Community Operations and Vaccination Work for Fighting Against COVID-19 Pandemics

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Abstract: In recent years community has made progress toward preparing for and mitigating the impacts of pandemics. The 2003 severe acute respiratory syndrome (SARS) and other threats posed by severe flu and avian influenza raised the concern of health in the community. To avoid any sudden virus transmission disease, countries begin to prepare plans for risk mitigations to the pandemic. During covid-19(Sars-cov-2), patients have the same symptoms as in SARS 2003. COVID-19, a severe acute respiratory syndrome, is the etiologic agent of the current rapidly growing coronavirus outbreak, originating from Wuhan, Hubei Province, China. This essay will discuss this pandemic in four aspects: risk communication, contact tracing, social distancing, and vaccine & antiviral administration. As many definitions were introduced in parallel, data is also provided visually so that readers can appreciate the evolution of these research data and our understanding. This essay further reviews the development and achievements in these areas.

1. Introduction

In December 2019, an outbreak burst in Wuhan, China, during the spring festival. Latterly it was declared as a pandemic by WHO on March 11, 2020. The origin of the disease happened in a Wuhan seafood market. It is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It had made a severe public health threat worldwide, with millions of people at risk in a growing number of countries. To save the situation, WHO set up the global risk communication and community engagement (RCCE) strategy in March 2020. In RCCE, indicators for which risk mitigations are used to improve them are set up in all aspects of covid-19 management. Compared to other countries, China has a quick end with covid-19. As of October 4, 2020, China had confirmed 90 604 cases of COVID-19 and 4739 deaths, while the USA had registered 7 382 194 cases and 209 382 deaths. The UK has a population 20 times smaller than China. It has seen five times as many cases of COVID-19 and almost ten times as many deaths [1]. From Figure1, we can see a significant downfall in a short period in the case rate. Its quick reaction raised the question of how China has managed to wrest control of its pandemic? This essay will talk about four covid-19 risk mitigations: risk communication, contact tracing, quarantine and isolation, social distancing, and vaccine and antiviral administration. We will take some good examples of how China conducts it.
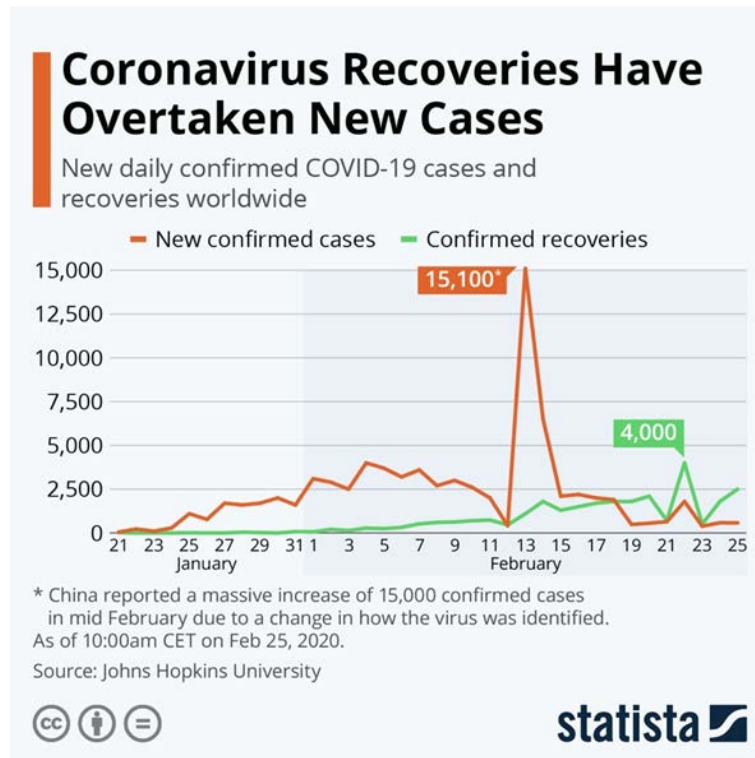
Figure 1. The Case Rate and Fatalities Change in China [3]

2. Risk communication

2.1 Significance of Risk Communication

Covid-19 has a characteristic of higher familiarity and higher dread. [2] Because of the inadequate understanding, there are no other faster treatments. Only the improvement of protective awareness for which risk communication works can eradicate the spreading of the disease. WHO's Strategic Framework for Emergency Preparedness notes that "community members are the first responders – and the first victims – of any emergency and, as such, essential members of the preparedness process "[4]. A consequence of poor risk communication and heightened risk perception is hoarding behavior, leading to a lack of medications and personal protective equipment. Effective risk communication can minimize the interest lost and secondary effects by minimizing disease lasting time with the sudden break of this pandemic. It is only reliable to have risk communication as the primary way.

