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A comparison of epidemic prevention of COVID-19 between China and the US

Qin Bian

Department of Biomedical Engineering,
School of Medicine, Johns Hopkins University
Baltimore, MD 21205, USA
qbian1@jhu.edu

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COVID-19 is becoming a large health and economic threat worldwide. Here, the epidemic statistics and prevention measures between China and the US are compared. It is noted that wearing masks at different stages of virus breakout, quarantine pattern, and policy executive strength may be the major factors causing the difference in effectiveness of the epidemic control.

Keywords: COVID-19; epidemic; prevention; comparison; China; the US.

Epidemic Data and Statistics

The epidemic information about confirmed cases, deaths, distribution, etc. is critical for the policy-makers to determine and evaluate the preventative measures. We compare the publicly available statistics of COVID-19 in China and the US and use it as the major evaluation criterion for further comparison of epidemiological prevention between the two countries (Table 1).

Both China and the US have different versions of case tracking map and statistics designed and posted by different organizations. Data sources collected behind the statistics are roughly the same. We discussed the most popular versions in each country based on pageviews and authority. Generally, the basic parameters contain confirmed cases, deaths, and statistic diagrams by date and region. Some specific terminologies and features of different maps are depicted in the following.

Baidu and CDC Websites in China

Baidu is one the most popular websites for tracing COVID-19 cases in China. In addition to the basic parameters as mentioned above, it exhibits suspected cases and asymptomatic cases. Suspected cases are identified by diagnosis based on symptoms and exposures only, but no test has been performed because the testing capacity is insufficient to meet the current needs.[1] Asymptomatic cases refer to people who have no clinical symptoms such as fever, cough, sore throat, etc., but their samples from respiratory tract have tested COVID-19 positive.[2] Severe cases, imported cases, and recovery cases

Table 1. Statistics and map of COVID-19 in China versus the US.

	China	US
Website address	http://2019ncov.chinacdc.cn/2019-nCoV/, https://voice.baidu.com/act/newpneumonia/newpneumonia	https://coronavirus.jhu.edu/us-map, https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html, Local Health Department websites
Data source(s)	National Health Commission of the People's Republic of China, Health Commission of 34 provinces including Hongkong, Macao, and Taiwan	COVID-19 global cases by CSSE at JHU, the Red Cross, the Census American Community Survey, the Bureau of Labor and Statistics
Region level	Province, city/county	County, zip code
Map for cases	Scaled by province, city/county	Scaled by county (with a link showing the detailed report), zip code
Statistic diagrams by date and region	Yes	Yes
Confirmed cases in total	Yes	Yes
Total cases of death	Yes	Yes
Imported cases	Yes	No
Asymptomatic cases	Yes	No
Newly reported (last day) cases and deaths	Yes	No

are also provided (Fig. 1(a)). Moreover, a city/district-level (second-level administrative division) map is available and the statistics are collected from the local Health Commissions and local Municipal Governments (Fig. 1(b)). Chinese government (Chinese Center for Disease Control and Prevention; in brief, China CDC) and the collaborator Esri company had developed a province-level map which was launched on January 28, 2020, five days later after Wuhan City was announced to shut down.[3] It is easy to check new cases reported within the last 24 h (Fig. 1(c)).

