area known to be the hub of the country's industrial production, to be relocated to factories and production centers whose staff had been retired as a result of the spread of Covid-19 (South China Morning Post, 2 May 2020)[112] . Precisely in the period of spread of the epidemic, therefore, the practice, already widely tested by the Chinese government, consisting in the forced transfer of numerous people from internment camps but also more generally from the Xinjiang region to the factories and production centers located in various areas of the country, it would have intensified, not only by drawing the attention of the international community to the problem of internment camps and human rights violations perpetrated within them, but by raising important health questions. The consequence was that of an evident increase in the political pressure exerted in some relevant international fora, which resulted not only in the adoption of specific political positions, to which reference was made, but also in the adoption of measures bilateral sanctions - in particular by the United States - as well as in numerous initiatives undertaken by various parties, NGOs, governments and companies and multinationals (Angioi, 2021)[113].

In the light of what has been highlighted so far, some fundamental questions are therefore brought to the attention:

1. the contrast between the measures adopted by the Chinese authorities against the Uyghur minority, in particular as regards the presence of military camps. internment, and international human rights standards;
2. the compatibility of the measures, adopted in the Xinjiang region, in conjunction with the spread of the Covid-19 epidemic, with the obligations deriving from the international

111 DAVIDSON H. “Covid-19 outbreak in Xinjiang prompts fears of spread inside China's camps”, The Guardian, 28 July 2020.

112 South China Morning Post (2 May 2020). “China Plans to Send Uygur Muslims From Xinjiang Re-education Camps to Work in Other Parts of Country”. www.scmp.com/news/china/politics/article/3082602/chinaplans-send-ugyur-muslims-xinjiang-re-education-camps-work

113 Angioi Silvia (2021). “Minoranze etnico-religiose in tempi di Covid-19: la Cina e la minoranza uigura, tra violazioni dei diritti umani e (mancata) tutela del diritto alla salute”. Rivista telematica (https://www.statoechiese.it), fascicolo n. 4 del 2021. ISSN 1971- 8543

instruments that govern the conduct of States in the event of the spread of health emergencies of relevance international.

The profiles involved are different although strictly connected, because at the base there is a problem of violation of human rights which obviously includes the right to health and the right of access to health care: this right, which should generally be guaranteed by the State without any form of discrimination, it takes on an even more evident significance on the occasion of emergency phenomena during which also the need to access health care and treatment, and to access it on equal terms, arises with urgency and exceptionality.

It is also important to examine the compatibility of the measures adopted in the Xinjiang region, in conjunction with the spread of the Covid-19 epidemic, with the obligations deriving from international instruments that guarantee the right to health, as well as with those that govern the conduct of States in the event of the spread of health emergencies of international importance. It has already been highlighted that the spread of the Covid-19 epidemic in Chinese territory has raised, on one hand, the problem of the discriminatory nature that the measures adopted to combat the epidemic in the Xinjiang region would have assumed; on the other hand, that of the Chinese authorities' failure to communicate data relating to the spread of the epidemic within the internment camps, as well as that of the forced transfer of prisoners and their use in factories and structures production plants located in various areas of the country, in which it would seem that the necessary safety conditions from the health point of view have not been ensured. The content of the measures adopted must be analyzed in the light of both the obligations imposed on China as regards the recognition and protection of the right to health and the right of access to health care, and the obligations that impose specific obligations in the cases in which they spread transnational health emergencies.

The fundamental obligations mentioned above originate from the Pact on economic, social and cultural rights - a basic international instrument of reference, which China ratified. Article 12, as was clearly highlighted by the Committee on Economic, Social and Cultural Rights, must be interpreted in a broad sense, taking into account not only the inclusive and complex nature of the law itself, but also the various activities that the State is called to put in place to guarantee its effective enjoyment by each individual and without operating any form of discrimination (CESR, 2009)[114]. The recognition of this right translates to the State in obligations that take on a double value, negative and positive: the State is not only obliged to refrain from adopting any measure that could result in the denial or limitation of the enjoyment of the right to health, but also to intervene, adopting all the necessary measures so that the enjoyment of this right is guaranteed to all,

114 CESCR (2009). General Comment No. 20: Non-Discrimination in Economic, Social and Cultural Rights, U.N. Doc. E/C.12/GC/20, 2 July 2009.

effectively and under equal conditions (CESR, 2000)[115]. The complex nature of the right to health together with the non-discriminatory perspective represent the necessary parameter on the basis of which the State takes in order to ensure this right. However, they take on a particular value in those national contexts that appear to be particularly diversified from an ethnic point of view: these groups - primarily minorities and indigenous populations - are in fact, for a series of reasons, more vulnerable to health risk, and their presence raises, in many national contexts, the real and concrete problem of inequality in access to health care and services, and therefore in the enjoyment of the right to health (Nazroo, 2003)[116].

It is equally evident that if the disparity in the enjoyment of the right to health is a widespread problem, particularly in national contexts that are very diversified on an ethnic-racial level, it tends to further expand in times - such as the current one characterized by the raging epidemic.