2.2 Traditional Ways for Risk Communications in China

Publicity boards, electronic screens, slogans, posters, leaflets are constantly being sent to each residents' house by local committees so that nobody will be missed. Also, each TV station's News time is required to inform citizens about covid-19. People can know the latest case number, death rate, local place's increasing case, newly published law, and latest protective information from news media. Lots of positive development like slogans for virus control, supplements from other countries, and situations of cure and treatment in hospitals are also reported. It gives citizens lots of confidence when they are encouraged by those slogans, feel happy for new supplements, and increasing the number of successfully cured patients.

2.2 The Innovation of Propaganda Ways in China

To improve information spreading speed, the government invented more new propaganda ways. In new media, which is the meanest carrier of disease information, the utilization rate is up to 95% [4]. For instance, We-Chat, a pop social media, gets 65% disease information access, reaching the most frequent channel. [5]. On the We-Chat platform, official accounts publish the COVID-19 epidemic real-time dynamic tracking page that integrates the latest authoritative information released by the

CDC of the national and provincial health commissions. Citizens can check disease information at whatever time, including different areas' cases rate, Suspected cases, cures, deaths, etc. The variety of accounts covered the whole of china's real-time changing newest covid-19 information and Prevention and control measures taken by various localities and their results. People can check the information they want easily and quickly. Also, lots of traditional official media begin to have the media transformation. For example, traditional newspaper and news media, people's daily and CCTV create accounts begin to have figures, videos, and live streaming to report the latest information. Those traditional media begin to create accounts in new media platforms like Weibo, We-Chat, Tiktok. Traditional tv live streaming collaborates with new Media post information on their platforms so that people will not miss information if they cannot see or do not want to see the news channel. They also use video clips to make long videos presentations of professors in public health into small pieces of video and post them on the new media platform. [6]. For example, titles like "Zhong Nanshan demonstrated how to take off a mask," "Li Lanjuan advocated not taking medicine without problems" [7], and other short videos. Those short videos gain high popularity even reach one million times watching times per video. Those short videos are more popular than long videos as people have more patients to watch a 30-second video but not a 1-hour video. This type of collaboration leads long illustrative videos to become more prevalent in young generations and overcome time obstacles. That is more, China's government also collaborate big data platform which contains lots of consumers' information. The big platform provides a solid ability to collect data. Those platforms use their massive collecting and customer traffic high achieve pandemic data collecting and data sending. For example, the health QR code collected china citizens tracking by phone continuously transmitting radio signals which the base stations in different countries capture. Base stations will integrate everyone's tracking to know whether citizens have been in a dangerous area. Also, pandemic maps are creating by those big data platforms.

2.4 The Difference Between China and the US

One effective government communication is a significant effector to the pandemic control. However, in the US, where the covid-19 is getting better, there seem some problems at the start of the pandemic. Compared to china's risk communication, they react slow.

Figure-2 shows the global movement toward covid-19. On January 21, 2020, the first known case in the US was reported. However, on February 29, the eventually FDA allows specific laboratories and hospitals to invent and conduct their diagnostic tests on covid-19 to solve recent patients' problems. The time is piled of four weeks after WHO has distributed its practical tests globally. The late reaction also influences government authority when a pandemic real starts. It provides new media's chance to