JHU and CDC Websites in the US

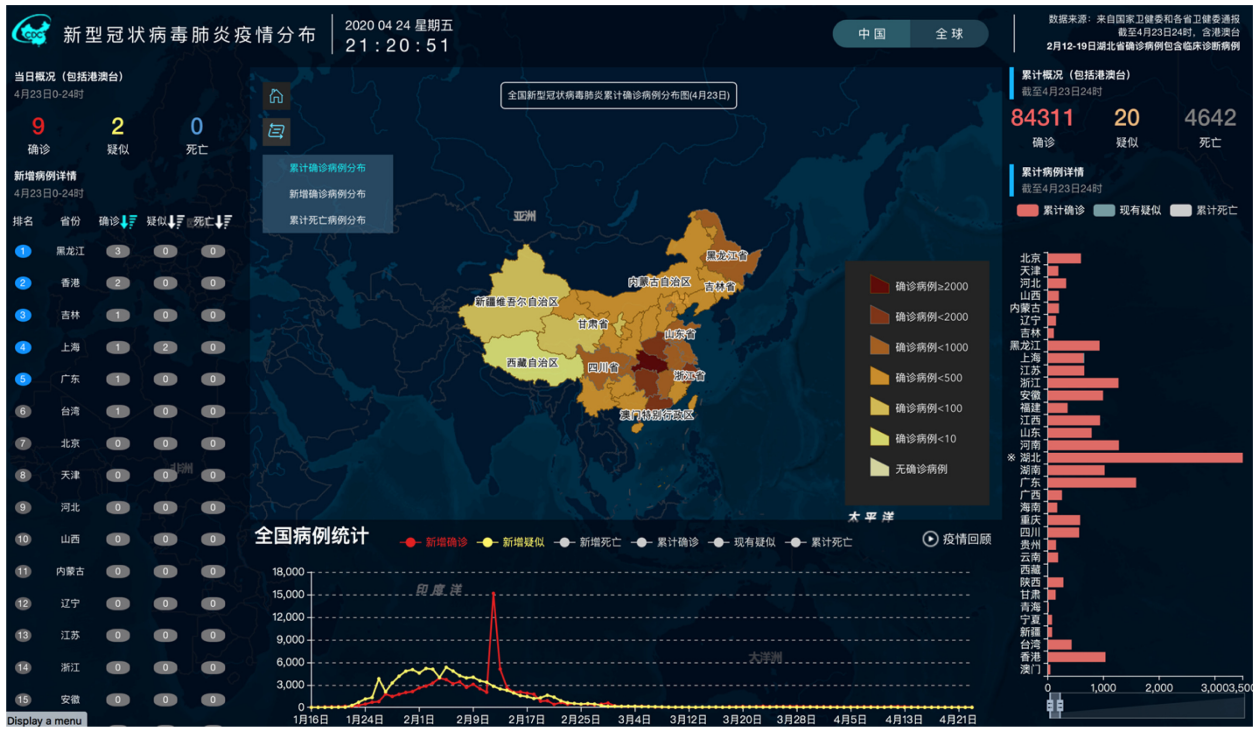
A most well-known map in the US has been developed by the Center for Systems Science and Engineering (CSSE) at the Johns Hopkins University (JHU). The professional group launched the earliest world map website for COVID-19 on January 22, 2020 to track the worldwide spread of COVID-19 outbreak[4] (Fig. 2(a)). In addition to the World Health Organization (WHO) and the National Health Commission of the PRC, original data also includes those from the Centers for Disease Control and Prevention and Dingxiangyuan, a social networking site for healthcare professionals that provides real-time information on cases.[4] A US-specific COVID-19 tracking map was launched on April 13, 2020.[5] The map is at the state and county levels (second-level administrative division), with the lists of top 50 counties of confirmed cases and top 20 counties of deaths. A detailed report linked to each county is very informative to the community that contains general information such as health insurance source and age distribution, infrastructure, etc. In terms of COVID-19, the website additionally provides fatality rate, number of people tested, and when and what state policy was placed (Fig. 2(b)). Different from those being reported in China separately, "Suspected cases" and "Asymptomatic cases" are likely considered as presumptive positive cases which are counted toward the confirmed cases in the US.

CDC statistics are available at: https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html. The analysis of demographic characteristics of COVID-19 may provide information about susceptibility to COVID-19 along the racial lines (Fig. 3(a)).

Collectively, (1) both China and the US daily update the latest confirmed cases and deaths at a second administrative region level. US residents may have more information by zip code from the local Health Departments (Fig. 3(b)).[6] (2) Suspected cases in China are likely to be counted toward the confirmed cases in the US. (3) Recently, China has been providing asymptomatic cases and

(a)

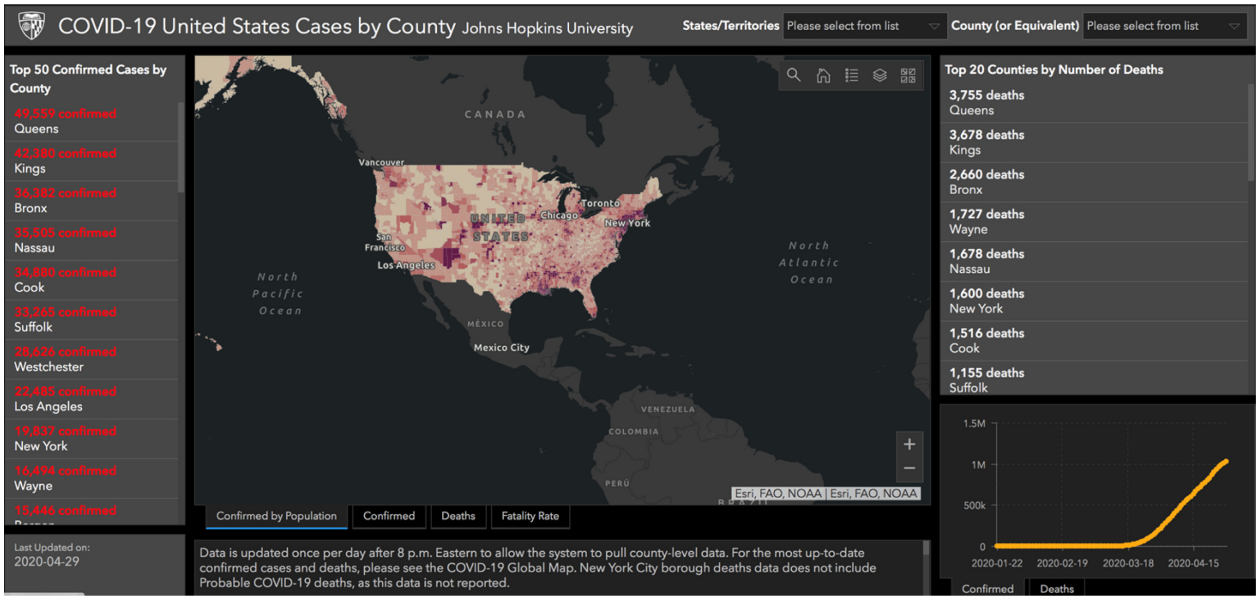
(b)