The regulatory framework of reference is represented in this case by the binding instruments that the World Health Organization (WHO) has adopted precisely in order to define the behavioral rules that States must comply with in the hypothesis in which an important risk to health arises in connection with the spread of a transnational epidemic. From this point of view, the so-called International Health Regulations (IHR), adopted by the WHO in 2005[117], are specifically relevant, which fall within the group of binding instruments that are the responsibility of the organization and which have the primary purpose of regulating the activity of States in all those cases in which phenomena classified as Public Health Emergency of International Concern (PHEIC). In such circumstances, in fact - as happened in the case of the spread of Covid-19 - the measures provided for by the IHR must be applied both within each national context and with reference to activities that have a cross-border dimension. These measures are conceived by the IHR themselves, and by art. 42 in particular, in a non-discriminatory manner: however, it should be specified that, although the provision is at first sight aimed at preventing the measures - especially those relating to the prevention of international contagion that may involve the adoption of restrictive measures of various content - are adopted in a non-uniform manner with regard to the various States. There is no doubt that the non-discriminatory logic underlies the law also as regards the measures that each State adopts internally to prevent and combat the spread of the disease. Since these are interventions that concern both the prevention and the treatment of epidemic diseases, and since these are measures that can involve the compression of some fundamental freedoms, it follows that any

115 CESCR (2000). General Comment 14, The Right to the Highest Attainable Standard of Health (Art. 12), E/C.12/2000/4, 11 August 2000.

116 NAZROO J.Y. (2003). "The Structuring of Ethnic Inequalities in Health: Economic Position, Racial Discrimination, and Racism". American Journal of Public Health, 93, pp. 277-284.

117 International Health Regulation (2005), Second edition, January 2008. https://www.who.int/publications/i/item/9789241580410.

difference in treatment and any form of discrimination is operated by the state authorities between categories of citizens.

The general obligation of non-discrimination is also foreseen by the Chinese domestic law and more specifically by articles 33 and 4 of the Constitution: the principle of non-discrimination becomes a general principle and is intended, as such, to inform the dictation of the internal rules, constitutional and non-constitutional, which govern the subject of health and which guarantee the right to health and access to health care and services. With reference to the right to health, in fact, that the recognition of this right can only be conceived in a condition of equality for all citizens is inferred not only from the aforementioned constitutional rules, but also from the content of the provisions of the so-called "Basic healthcare and health promotion law ", adopted by the Chinese legislator in 2019, which is perhaps the most relevant internal legislation instrument in terms of health, so much so that it has been defined as a "constitutional charter on health"[118]. With the adoption of the recent legislative instrument, the legislator has taken steps to fill the void left to a certain extent by the Constitution - which in fact does not define health as a fundamental right of the individual - and has given the State the task of intervening to guarantee that same law.

All this is to say that the measures adopted by the Chinese authorities in the Xinjiang region and within the internment camps during the COVID-19 epidemic must be assessed. From this point of view, it is first of all worth remembering that the aforementioned Committee on Economic, Social and Cultural Rights had already highlighted - during the examination of the second periodic report presented by China - the existence of a structural principle of non-discrimination which was clearly affirmed both by the Chinese Constitution and by internal legislation. China continued not to have a "comprehensive anti-discrimination law that protects all marginalized and disadvantaged individuals and groups in their enjoyment of economic, social and cultural rights"; the Committee had also emphasized the persistent and widespread forms of discrimination affecting minorities, particularly in the western regions of the country in the various sectors of health, social security, work and education[119]. With respect to the existence of the problem, the Committee had therefore made specific requests for China to take all necessary measures in order to guarantee, inter alia, the right to health and the right of access to treatment on equal terms, eliminating the differences in treatment for the benefit of the most marginalized groups and ethnic minorities.

These responsibilities originate from the contrast between the measures in which Chinese policy towards the Uighur minority takes place both with international human rights standards and

118 Angioi Silvia (2021). "Minoranze etnico-religiose in tempi di Covid-19: la Cina e la minoranza uigura, tra violazioni dei diritti umani e (mancata) tutela del diritto alla salute". Rivista telematica (https://www.statoechiese.it),fascicolo n. 4 del 2021 ISSN 1971- 8543

119 CESCR. Concluding observations on the second periodic report of China, including Hong Kong, China and Macao, cit., par. 14.

with standards that guarantee the right to health and impose specific obligations on the State. The Committee of Economic, Social and Cultural Rights verified the evaluation of the policy of the Chinese authorities towards the Uighur minority, also in light of the recent events connected with the spread of the Covid-19 pandemic. The Committee gave obvious importance to the issue of the violation of the rights of minorities and of the Uyghur minority in particular: this element appears noteworthy all the more if we consider that the periodic report presented by China focuses on the measures it has adopted to implement the rules on economic, social and cultural rights and therefore has a broad content. It is also worth considering the fact that the Committee for the Elimination of Racial Discrimination has sent China a follow-up letter with which the Committee takes stock of the issues and problems arising from China's failure to fulfill some fundamental obligations imposed by the Racial Discrimination Convention. What is relevant in this case is the fact that the document is almost entirely devoted to the issues connected with the violation of the rights of the Uighur minority (Angioi, 2021).

We should take into account that also in this case the periodic report presented by China at the time focuses on the measures adopted to fulfill the Convention for the Elimination of Racial Discrimination. It is well understood that if the attention of the Committee has recently focused above all on failure to adopt the recommendations that it sent to China with specific reference to the Uyghur minority, it is because the Committee must have considered that this question has an evident centrality even in a context, such as the Chinese one, in which the issues connected with the violation of the provisions of the Convention are numerous.