Attract citizens' attention. A regular saw that new media in the United States reported arguments between the president's office and top federal health advisors about reacting with COVID-19. This kind of incorporation led to many social disorders caused by citizens' distrust and inadequate preparedness and tactics toward COVID-19 risk mitigations. [8] The government also published unreliable information to citizens. People get distrust toward the government. Compared with China, it is also not a quick-reacting country. China is late reacting as the Wuhan government did not react when the first several cases showed in hospital. Figure--2 had shown that when 27 cases were reported, they are defined as unknown reported cases and did not tell citizens its danger. When doctor licensing and his mates pull the alarm of this highly spreading virus to the public, they were interrogated for "spreading rumors." PCR diagnoses also came late. When 1.19, the national health commission of people's republic china (NHS) announced the sending of PCR kits, it was still hospitals where were pointed as the testing place didn't get PCR test kits. The late notice of this virus to the public gives the virus chances to spread. Both countries lost their attention when covid-19 first comes.
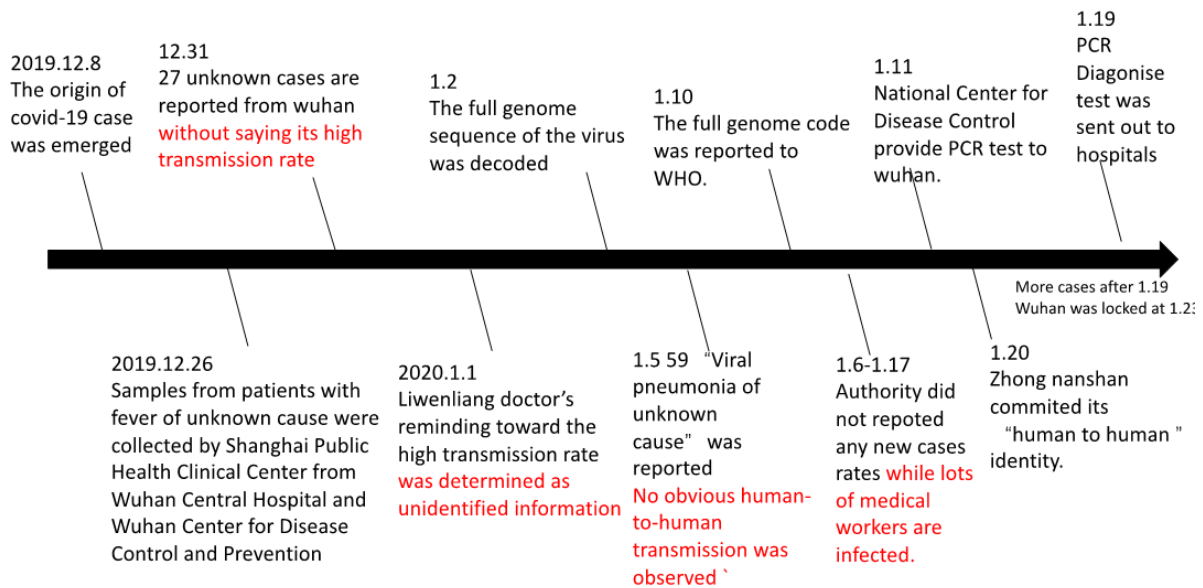
Figure 2. The Start Timeline Of The Pandemic Outbreak In China [8, 9]

Nevertheless, later this problem was solved by effective research. Wuhan Institute of Virology race receives a virus example on December 30, giving the viral sequence to WHO on January 1. Effective research led to a fast invention of prevention methods. Also, the government put lots of work on the premise of information and the elimination of rumors. To prevent some fake information, the government keeps transparent working in the complete disease control [10]. Government exposure to citizens is increasing. State Councils held news conferences every day and even have live on for citizens to watch. Live streaming is given to citizens. The government has the live streaming of news conference and lots of heating city construction works, for example, the Epidemic 24 hours [11], which shows the whole process of construction of Leishenshan Hospital, which is used to increase the capacity to patients the process of opening of Wuhan via cambers. It was popular, even reach to 100 million people watching at the same time. Government shows its transparent work progress and collects public agreements through live streaming. Also, the government helps the set-up of reliable mainstream media. Those already reliable news media are formed from those ordinary newspapers and news media. They can get reliable and update information. When society's attitude goes the wrong way, those mainstream media will stand out to lead citizens. During covid-19, except for that information-sharing platform, there is also a special rumor squashing area in various platforms. Those rumor areas provide the heated-up rumor explanation and clarification. Those tactics ensure citizens' trust in the government.