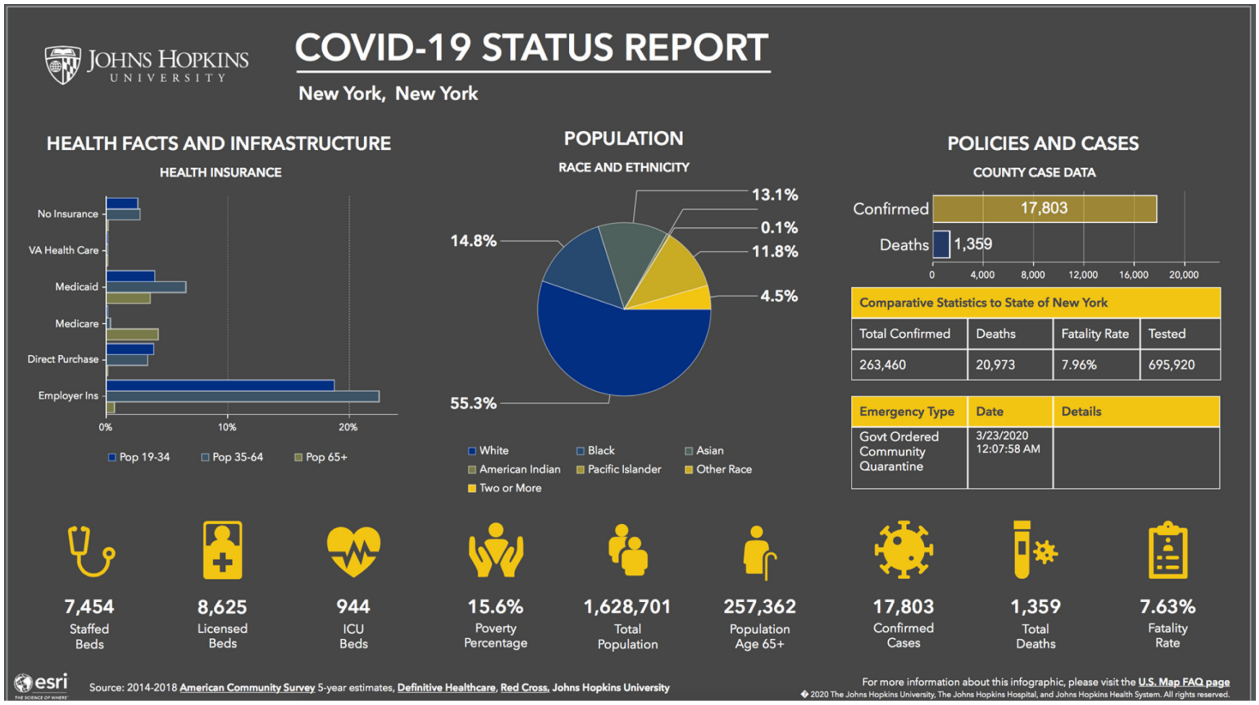
(c)

Figure 1. Baidu and China CDC websites for COVID-19 reporting in China.

Source: https://voice.baidu.com/act/newpneumonia/newpneumonia, as of April 26 [panels (a) and (b)]; http://2019ncov.chinacdc.cn/2019-nCoV/index.html, as of April 24 [panel (c)].



(a)



(b)

Figure 2. JHU website for COVID-19 reporting in the US.

Source: https://coronavirus.jhu.edu/us-map, as of April 29 [panel (a)]; https://bao.arcgis.com/covid-19/jhu/county/36061.html, as of April 24 [panel (b)].

imported cases which have not been differentiated from the confirmed cases in the US (Table 1). We believe these epidemic data reflects the epidemiological measures the country has been applying and becomes valuable for subsequent epidemic prevention.