The COVID-19 pandemic showed that China, the country which still opposes, claims and strenuously defends the principle of non-interference in internal affairs, suddenly found itself the object of generalized attention. And this virus revealed not only the advantages of the system, but also huge defects which China has in terms of bioethics and protection of human rights.

Conclusions

New coronavirus originated from an animalistic disease revealed big problems in the humanistic aspects of the Chinese society: infection of the population, fast spread, medical issues, income inequality, discrimination and vulnerability of human rights.

Especially the last two problems were particularly triggered by the dissemination of the pandemics. The most sensitive categories of the population which tend to be discriminated are elder people, citizens of rural areas and women.

Inequalities and impoverishment have grown into a disadvantage that is not only economic: an inequality affects dignity of people because they are old, sick, lonely. There is a risk that elder patients might be considered as a "waste" during pandemics. It would be difficult to honor concretely, outside the rhetoric, elder people and educate the medical personnel and the society that aged patients should get necessary training about COVID-19 and ethical principles too.

People in rural areas tend to be marginalized from the health sector. Their economic situation does not allow to benefit from the same services and quality like in the urban areas, thus poverty is also one of the most important elements which influence bioethics and anthropology. In a globalized world, we can discover that many issues that do not seem to be connected are in fact associated and are part of a complex network.

Women risk being even more penalized, both on the level of the working conditions and in other daily roles. Women actually do double and triple load of work, due to the increasingly essential presence that women have in their difficult family balances, taking into account also care about and education of the children who are mostly at the shoulders of the women.

The concept of generativity, in a broad sense, social and economic, that it is so dear to us, cannot be distracted from its original and literal character. It cannot make us forget the primary generation. If some women decide not to have children in order to find a good job and survive any crisis, including pandemics, it will become a devastating trend in the future. Creation of the material and relational conditions becomes fundamental and constitutes a human right. It is a matter of fact that women's work is not only not inconsistent with motherhood, but that indeed, in countries where women are more employed, the birth rate is growing for many reasons, economic, psychological, relational. Women and motherhood were already penalized before Covid-19 and now they risk returning to a familiar-feminine model of the 1950s, more for bad than for good (Fattorini, 2020)[120].

Most countries have common issues, and a global bioethics is an instrument which can connect the dots, help us understand how worldwide processes impact measures and strategies of

120 Fattorini Emma (2020). “Rifessioni sul futuro” in journal “Pandemia e resilienza Persona, comunità e modelli di sviluppo dopo la Covid-19. Consulta Scientifca del Cortile dei Gentili”. Edizioni Consiglio Nazionale delle Ricerche. ISBN 978 88 8080 390 4 DOI https://doi.org/10.48220/PANDEMIAERESILIENZA-2020

individual nations (Ortiz-Millán, 2022)[121]. The international community should dedicate more attention to the studies of global bioethics, its principles and processes and analyse the effects of the globalization on the whole environment. Macklin (2021) says that the meaning of global bioethics should also include "the study of cooperation and collaboration (and lack thereof) between and among nations. It embraces questions about the role of international organizations such as [the World Health Organization] and the influence they may exert over actions or policies of individual nations"[122]. If everyone follows this approach, scientists and researchers will be able to suggest effective global solutions to common international problems, and that will be fulfilled within the framework of bioethics.

During future pandemics vaccines should be used by the populations on a voluntary basis. Their efficiency is proved by the history and the international community has seen that they were also very useful to minimise the number of contagions of COVID-19. Governments and institutional policy-makers should apply mild strategies to reassure vaccination against COVID-19 or any other pandemics before introducing compulsory vaccination. They are also responsible for safety and efficiency of the whole healthcare system. People should be educated about the consequences of the diseases, proper methods of prevention and cure and they should have access to the information on ethics and human rights protection. Strict supervisory measures can be applied only if they allow the governments to achieve the public healthcare goals, taking always in consideration ethical principles and norms.

China, in particular, should make further improvements in bioethics. Firstly, the education on this topic should be equal to everyone: both rural and urban citizens. In the past, the bioethics education of the medical profession has gradually moved away. Instead, medical students should be informed about the importance of paying attention to the quality of life and the value of life. Such education should be held not only at the medical schools, but also at family level, social level, government level.

Bioethics education, still in the biological sense, has to deal with and solve the phenomenon of ignoring and despising life. The purpose is to be eager to prescribe the right medicine, so the teaching system, curriculum outline, internal content system, etc. need to be optimized and well transformed.

Secondly, bioethics education should be considered as a part of medical ethics education. However, some medical colleges are actively exploring the integration of bioethics education and medical ethics. Students get values education, ideological and political education, medical

121 Ortiz-Millán Gustavo (2022). "Bioethics, globalization and pandemics". Global Bioethics, 33:1, 32-37, DOI: 10.1080/11287462.2021.2011006. https://doi.org/10.1080/11287462.2021.2011006

122 Macklin R. (2021). "A new definition for global bioethics: COVID-19, a case study". Manuscript.

humanistic spirit training[123]. Bioethics should come along the path of nurturing and integration, actively respond to the new challenges of the new media era and comply with the norms of doctor-patient relationship and the ever-developing medicine in the context of economic globalization technology and other issues, which objectively promote the development of bioethics education.