Covid-19 is lasting, America is also improving. From figure-3, the total covid-19 cases an early stop growing. Also, CDC provides the most authorized information to the public every day. WhatsApp, which is the increased 40% usage during covid-19 get WHO health alert service. It can lead people to get the latest corona information. Pfizer / BioNTech vaccine gets a 95% effective rate which is exceptionally high in now's vaccine. From Figure 3. [12] the total covid-19 cases an early stop growing. Also, CDC provides the most authorized information to the public every day. Whats app, which is the increased 40% usage during covid-19, provide WHO health alert service. More channels are provided to American citizens to get information

2.5 Uncertainties Are Still Appearing; Risk Communication Can't Stop Its Development

Although nowadays, a clear model of risk communication has already been adopted, new risk communication is needed to do as future challenges present. First, uncertainties are still happening. One example is the new mutated coronavirus in India. The high spreading rate leads to global feel threat. [10] Policies are being made to prevent the spreading of mutation virus. Isolating India is not a forever way to prevent disease spreading; coordination and collaboration are also away. Many countries like Australia, America, Britain, and France give India lots of medical supplements and

oxygen capacity. India's situation has improved by the methodically global risk communication and the increasing citizens' protective awareness. From this uncertainty, we get the experience. We cannot stop uncertainties, but we can have Clear, consistent, and coordinated communications. When uncertainty comes, we acknowledge this uncertainty, outline what is known and unknown, and avoid panics and untrusted citizens. Consistent communications are pretty challenging to have. Covid-19 is lasting for almost two years

Overall, risk communication is vital as it is the first step of all disease control and the most helpful way to solve those dread factors. We still need to remember the experience Covid-19 give us and improve the risk communication system better. So, risk communication still needs to go a long road until everybody does not forget to have protective awareness forever.
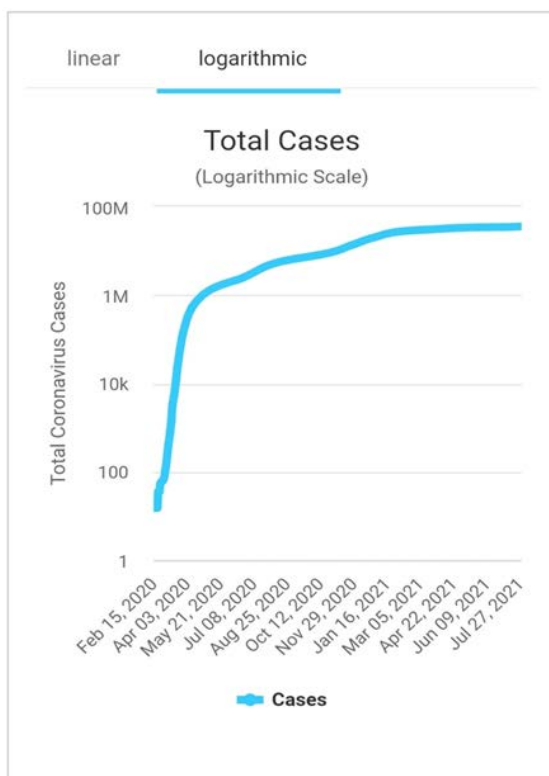
Figure 3. The Total Number of Coronavirus Cases

3. Contact tracing

COVID-19 spread rampantly around the world like wildfire at the end of 2019. At the beginning stage of the pandemic, there is no targeted and efficient therapy for the disease, but contact tracing is still one of the essential tools to restrain its transmission.

Contact tracing can be simply understood as a key method that the public health department uses to help control infectious diseases spreading within a community, which includes identifying individuals who have been infected with the disease and the people they have come into contact with.

According to WHO, contact tracing has three rudimentary steps. As soon as someone is founded infectious with the infectious disease, contact will be recognized by consulting persons' recent activities and roles of people around them since the diagnosis of the illness. This process is contact identification. Contact listing is a process that lists persons who are likely to come into contact with infected individuals and informs them by their contact status. In some critical cases, such as COVID-19, isolation or quarantine either at home or in hospital is required. The last step is Contact follow-up,

which detecting all the contacts for related symptoms and testing whether they have the sign of infection [1].

Recently, aiming to curb the spread of COVID-19, many mobile contact tracing apps have been released by governments, for instance, Trace Together in Singapore and COVID safe in Australia. This series of applications work by logging the distance between persons who install the app using GPS navigation or Blue Tooth (to protect privacy, all the logs are anonymous). If someone has a positive test for the disease, they must inform it in the app, and an anonymous alert will be sent to their contact at the same time.