Case Tracker Platform

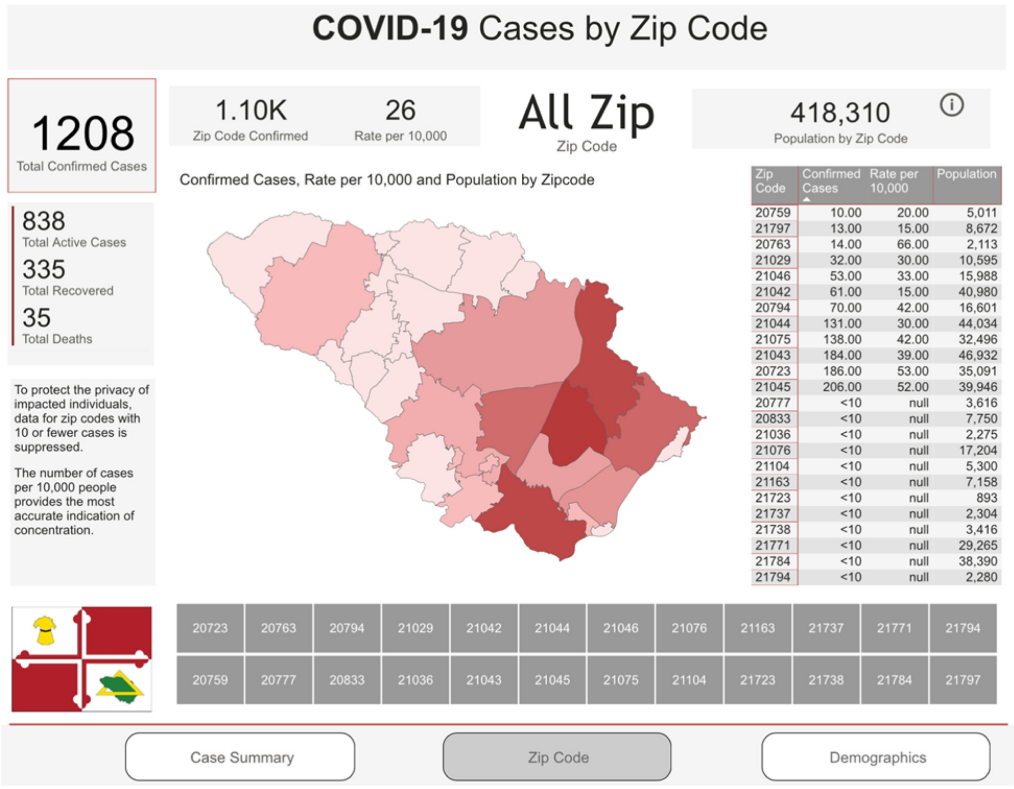
Case tracker map has been developed to display nearby confirmed cases by address or by the current location. It helps individuals avoid entry to the area at high risk for infection.

Demographic characteristics of COVID-19 cases in the U.S. (n=671,485)[4]

As of April 24, 2020

	No. of cases (% of total)						
Age group (years)	< 18	18-44	45-64	65-74	75+	Unknown	Total
Totals	12,791	236,469	239,190	69,253	79,990	33,792	671,485
Race missing/unspecified	8,923 (69.8 %)	152,451 (64.5 %)	143,474 (60.0 %)	34,767 (50.2 %)	34,830 (43.5 %)	14,077 (41.7 %)	388,522 (57.9 %)
Race specified	3,868 (30.2 %)	84,018 (35.5 %)	95,716 (40.0 %)	34,486 (49.8 %)	45,160 (56.5 %)	19,715 (58.3 %)	282,963 (42.1 %)
Among those with race specified							
American Indian or Alaska Native	37 (1.0 %)	564 (0.7 %)	495 (0.5 %)	142 (0.4 %)	103 (0.2 %)	84 (0.4 %)	1,425 (0.5 %)
Asian	175 (4.5 %)	4,641 (5.5 %)	5,137 (5.4 %)	1,597 (4.6 %)	1,728 (3.8 %)	920 (4.7 %)	14,198 (5.0 %)
Black or African American	958 (24.8 %)	23,922 (28.5 %)	30,907 (32.3 %)	11,353 (32.9 %)	10,618 (23.5 %)	7,297 (37.0 %)	85,055 (30.1 %)
Native Hawaiian or other Pacific Islander	14 (0.4 %)	320 (0.4 %)	271 (0.3 %)	87 (0.3 %)	61 (0.1 %)	47 (0.2 %)	800 (0.3 %)
White	2,018 (52.2 %)	41,971 (50.0 %)	46,602 (48.7 %)	17,916 (52.0 %)	29,166 (64.6 %)	7,697 (39.0 %)	145,370 (51.4 %)
Multiple/other	666 (17.2 %)	12,600 (15.0 %)	12,304 (12.9 %)	3,391 (9.8 %)	3,484 (7.7 %)	3,670 (18.6 %)	36,115 (12.8 %)
Ethnicity missing/unspecified	9,276 (72.5 %)	163,125 (69.0 %)	158,096 (66.1 %)	41,281 (59.6 %)	45,088 (56.4 %)	16,407 (48.6 %)	433,273 (64.5 %)
Ethnicity specified	3,515 (27.5 %)	73,344 (31.0 %)	81,094 (33.9 %)	27,972 (40.4 %)	34,902 (43.6 %)	17,385 (51.4 %)	238,212 (35.5 %)
Among those with ethnicity specified							
Hispanic/Latino	1,338 (38.1 %)	21,782 (29.7 %)	19,602 (24.2 %)	4,896 (17.5 %)	4,568 (13.1 %)	5,056 (29.1 %)	57,242 (24.0 %)
Non-Hispanic/Latino	2,177 (61.9 %)	51,562 (70.3 %)	61,492 (75.8 %)	23,076 (82.5 %)	30,334 (86.9 %)	12,329 (70.9 %)	180,970 (76.0 %)