However, due to the top-level design of bioethics education and weak system of resources, China did not pay enough attention to the system integration and standardized training of teachers. So, the level of medical ethics education weakens the role of bioethical education.

Thirdly, bioethics education should be equated with mental health education. The teaching effect of life ethics education is reflected in cherishing life and maintaining physical and mental health, value realization, potential development, etc. The vigorous development of the school and even the whole society has caused the psychological distortion. The phenomenon of harming one's own life or the life of others caused by a mental illness has been given a certain degree of containment within bioethics education. So, the process of mental health education as the carrier of bioethics education got gradually confused with bioethics education and even replaced bioethics education, greatly reducing the existence value of bioethics education and diluting its characteristic background.

Fourth, bioethics education should be equated with the generalization of bioethical knowledge. The first one is to let the educated understand life and feel life. The ultimate goal is to let the people understand what should be the life and how to deal with it. On the basis of thinking about the quality of life and the value of life, more emphasis is placed on thinking of the identification and the proportion of practice. Domestic bioethics educators also try to distinguish theory and practice. The popularization of bioethical knowledge based on indoctrination and theory is of course important. However, the fragmentation of its educational content, the simplification of educational forms, the passivation of the learning process is difficult to be managed so as to stimulate the interest at students. Anyway, the attractiveness and effectiveness of science education need to be improved.

In general, China made important steps in developing the regulations on bioethical issues, among which there is CBL which is a notable document. The latter employs an adaptive framework of bioethical governance in China. In general, the Chinese regulations on bioethics comply with the internationally recognized standards and are clear. Nevertheless, the application of these guidelines is quite challenging, because there is lack of details on how to implement certain instructions. On the top of that there is deficiency of appropriately trained research and healthcare employees, the

123 Ding Jianfei, Zhu Hui. “Overview and Reflection on Bioethics Education and Research in COVID-19” 1994-2020 China Academic Journal Electronic Publishing House http://www.cnki.net

complications in supervisory of the implementation of these regulations and scarce awareness of many patients and, especially in countryside.

Medical institutions are particularly challenged by the application of the CBL and the operation of IRBs. The latter is a principal instrument to defend human rights in biomedical research and together with CBL they could stimulate the growth and good results in the sphere of biomedical research in China. In general, the authorities should apply the following measures:

- simplify the decision-making process of the IRB, and
- provide necessary conditions for the IRB members to guarantee the compliance of decision-making with ethics principles.

So, the CBL should work in symbiosis with the whole legislation of China on biosecurity and biosafety and international documents on human rights such as the UNESCO Universal Declaration on Bioethics and Human Rights. Therefore, the authorities have to deal with the main goal – to increase the consciousness of scientists and medical staff about the rights of each person in terms of bioethics.

Thanks to the protection of human rights and full attention on bioethics:

- the patients will be able to get proper medical services, will avoid discrimination and inequality;
- service providers will know to which theory and practice they should refer;
- relations between the first and the second will be based on dual loyalty;
- government will bear certain responsibilities to provide the protection of the human rights in accordance with the international regulations and internal rules;
- bioethics will be complemented by providing a set of legally recognized and globally accepted norms and procedures for identifying systemic issues.

Along with other sets of regulatory standards regarding patient care, human rights can contribute to health systems serving as places of treatment, care, and support for everyone.

Apart from the above-mentioned aspects, China should also improve the distribution of resources in health care, at the macro (health policy) and micro (patient selection) levels. This problem is extremely complex on a theoretical and operational level. In an ideal situation of sufficient availability of resources for all, the problem does not exist, but the COVID-19 pandemic makes the existence of the problem evident, in a dramatic and urgent way. Despite the possible efforts to expand the distributable resources, medical personnel should also avoid taking the tragic decision of who to cure and not to cure. In the bioethical discussion there is an agreement on the fact that distribution must be 'fair', but there are different ways of conceiving justice on a theoretical level and of applying it on a practical level. And these theories are re-emerging in the discussion

today, with greater or lesser intensity, or with different formulations, also in the context of documents of national and international committees of bioethics (Palazzani, 2020)[124].

The theory of libertarianism places the defence of individual rights of freedom at the center of the bioethical reflection. The argument at the basis of this model of justice is the consideration according to which society is not responsible for inequalities: the absence of social responsibility derives from the fact that the results of the 'natural lottery' and the 'social lottery' are 'unfortunate', not unfair. It follows that the company is not required to compensate for differences or to reimburse the damage, as there is no direct obligation to help those in need. At a micro-allocative level, in the choices of patient selection there is a tendency to prefer the young over the elderly, the rich over the poor, the individual who holds important social positions over those marginalized in society, who is more autonomous with respect to those who are less or no longer so, those who have lost their cognitive ability and are in a condition of dependence on others. It is an economic approach, according to which the selection of patients for treatment is based on individual free choice and the ability to pay.