Personal privacy is recognized as a crucial section broadly. However, once someone installs the contact tracing app, it is normal for them to have a genuine fear of leaking private information and worry whether their information is at risk of being stolen by a third party. That's why each nation develops its own mobile contact tracing application without sharing its database with other countries or parties, and this is where the government's role comes in. To exemplify, we will analyze Singapore's recently developed application named Trace Together.

On 20 March 2020, Trace Together was released by the Singaporean Ministry of Health for Android and iOS [2]. It was one of the first implementations of contact tracing, which utilize Bluetooth technology. Instead of broadcasting the information of the phone's owner and nearby phones, log this information like other contact tracing applications. In Trace Together, when two phones exchange information, users contact each other by using a random and temporary ID instead of sharing their personal information. What is more, when someone is exposed to the COVID-19, the information is directly coming from the Singaporean Ministry of Health without sharing any additional information which can be used to identify the person who has been diagnosed. Also, Trace Together neither collect utilize users' position data nor access to the users' contacts and location information because it only uses the Bluetooth technology to make contact with users without storing any related data and users' phone number, as well as their matching information which could only be read under the specific circumstance, would be reserved in another sever to make sure the privacy protection [3].

3.1 Isolation and Quarantine

Isolation and quarantine are classical public health measures to control the person-to-person spread of infectious diseases. During the epidemic of COVID-19, these 2 tools have been used on an unprecedentedly massive scale in China. Here, we will define these methods and evaluate them.

Isolation and quarantine are different by definition: the purpose for quarantine is separating someone who might have been exposed to the virus away from others, while isolation is the process of separating someone who has already been infected with the virus away from others. As for Isolation, although it could be effective to interrupt transmission, it still has some limits. Given that COVID-19 has an incubation time of 5 days (versus 2 days), people who carry this virus cannot be identified during this period, and they can already transmit it before they are diagnosed. This means isolation is usually too late to be efficient [4].

As for Quarantine restricts the people who are presumed to be exposed to the virus (or still in the incubation time) to curb transmission. It can be either voluntary or compulsory. During the quarantine period, individuals must record all related symptoms, and if any of these symptoms occur, they must be isolated in a designated institution. Nevertheless, individuals in quarantine must have enough food, drinks, medical support, and strong mental health [4].

It's undeniable that both two methods have made a number of significant contributions to the field of disease control. The related policies in China could be a great case in point. First, all the arrivals ought to undergo a centralized quarantine for 14 days in a designated place, and they must have nucleic acid testing of COVID-19 four times, namely, on the 1st, 7th, 14th, and 21st day after they enter China. For people entering from those countries and regions where discovering new kind of mutated virus, such as the UK, the tests must be done for totally 5 times on the 1st,4th, 7th, 14th, and 21st day respectively. During the centralized quarantine, if any arrival is tested positively for COVID-19, other persons who have no positive COVID-19 tests results can apply for seven-day quarantine at home. If this condition is not met, they would still have their further quarantine in the same location. If people

succeeded in obtaining the home-quarantine qualification under a certain circumstance, they would be isolated in their home without contact with others. They cannot leave their home during the quarantine period. If all the arrivals are tested negatively for COVID-19 during the quarantine, 'health monitoring' or 'community management' at home could be applied if they meet certain conditions. If this condition is not satisfied, another seven-day quarantine should be imposed in the original place. During the 'health monitoring' time, individuals must monitor their health status to their local community daily. As for Closed-off 'community management includes minimizing the numbers of the entrance, checking points' set up, issue of entry permits, making sure the face mask-wearing, reinforce monitor of health, and registering personnel and vehicles passing through. [4].

Table 1. Conclusion Of Definitions, Objectives, And Challenges Of Isolation And Quarantine.