(a)



(b)

Figure 3. CDC website for COVID-19 reporting in the US.

Source: https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html, as of April 24 [panel (a)]; https://www.howardcountymd.gov/Departments/Health/MM-Alerts-and-Recalls, as of May 11 [panel (b)].

(a)

日期	车次/车牌/航班	始发站	终点站	详情
04-27	桂F61790	天等	福新康苗	详情
04-26	CA910	莫斯科	西安	详情
04-26	渝D57770 13:20	西门	南门	详情
04-26	CZ682 51F	首尔	沈阳	详情
04-26	重庆103路	老南门	铜梁区人民医院	详情
04-26	CZ328	美国	广州	详情
04-25	EY876	阿布扎比	首尔	详情

(b)

Figure 4. Case tracker map and app in China.

Source: https://ishare.ifeng.com/c/s/7thiaab7wAK, as of May 2.

China's case tracker apps allow one to check the confirmed case report at the community complex level. It is also possible to check the details of concurrent travel with any passenger later confirmed as COVID-19 positive by inputting the information of flights, train, car, and travel date (Fig. 4(a)). Then one may take action to prevent the further spread of virus. The recent assessments are predicted by the classification of "Health Code", developed by Ailpay.[7]

Table 2. Covid-19 case tracker in China versus the US.

	China	US
Case tracker	https://app.21jingji.com/html/2020yiqing_gjcx/map.html, https://ishare.ifeng.com/c/s/7thiaab7wAK	https://covid19.jvion.com
Region level	Community complex	Census block group
Concentration of confirmed cases	No	Yes
Concurrence travel tracker	Yes	No

US COVID-19 community vulnerability map identifies geographic concentration of confirmed cases at the census block group level (Fig. 4(b)). So far, travel concurrence tracker is not available in the US (Table 2).

Epidemic Prevention

Epidemic data and statistics provide key information about COVID-19 breakout and spread, guiding the policymaker to take prescient action to control the situation and prevent further worsening. Epidemic prevention complies to *the earlier the better* principle. However, the outbreak and spread patterns of COVID-19 are different between China and the US. Wuhan is considered as an epicenter that had spread out the virus, while the very early cases in the US were all imported ones. So, China focused on blocking the spread and controlling the breakout in Wuhan at an early phase. Nowadays, China has been facing increased number of imported cases and is transferring key tasks to prevent virus import at the second phase. On the contrary, US intended to block the imported cases at the beginning and now meets the challenge of controlling the community spread. Here, we compared the measures taken and the outcomes of these two types of preventions (imported cases and community spread) between China and the US, which might give us a clue of the situations that the two countries stand in presently. We focused on primordial prevention, and disease management will not be discussed. Breaking news in China (Fig. 6) and US (Fig. 7) were listed for further comparison.