In the context of utilitarian theory[125], based on consequentialist ethics in the collectivist version of the search for the best balance of pleasure over pain (understood as the maximization of benefits and the minimization of harm) for the greatest number of individuals, justice coincides with the guarantee of a certain level of quality of life (Harris, 1987). In this perspective, the patient with the best perspective in terms of recovery, measured on the quantity and quality of life, is privileged, justifying the non-treatment for those who find themselves in a condition of poor quality of life. This strategy is expressed by the formula quality adjusted life years (QALY), i.e. number of years of life, taking into account quality and costs, for the largest number of individuals. The allocation of limited resources in terms of access to care is considered right when it reaches, for the same expense, the best possible pragmatic result in relation to convenience, therefore to the number of patients who survive with the prospect of years of life to live with quality. This choice, if expressed in radical terms, inevitably leads to the marginalization of the weakest subjects, considered 'marginal' (the elderly, the terminally ill, people with disabilities). In the context of the COVID-19 pandemic, this aspect is particularly relevant, as elderly people with comorbidities are particularly affected by the virus.

In bioethics theory there is the principle recognition that everyone must be treated. But in fact circumstances (such as scarcity of resources) the criterion cannot be defined on subjective or

124 Palazzani Laura (2020). “La pandemia da Covid-19 e il dilemma etico: chi curare?” in journal “Pandemia e resilienza Persona, comunità e modelli di sviluppo dopo la Covid-19. Consulta Scientifca del Cortile dei Gentili”. Edizioni Consiglio Nazionale delle Ricerche. ISBN 978 88 8080 390 4 DOI https://doi.org/10.48220/PANDEMIAERESILIENZA-2020

125 J. Harris (1987). “Qualifying the Value of Life, in Journal of Medical Ethics”, pp. 117-123.

social (not medical) grounds, but should be specified only on objective (medical) grounds, i.e. on the basis of the patient's clinical condition. It is clear that scarce resources cannot be misused and wasted, but must be effective to save lives. But we should not forget that the needs of every single sick person must be placed at the center. In the case of the pandemic, it should also be remembered that this criterion must be applied to all patients: the selection must not lead to a differentiated treatment between patients with infection and those with other pathologies, since vigilance is ethically due to the continuity of taking care of others. Those who are most vulnerable, such as elderly people or people with disabilities, poor people, must not be marginalized by selective logic inspired by individualism or social convenience. However, this does not mean treating 'at any cost' or implementing practices of clinical persistence, which must always be dutifully suspended when disproportionate, ineffective and burdensome, as well as the patient's autonomy of refusal or renunciation of treatments must be respected, with the verification of the awareness and full information of the consequences.

To sum it up, despite the notable development of some processes in healthcare system, bioethics and triage system, China has still rooms for improvement. In this thesis my goal was to give full picture of the historical background of the Chinese management, its evolution during COVID-19 pandemics and the impact of the new virus on different aspects of the healthcare system: hospitals, medical personnel, technologies, insurance, ethical principles and anthropology. In addition, I aimed at showing advantages and shortages of them, specifying criteria of the care’s equity and the people’s dignity, the access of COVID-19 patients to healthcare, political and bioethical debates in public sphere.

BIBLIOGRAPHY

Angioi Silvia (2021). "Minoranze etnico-religiose in tempi di Covid-19: la Cina e la minoranza uigura, tra violazioni dei diritti umani e (mancata) tutela del diritto alla salute". Rivista telematica (https://www.statoechiese.it), fascicolo n. 4 del 2021. ISSN 1971- 8543

Biscop Sven (2020). "Coronavirus and Power: The Impact on International Politics". Security Policy Brief, No. 126.

BMJ (2021). "Could rural China's healthcare deal with covid-19?". ;375:n2759

Cai, Qihai, Aya Okada, Bok Gyo Jeong, and Sung-Ju Kim. "Civil Society Responses to the COVID-19 Pandemic: A Comparative Study of China, Japan, and South Korea." *China Review* 21, no. 1 (2021): 107–38. https://www.jstor.org/stable/27005557.

Campbell Charlie (21 November 2019). "The Entire System is Designed to Supress Us.' What the Chinese Surveillance State Means for the Rest of the World". Time. https://time.com/5735411/china-surveillance-privacyissues/

CESCR. Concluding observations on the second periodic report of China, including Hong Kong, China and Macao, cit., par. 14.

CESCR (2009). General Comment No. 20: Non-Discrimination in Economic, Social and Cultural Rights, U.N. Doc. E/C.12/GC/20, 2 July 2009.

CESCR (2000). General Comment 14, The Right to the Highest Attainable Standard of Health (Art. 12), E/C.12/2000/4, 11 August 2000.

China Daily (21 February 2020). "Medical teams sent to Wuhan play key role". http://epaper.chinadaily.com.cn/a/202002/21/WS5e4f0f6ca310a2fabb7a256f.html

Chumtong Jason, Stiftung Konrad Adenauer (2020). "Phone tracking against COVID-19 Using digital technology against an analogue virus". https://www.jstor.org/stable/resrep25296

Committee on the Elimination of Racial Discrimination, (CERD) Concluding observations on the combined fourteenth to seventeenth periodic reports of China (including Hong Kong, China and Macao, China, 19 September 2018, CERD/C/CHN/FCO14-17, par. 40(a).