	Definition	Objective	Challenge
Isolation	Separates the infected persons from others	Interpreting the transmission of disease towards uninfected persons	During the incubation time, the virus can still be transmitted
Quarantine	Restricting persons who are exposed to the virus and hence presumed to be contracted the disease	Reducing the potential infected cases	Ample food, drinks, and medicine supply is necessary; psychological support is needed

4. Social distancing

Social distancing is a measure that is designed to decline the interactions between persons within a community. Social distancing (also named physical distancing) means keeping a safe space with people who are not from your family; it limits the opportunity of getting in contact with an infected person as well as the contaminant surfaces out of people's homes. The coronavirus COVID-19 is a kind of virus that transmits by respiratory droplets within a close distance (within 6 feet). The transmission could occur while people are coughing, talking, and the respiratory droplets containing the virus enter the air and are inhaled by others. Although the COVID-19 can keep alive for hours or days on the objects' surfaces depending on many related factors such as temperature, humidity, the material of objects, and so on, people could be infected by touching them, it still not the dominating reason of contracting the disease. As a result, the most straightforward way to avoid infecting is to maintain a proper distance from other people. That is why social distancing comes in. This measure is crucial since many viruses carriers are not diagnosed and hence isolated in the community [5].

United States' case of operating contact tracing could be a typical example. In March and April 2020, the United governments imposed social distancing measures, including the closure of the school and other public places, banning large social gatherings, and shelter-in-place orders, to curb the spreading of the disease. The publicity of this series of measures reduced the daily growth rate of confirmed cases within the country by 5.4 percentage points in the first five days, 6.8 percentage points, 8.2 percentage.
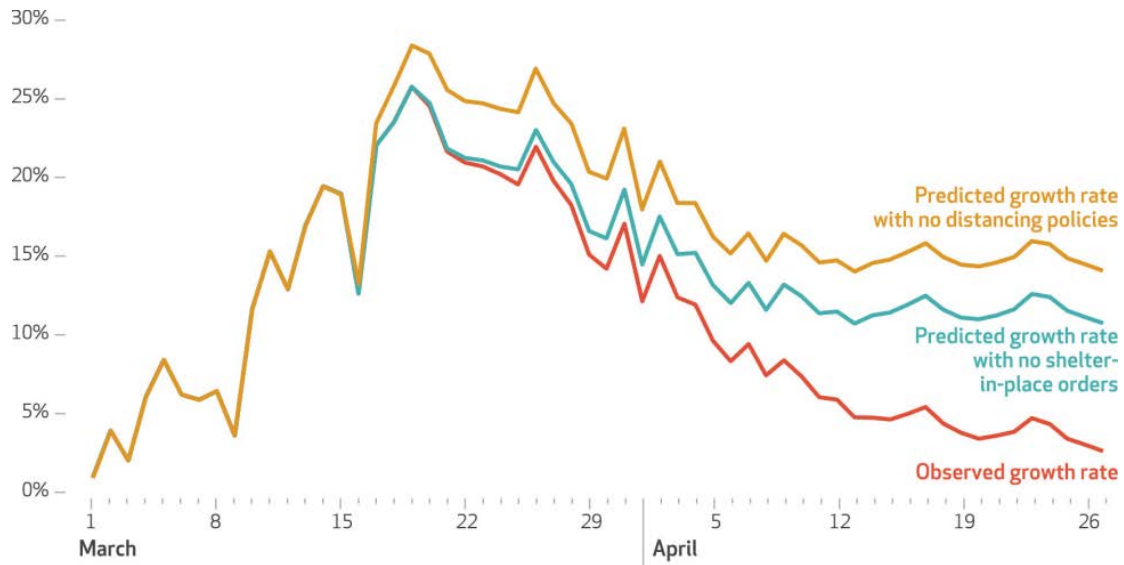
Figure 4. Comparison Of the Observed Covid-19 Growth Rate and Predicted Daily Growth Rates Either Without Shelter-In-Place Orders or Without Social Distancing Policies from March 1 to April 27, 2020

5. Vaccine and antiviral administration

5.1 Working Principle of Vaccine

Different types of vaccines protect in different ways. Under normal circumstances, vaccines aim to help the human body's immune system against the virus that causes diseases without making us sick. But in all types of vaccines, vaccines will leave "memory" B lymphocytes and T lymphocytes in the human body. These are the cell types that can fight the virus in the future. Usually, B lymphocytes and T lymphocytes will be produced by the human body a few weeks after vaccination. Hence, a person can be infected with the virus before or after vaccination and then get sick because there is not enough time for vaccines to provide protection. Symptoms, such as fever, can be caused in the process of building immunity after vaccination. It is normal to have these symptoms, showing that the body is strengthening its immunity system.