Community-Transmission Prevention

Wuhan lockdown versus stay-at-home order

Wuhan lockdown

On December 31, 2019, Chinese authorities reported a cluster of pneumonia cases in Wuhan, China. The cases were all caused by an unrecognized coronavirus (WHO named it COVID-19 on February 11), which was later identified by a Chinese group and a full genomic sequence was released to public databases on January 10.[8] Based on the experience gained from SARS, a highly contagious disease of the lung, caused by a similar coronavirus 13 years ago, Wuhan leaders closed and disinfected a large seafood market on January 1, 2020 which was first identified to be associated with the new virus.[9] By that day, the confirmed cases reached 381.[10]

As COVID-19 had broken out in Wuhan and was tending to spread, Wuhan authorities announced to shut down the city on January 23 in an effort to quarantine the outbreak center. WHO stated that the action is "unprecedented in public health history".[11] (a) *Public transportations were suspended* including airports, trains, buses, subways, and ferries and private cars were ordered off the road to limit the range of activities.[12] The Wuhan lockdown was eventually imposed on all 15 other prefecture-level cities in Hubei due to travel restrictions.[13,14] (b) On January 25, except "green channels", all entries and exits of *highways and city-to-city roads were sealed off.*[15] (c) By February 2 in Wuhan, all the confirmed cases, suspected cases, and patients with fever had been isolated. Those who had close contact with COVID-19 patients had been *quarantined in a center.*[16] In practice, such an intensive screening and inspection were not that easy, and more community workers, known as grid workers, were recruited to collect the above information by phone and WeChat, a Chinese social platform. A grid work group composed of four workers visited the doorsteps of all residents to avoid any information miss out.[17] A recent study revealed that the contact tracing reduced the timeframe of symptom onset — case identification from 5 days to 3 days.[18] (d) An upgraded "around-the-clock, closed management" was imposed on February 11 and implemented on February 14 that Wuhan residents must *stay at home* except in specific cases.[19–21] Apartment compounds unlocked one gate to allow