CONLEY TYLER Melissa and LIU Tiffany (2020). "Great Power Blame Game: The Ongoing War of Words Over COVID-19". Global policy. The viral world. 2020 Observer Research Foundation and Global Policy Journal, 62-71. https://www.researchgate.net/profile/Nipun-Jain-7/publication/342638212_Technology_in_the_Times_of_a_Global_Pandemic_Lessons_from_India/links/5efdece1a6fdcc4ca444bed5/Technology-in-the-Times-of-a-Global-Pandemic-Lessons-from-India.pdf#page=62

Danish Institute for International Studies (2020). "COVID-19: Impact and Innovative responses". https://www.jstor.org/stable/resrep27518.4

Davidson H. "Covid-19 outbreak in Xinjiang prompts fears of spread inside China's camps", The Guardian, 28 July 2020.

Deloitte report. “Internet Hospitals in China: The new step into digital healthcare”. https://www2.deloitte.com/cn/en/pages/life-sciences-and-healthcare/articles/internet-hospitals-in-china-the-new-step-into-digital-healthcare.html

Ding Jianfei, Zhu Hui. “Overview and Reflection on Bioethics Education and Research in COVID-19” 1994-2020 China Academic Journal Electronic Publishing House http://www.cnki.net

Du Juan (2009). “Economic reforms and health insurance in China”. Soc Sci Med. 2009 Aug; 69(3): 387–395. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7116972/

Fattorini Emma (2020). “Rifessioni sul futuro” in journal “Pandemia e resilienza Persona, comunità e modelli di sviluppo dopo la Covid-19. Consulta Scientifca del Cortile dei Gentili”. Edizioni Consiglio Nazionale delle Ricerche. ISBN 978 88 8080 390 4 DOI https://doi.org/10.48220/PANDEMIAERESILIENZA-2020

Gilbert Susan (2020). “Chinese Bioethicists Speak Out on Covid-19, and Others Follow”. THE HASTINGS CENTER REPORT. VOLUME 50, NO. 2 • MARCH-APRIL 2020

Ghosh Shona (17 May 2020), “Police in China, Dubai, and Italy are Using these Surveillance Helmets to Scan People for COVID-19 Fever as they Walk Past and it May be our Future Normal”, Business Insider. https://www.businessinsider.com.au/coronavirus-italy-holland-china-temperaturescanning-helmets-2020-5?r=US&IR=T.

Gong F, Hu G, Lin H, Sun X, Wang W. Integrated Healthcare Systems Response Strategies Based on the Luohu Model During the COVID-19 Epidemic in Shenzhen, China. International Journal of Integrated Care. 2021;21(1):1. DOI: http://doi.org/10.5334/ijic.5628

GONG Xue and LI Xirui (2022). Chapter “China and the World Health Organization Not an Easy Road for Either” in a book of Anoma P. van der Veere, Florian Schneider, Catherine Yuk-ping Lo “Public Health in Asia during the COVID-19 Pandemic. Global Health Governance, Migrant Labour, and International Health Crises”. https://www.jstor.org/stable/j.ctv2b07tn8.7

Gorman, J. (2021). Origins of virus need more study, but what kind?” New York Times, April 9, 2021. A-4.

Greely Henry T. (2019). “CRISPR’d Babies: Human Germline Genome Editing in the ‘He Jiankui Affair’”, Journal of Law and the Biosciences 111–183.

Johannes Abeler, Matthias Bäcker and Ulf Buermeyer. “Corona tracking & data protection: no necessary contradiction”. Netzpoliti.org. https://netzpolitik.org/2020/corona-tracking-datenschutz-kein-notwendiger-widerspruch/

Harris J. (1987). “Qualifying the Value of Life, in Journal of Medical Ethics”, pp. 117-123.

Health Sector Research Institute: 2020 Research Report on Development of Hospitals via Internet in China

Healthcare.com. Accelerated construction of online hospitals during COVID-19. https://www.cn-healthcare.com/articlewm/20200507/content-1110730.html

Hennig Wolfgang (2006). “Bioethics in China”. European Molecular Biology Organization. EMBO reports. Vol 7, N. 9

Hu Beiyi (18 May 2021). “Covid-19 in China: A Civil Society in the Making”. https://metropolitics.org/Covid-19-in-China-A-Civil-Society-in-the-Making.html

Hu Ming, Sidel Mark (2020). “Civil Society and COVID in China: Responses in an Authoritarian Society”. https://journals.sagepub.com/doi/10.1177/0899764020964596

Huang Zhengzong, Feng Zehua (12 November 2021). “Public Health and Private Life Under COVID-19 Vaccination Policies in China: A Legal Analysis”. Volume 2021:14 Pages 4627—4638. https://doi.org/10.2147/RMHP.S336434

International Health Regulation (2005), Second edition, January 2008. https://www.who.int/publications/i/item/9789241580410.

Kamal, R., Kurani, N., McDermott, D., Cox, C. (2020). “How Prepared is the US to Respond to COVID-19 Relative to Other Countries?” Kaiser Family Foundation. https://www.healthsystemtracker.org/chart-collection/how-prepared-is-the-us-to-respond-to-covid-19-relative-to-other-countries/#item-start.