5.2 Types of Vaccine

At present, three major kinds of covid-19 vaccines are undergoing clinical trials on large-scale or recommended and authorized worldwide. The following is the introduction of each type of vaccine and how they encourage our body to detect and protect us from the covid-19.

5.2.1 mRNA Vaccines

The mRNA vaccines contain a virus-derived substance, which can cause COVID-19, and it can instruct our cells how to make a harmless protein. They destroy the genetic material in the vaccine after our cells replicate proteins. Our immune system recognizes that this protein is not supposed to exist, and then T and B lymphocytes are established,

which are the cell types that can fight against the virus in the future.

1 Research on the efficacy and safety of the BNT162b2 mRNA vaccine The most popular vaccine is the BNT162b2 mRNA vaccine from Pfizer. I did a case study on the safety and efficacy of the BNT162b2 mRNA vaccine. Coronavirus disease (covid-19) pandemic in 2019 and its associated severe acute respiratory syndrome coronavirus type 2 (sars-cov-2) infection have affected tens of millions of people worldwide. There is an urgent need for safe and effective vaccines [3]. In an ongoing multinational, key efficacy, observer-blind, placebo-controlled trial, we randomly assigned people aged 16 or over to receive two doses of BNT162b2 or placebo candidate vaccine (30 μg each dose) at an interval of 21 days. BNT162b2 is a nucleoside modified RNA vaccine prepared by a lipid

nanoparticle that encodes a stable membrane-anchored full-length spike protein of sars-cov-2 before fusion. The primary endpoint was the efficacy and safety of the vaccine against laboratory-confirmed covid-19 [4]. The results showed that a total of more than 43,500 participants were randomized, of which 43,400 received injections: 21700 received placebo treatment and 21700 received BNT162b2 treatment. Among the subjects treated with BNT162b2, 8 cases of COVID-19 onset at least 7 days after the second administration, and 160 cases of subjects receiving placebo onset; The effective rate of BNT162b2 in preventing covid-19 was around 95%. Similar vaccine efficacy (typically 90% to 100%) was observed in subgroups defined by age, baseline body mass index, race, sex, and coexistence conditions. Of the 10 severe covid-19 cases that developed after the first administration, 9 occurred at the placebo receptor and 1 at the BNT162b2 receptor. The safety characteristics of BNT162b2 are mild to moderate pain at the injection site, fatigue, headache, and short-term [5]. The incidence of serious adverse events in the vaccine and placebo groups is similar and very low. In short, the dual-dose regimen of BNT162b2 has a 95% protective effect on covid-19 in people aged 16 years or over. The safety at a median of 2 months was similar to that of other viral vaccines.

5.2.2 Protein Sub-nit Vaccines

Protein sub-unit vaccines include harmless viral pieces (proteins) that can cause covid-19 rather than the entire bacterium. After being vaccinated, our immune system will realize that proteins should not exist, and then antibodies and T lymphocytes will be produced. If we are infected in the future, these antibodies will have the ability to fight against the virus in the future.

1 Vector vaccines The vector vaccine contains a different virus from the COVID-19 virus but a modified version of the COVID-19 virus. There is a type of substance in the shell of the modified virus that causes covid-19, called a "viral vector". After a viral vector enters our cells, a unique protein is produced according to the instructions of this genetic material, the virus that causes covid-19. Our bodies can replicate this unique protein according to the instructions. This causes our bodies to produce B and T lymphocytes which can fight against the virus once it is found in the future.

6. Comparison of the Currently Available Vaccines

As for RNA vaccines, according to the Cambridge University PHG Foundation, the advantage of RNA vaccines lies in their good safety because there are no active ingredients, and there is no risk of disease caused by the vaccine. It is a kind of vaccine with reliability and safety relative to humans. Of course, it also has certain shortcomings, including accidental effects, such as accidental immune response. Secondly, because free RNA in the body is quickly decomposed, it should be ensured that it is effectively delivered to the body. Storage problems are also one of the disadvantages. The last point is that the fact that humans have never licensed such vaccines before also needs to be taken seriously.