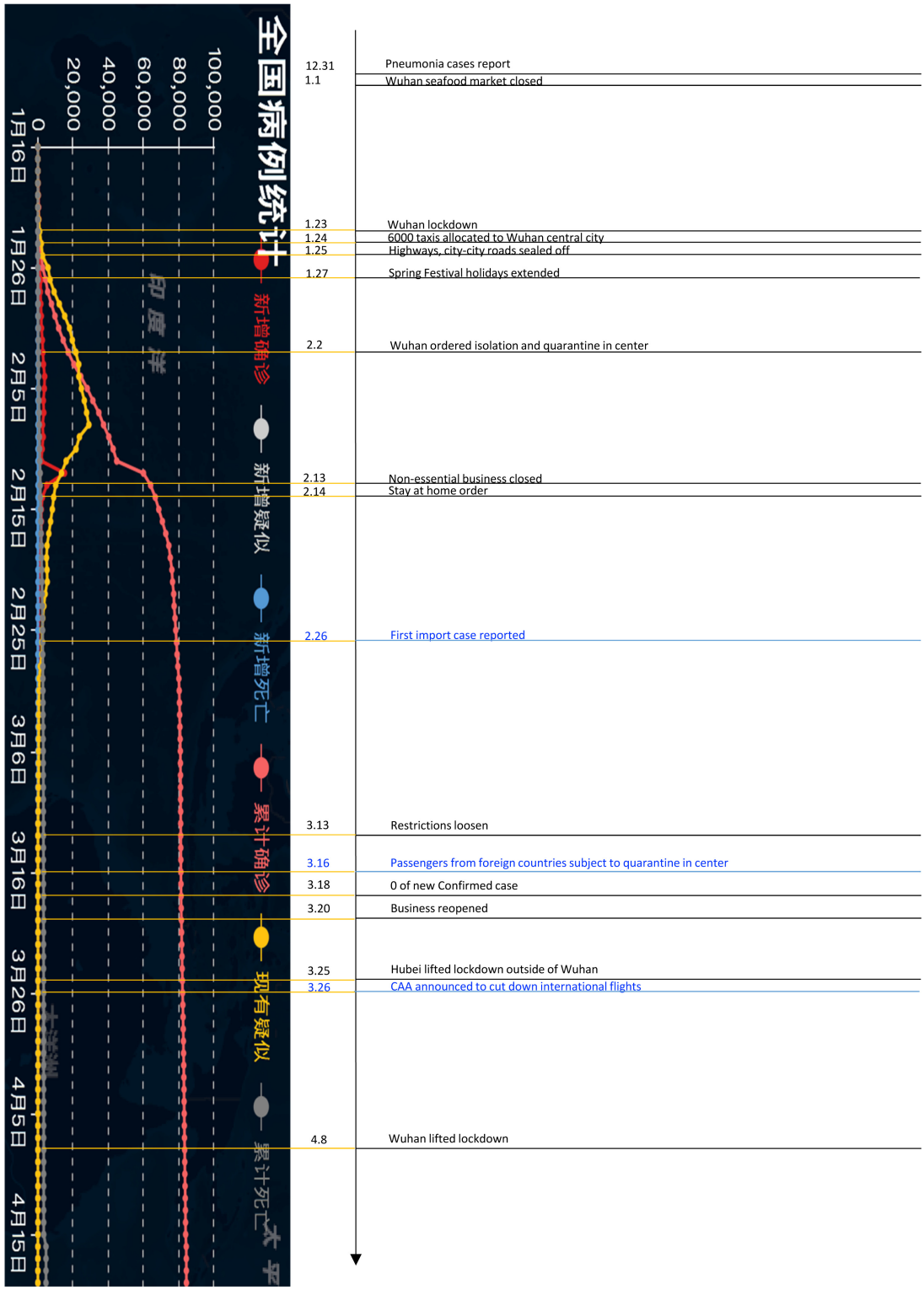


Figure 6. Breaking news in China.

the movement of people in and out. Old or open residential districts without walls were barricaded and left with only "one open gate". Community officials screened individual's temperature as they entered the complex, yet non-residents were not allowed to get in.[22] Each household could send only one person out once in every three days to purchase groceries and later, only the person who needed

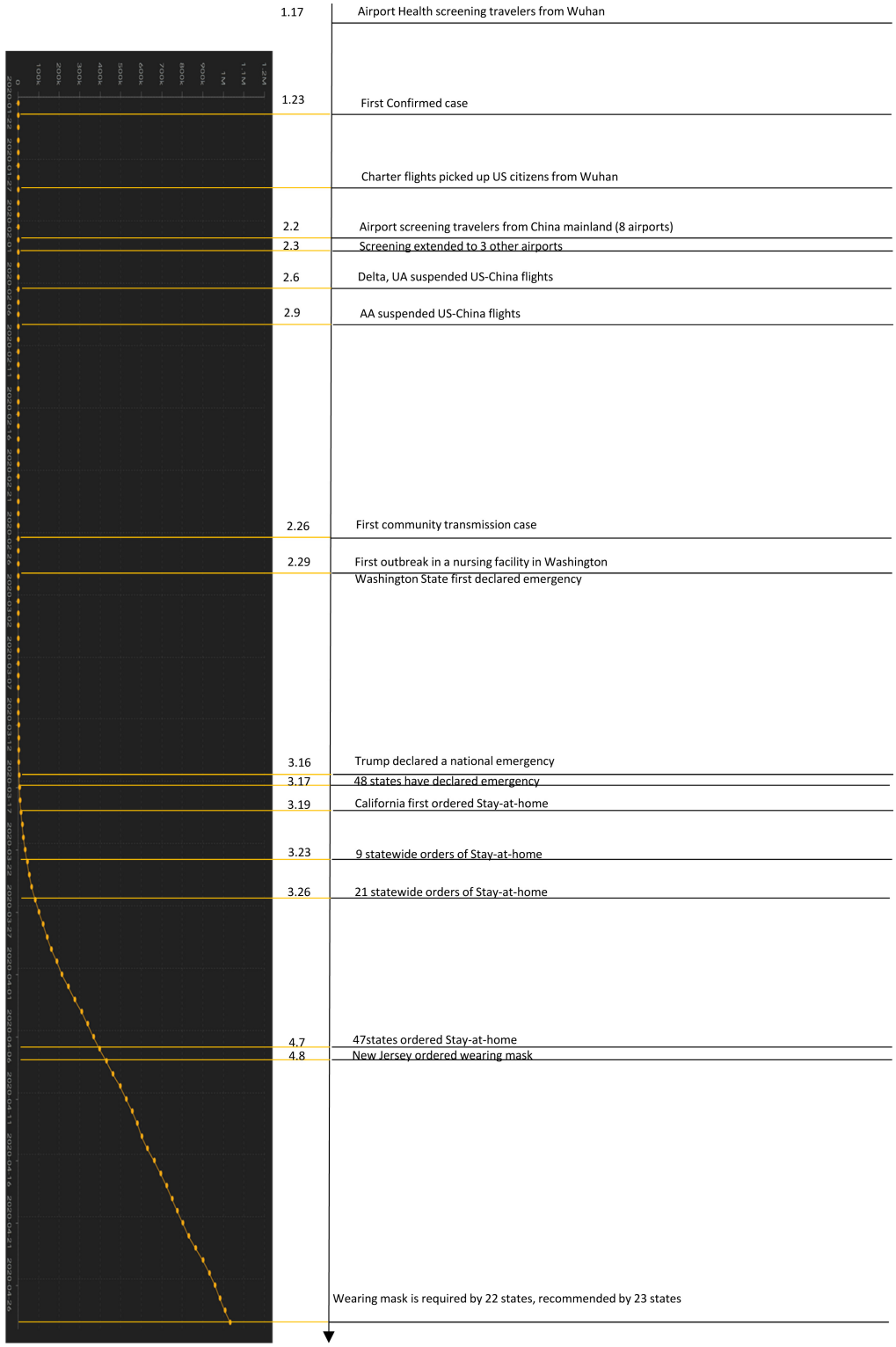


Figure 7. Breaking news in the US.