Khalil Lydia (2020). “Digital Authoritarianism, China and C0VID”. Lowy Institute for International Policy. https://www.jstor.org/stable/resrep27665

Kostka Genia (March 05, 2021). “Covid-19 contact tracing apps: why they are so popular in China”. https://merics.org/en/short-analysis/covid-19-contact-tracing-apps-why-they-are-so-popular-china

Lopalco Lucia (2020). “CCR5: From Natural Resistance to a New Anti-HIV Strategy”, Feb. 2(2) Viruses 574–600.

Macer Darryl, Hon D. (May 2020). “Wearing Masks in COVID-19 Pandemic, the Precautionary Principle, and the Relationships between Individual Responsibility and Group Solidarity” - Eubios Journal of Asian and International Bioethics. EJAIB Vol. 30 (4)

Macklin Ruth (2022). “A new definition for global bioethics: COVID-19, a case study, Global Bioethics”, 33:1, 4-13, DOI: 10.1080/11287462.2021.2011001. https://doi.org/10.1080/11287462.2021.201100

Meng, Q., Yin, D., Mills, A., & Abbasi, K. (2019). “China’s Encouraging Commitment to Health”. BMJ. 365, l4178.

Mirandy S. Li, Qiufan Fu, MS, and Ting Luo, MPH (Spring 2020). “The Hospital Response to COVID-19 in China”. Journal of Health Care Finance”. VOL. 46, NO. 4.

National Institute of Environmental Health Sciences. Bioethics. https://www.niehs.nih.gov/research/resources/bioethics/.cfm

National Health Commission of China http://www.nhc.gov.cn/mohwsbwstjxxzx/s7967/202004/e800dde2406f44999df8a47e6cfb3ddf.shtml

Nazroo J.Y. (2003). "The Structuring of Ethnic Inequalities in Health: Economic Position, Racial Discrimination, and Racism". American Journal of Public Health, 93, pp. 277-284.

Neves Maria Patrão (May 2020). "Ethical implications of 'Rationing' vs 'Rationalization'" Eubios Journal of Asian and International Bioethics. EJAIB Vol. 30 (4).

New York Times (2020). "In Coronavirus Fight, China Gives Citizens a Color Code, With Red Flags". https://www.nytimes.com/2020/03/01/business/china-coronavirus-surveillance.html

Nussbaumer-Streit B., Mayr V., Dobrescu AI., Chapman A., Persad E., Klerings I. and others (2020). "Quarantine alone or in combination with other public health measures to control COVID-19: a rapid review". Cochrane Infectious Diseases Group. Cochrane Database of Systematic Reviews.

Odeh Mohammed, F. Kharbat Faten, Yousef Rana, Odeh Yousra, Tbaishat Dina, Hakooz Nancy, Dajani Rana and Mansour Asem (21 May 2021). "iOntoBioethics: A Framework for the Agile Development of Bioethics Ontologies in Pandemics, Applied to COVID-19". METHODS article. https://www.frontiersin.org/articles/10.3389/fmed.2021.619978/full

Official Website of the Ministry of Health of the Italian Republic. "Nuova infezione da coronavirus, il punto della situazione". https://www.salute.gov.it/portale/news/p3_2_1_1_1.jsp?lingua=italiano&menu=notizie&p=dalministero&id=4015

Ortiz-Millán Gustavo (2022). "Bioethics, globalization and pandemics". Global Bioethics, 33:1, 32-37, DOI: 10.1080/11287462.2021.2011006. https://doi.org/10.1080/11287462.2021.2011006

Palazzani Laura (2020). "La pandemia da Covid-19 e il dilemma etico: chi curare?" in journal "Pandemia e resilienza Persona, comunità e modelli di sviluppo dopo la Covid-19. Consulta Scientifca del Cortile dei Gentili". Edizioni Consiglio Nazionale delle Ricerche. ISBN 978 88 8080 390 4 DOI https://doi.org/10.48220/PANDEMIAERESILIENZA-2020

Regulations of the People Republic of China on the Administration of Human Genetic Resources, Order of the State Council of the P.R.C., No.717, May 2019. The Regulations amended the Interim Measures for the management of Human Genetic Resources, issued by the State Council, June 19, 1998.

Simiao Chen, Zongjiu Zhang, Juntao Yang, Jian Wang, Xiaohui Zhai, Till Bärnighausen, Chen Wang (2 April, 2020). "Fangcang shelter hospitals: a novel concept for responding to public health emergencies". Health Policy. https://www.thelancet.com/action/showPdf?pii=S0140-6736%2820%2930744-3

South China Morning Post (2 May 2020). "China Plans to Send Uygur Muslims From Xinjiang Re-education Camps to Work in Other Parts of Country". www.scmp.com/news/china/politics/article/3082602/chinaplans-send-ugyur-muslims-xinjiang-re-education-camps-work

Steenberg R., Rippa A. "Development for all? State schemes, security, and marginalization in Kashgar, Xinjiang". Critical Asian Studies, 2, 2019, pp. 274-295

Steinbuch, Y. (2020, March 11). "China Shuts all 16 Temporary Coronavirus Hospitals in Wuhan". New York Post.

Thomala, L.L. (2020b). “Increase in the number of beds in designated hospitals in Wuhan in China 2020”. Statista, April 3. https://www.statista.com/statistics/1095434/china-changes-in-the-number-of-hospital-beds-in-designated-hospitals-after-coronavirus-outbreak-in-wuhan/.