As for the vector vaccine, the advantage of the vector vaccine is that because it involves B lymphocytes and T lymphocytes, it can trigger a strong immune response, so viral vector-based vaccination is another mature technology. However, for the challenge of the vector vaccine, previous exposure to the vector may reduce its effectiveness. In addition, compared with other types of vaccines, these types of vaccines are quite complicated to manufacture.

As for protein subunit vaccines, its advantage is that it is beneficial to people with compromised immune systems, so protein sub-unit vaccines are also a mature technology at present. At the same time, Protein sub-unit vaccines also have some shortcomings. Because this type of vaccine is quite complicated in manufacturing, it may require adjuvants and boosters for injection.

6.1 Multiple Injection COVID-19 Vaccines

6.1.1 Types

Some of the vaccines require two injections, and successively two shots vaccination is needed for people to be properly protected. For example, Moderna and Pfizer biotech covid-19 vaccines require two injections. Patients are also considered to be fully vaccinated at least two weeks after the injection if the one injection COVID-19 vaccines are vaccinated. For example, Janssen covid-19 vaccines

produced by Johnson & Johnson need only one injection. People will not be considered fully protected if they need a second injection or it's less than two weeks after their first injection. Take steps to protect others, and the most important thing is to protect ourselves until the full vaccination (two weeks after the last injection).

6.2 Antiviral Administration

Preventing pandemics and reducing the risk of global transmission of severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) are key issues. The risk assessment of COVID-19 mass gatherings (MGs) is based on existing MGs guidelines. MG's standard risk issues include assessing the preparedness and equipment of the host country's health system to detect common health incidents, such as pandemic outbreaks, and respond effectively and quickly when incidents occur. An element was added to the new risk assessment tool to assess the additional risks associated with COVID-19 (panel) and MG. The new risk assessment includes questions in the following aspects: the demographic profile of participants, the prevalence and transmission mode of covid-19 in these countries and host countries, the range of countries from which participants will come, and the possible degree of social interaction that MG may have. Then, MGs' COVID-19 risk assessment tool involves considering possible mitigation measures taken by MG to reduce the risk in response to a series of issues regarding the host country's preparation and understanding for the pandemic response measures.

Currently, there is little evidence on the effectiveness of COVID-19 individual mitigation measures. As the effectiveness of different mitigation strategies and better evidence of COVID-19 epidemiology becomes available, COVID-19 risk assessment tools for MGs will be continuously improved to reflect changing understanding.

During the COVID-19 pandemic, there was no specific evidence base to plan and implement MG. If new or enhanced monitoring is considered necessary, the monitoring and detection of COVID-19 related to MG events should be considered in the context of the monitoring program that has been implemented. The organizer shall cooperate with the local health department to negotiate in advance on the need to strengthen risk mitigation measures or postpone or cancel activities.

The global public health community needs to consider the impact of MG cancellation on the future welfare of the community caused by economic recession or unemployment and often use preventive methods to explain MG cancellation through the dissemination of COVID-19 or other ways. But when is it counterproductive to be too cautious? During the ongoing COVID-19 pandemic, the most important recommendation is that the event should be postponed or cancelled according to the risk assessment of the specific situation. Suppose it is decided to continue the MG event. In that case, risk mitigation measures in accordance with the COVID-19 social distance Guidelines shall be taken, and the reasons for the decision shall be communicated and explained to the public clearly [7].

7. Conclusion

In this report, we have discussed risk communications, contact tracing, social distancing, and vaccines. These are the keys to protecting ourselves from this pandemic. A pandemic is not new in human history. However, what makes the COVID-19 pandemic special is that it takes place in an unprecedented backdrop when the interconnectivity and interdependence between people, countries, and continents are so deep. People's achievements in technology, intelligence, and transportation make them both physically and psychologically globalized.

The novel coronavirus spread so rapidly that it has changed the rhythm of the globe. Whether from the perspective of a single country or multilateral level, the solidity of international relations has been put under test. The most obvious consequences include economic recession, a crisis of global governance, trade protectionism, and increasing isolationist sentiment. People-to-people, cultural and travel exchanges have all been restricted. Nonetheless, this is just the tip of the iceberg.

After we overcome the pandemic, which will surely happen, we must carry out a comprehensive evaluation of the world's ability to maintain stability when faced with similar challenges in the future. We must also craft measures to cope with these challenges together.

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