Tristram Engelhardt, Jr., H. (1980). “Bioethics in the People's Republic of China”. The Hastings Center Report , Apr., 1980, Vol. 10, No. 2, pp. 7-10. https://www.jstor.org/stable/3561270
UNESCO Universal Declaration on the Human Genome and Human Rights, 1997
http://portal.unesco.org/en/ev.php-URL_ID=13177&URL_DO=DO_TOPIC&URL_SECTION=201.html

UN HUMAN RIGHTS COUNCIL, Report of the Working Group on the Universal Periodic Review, A/ HRC/40/6, 26 December 2018, par. 26.

Villareal P. (2016). “Pandemic Declarations of the World Health Organization as an Exercise of International Public Authority: The Possible Legal Answers to Frictions between Legitimacies”, Goettingen Journal of International Law, 95.

Wang Leifan, Wang Fangzhong and Zhang Weiwen (2022). “Bioethics in China’s Biosecurity Law: https://doi.org/10.1093/jlb/lsab019

Wang Yaqiu (September 28, 2021). “China’s use of force and coercion to drive up its COVID-19 vaccination rate is not the answer”. https://www.hrw.org/news/2021/09/28/chinas-use-force-and-coercion-drive-its-covid-19-vaccination-rate-not-answer

Wang Yue, Ge Long, Zhang Nan, Qi Xinhong. “From "SARS" to Novel Coronavirus Pneumonia - Coping strategies and experience of my country's medical insurance system” 1994-2020 China Academic Journal Electronic Publishing House http://www.cnki.net

Wenyi Zhang (2022). COVID-19 vaccination rate in China 2021-2022, by status. https://www.statista.com/statistics/1279024/china-coronavirus-covid-19-vaccination-rate/

World Health Organization Official Website. “International Health Regulations”. https://www.who.int/health-topics/international-health-regulations#tab=tab_1

World Health Organization Official Website. Q&A (2019). “Emergencies: International health regulations and emergency committees”. https://www.who.int/news-room/questions-and-answers/item/emergencies-international-health-regulations-and-emergency-committees

World Health Organization Official Website. Section “About” https://www.who.int/about

World Health Organization Official Website (23 January 2020). “Statement on the first meeting of the International Health Regulations (2005) Emergency Committee regarding the outbreak of novel coronavirus (2019-nCoV)”. https://www.who.int/news/item/23-01-2020-statement-on-the-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov)

World Health Organization Official Website (7 December 2020). “COVID-19 virtual press conference”. https://www.who.int/publications/m/item/covid-19-virtual-press-conference-transcript---7-december-2020

World Health Organization Official Website. Interim position paper: Considerations regarding proof of COVID-19 vaccination for international travellers. Geneva: World Health Organization; 2021 (https://www.who.int/news-room/articles-detail/interim-position-paper-considerations-regarding-proof-of-covid-19-vaccination-for-international-travellers).

World Health Organization Official Website (2021). "COVID-19 and mandatory vaccination: Ethical considerations and caveats". https://www.jstor.org/stable/resrep35607

Xinhua News (30 December 2019). "He Jianhui jailed for illegal human embryo gene-editing" ZENZ A. "Thoroughly reforming them towards a healthy heart attitude: China's political re-education campaign in Xinjiang". Central Asian Survey, 38, 2019, pp. 102-128.

Xu Xinjian 徐新建 " Social evolution caused by the epidemic" 2020:疫情引发的社会演, Journal of Xuzhou Institute of Technology (Social Sciences Edition) Vol.35 No.4, Jul.2020

Yang Wei (2019). "Understanding the Non-medical Costs of Healthcare: Evidence from Inpatient Care for Older People in China". Cambridge University Press. https://www.cambridge.org/core/journals/china-quarterly/article/abs/understanding-the-nonmedical-costs-of-healthcare-evidence-from-inpatient-care-for-older-people-in-china/9308368CDAEDD162CC1D44556A4F9749

Yangyang Han, BS, Reidar K Lie, MD, PhD, and Rui Guo, PhD (2020). "The Internet Hospital as a Telehealth Model in China: Systematic Search and Content Analysis". J Med Internet Res. 22(7): e17995. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7424477/

Ye, Y. (2020, February 6). "Who Is Paying for Coronavirus Patients' Treatment?" Sixth Tone. https://www.sixthtone.com/news/1005178/who-is-paying-for-coronavirus-patients-treatment%3F.

Yingzhi Yang and Julie Zhu (7 February 2020). "Coronavirus Brings China's Surveillance State Out of the Shadows". Reuters. https://www. reuters. com/article/us-china-health-surveillance/coronavirus-brings-chinassurveillance-state-out-of-the-shadows-idUSKBN2011HO.

Yuan Shawn (1 March 2020), "How China is Using AI and Big Data to Fight the Coronavirus", Al Jazeera. https://www.aljazeera.com/news/2020/03/china-ai-big-data-combat-coronavirus-outbreak200301063901951.html.

Zhao, Zhongwei. "Income Inequality, Unequal Health Care Access, and Mortality in China." *Population and Development Review* 32, no. 3 (2006): 461–83. http://www.jstor.org/stable/20058900.