healthcare assistance or the epidemic prevention workers had the permission to go out of the complex. People ordered food and necessaries online or community workers helped old people in buying the essentials including medication, who were not familiar with online ordering. Deliveries were assigned to a specific site of neighborhood, usually at the gate, for picking up.[17] Meantime, grid workers

patrolled the streets and neighborhoods to remind the wanderers to go back home.

Many cities facing less density of COVID-19 cases, had utilized a similar but less strict scheme. Quarantines had been gradually ordered by a majority of provinces. For example, Shanghai announced that upon arrival, an individual who had no fever but had one of the following situations needed to quarantine at home for 14 days: (1) came from, stopped over, or traveled back to Hubei Province; (2) had a close contact with a person from Hubei who had a fever and respiratory symptom; and (3) had a close contact with confirmed or suspected patient.[23] Rural areas such as villages bordering with Hubei Province or with high numbers of migrant workers had voluntarily barricaded themselves to prevent non-residents from entering.[20]

US's stay-at-home orders

CDC confirmed the first possible community transmission of COVID-19 patient in the state of California, USA on February 26 who had no relevant travel history or exposure to another known patient with COVID-19. Community spread means spread of an illness but the source of infection is unknown. It brought the number of confirmed cases in the US to 15.[24] First COVID-19 outbreak occurred in a nursing facility in Kirkland, Washington, as reported on February 29 that raised more concerns.[25]

By March 17, 48 US states had declared a state of emergency among which Washington was the first state to declare emergency on February 29 after the first death was confirmed there.[26,27] (a) White House had advised all Americans to *practice social distancing*, but the number of COVID-19 cases continued to increase. (b) Then, a stronger action of issuing *stay-at-home* orders had been taken by 47 states by April 7.[28,29] Among them, the most populous state California became the first state to set the mandate on March 19.[30] Louisiana, with the fastest growth rate of cases in the world, issued an order on March 23.[31] Washington State where the first confirmed case was reported, issued a Stay Home–Stay Healthy Order by prohibiting all people in the State from leaving their homes or participating in social, spiritual, and recreational gatherings of any kind regardless of the number of participants, and all non-essential businesses. Essential activities permitted were limited to: (1) obtaining necessary supplies and services; (2) engaging in activities essential for the health and safety; (3) caring for people or pets in another place; and (4) engaging in outdoor exercise activities only if appropriate social distancing practices (6 feet) are used.[32] New York which faced the most severe infections ordered all workers in non-essential businesses to stay at home on March 22. Non-essential gatherings of individuals of any size were banned and outdoor recreational activities were limited to non-contact activities. In addition to grocery stores, food delivery service and public transportation were still operational. Governor Cuomo also announced "Matilda's Law" to protect people aged 70 and older.[33]

Comparing the stay-at-home orders in two countries, we found that the governors responded to the virus breakout at similar speeds. The public transportations that were still in operation, no restrictions on groceries, and exercise might have caused a slight difference when social distancing was applied (Table 3).

Wearing mask order

It is worth pointing out that Chinese people began to wear face masks as early as they learnt about the breakout of COVID-19 from the media, unless people did not have one due to the temporary shortage of supplies.[23] Now, wearing a face mask is still required in public in China. It is a well-accepted concept in China that healthy people wear mask to protect themselves from infection.

Different from China, in the US, only sick people wore masks to prevent others from infection. It took relatively a long time for state governors to order wearing a mask. Another reason for the delay in mandate was nation-wide shortage of commercially available masks. Thus, a recommendation for home-made clothing masks accompanied the wearing mask mandate. By April 29, wearing mask in public had been mandated by 23 states, and recommended by 22 states especially when social distancing was difficult.[34] Among them, New Jersey became the first state to introduce the mandate on April 8.[35] New York ordered on April 15.[36]

This might have caused significant difference in the attempt to reduce R_0 value of COVID-19 between the two countries.

National emergency announcement

On January 27, 27 days after Wuhan reported the cases, the State Council of China issued an

Table 3. Stay-at-home order in China versus the US.

	China	US
Period from the first reported case to stay-at-home order	23 days (Wuhan, onset of first case not clear, consider December 31 as the first day)	22 days (California State)
Public transportation	Suspended	Operated
Private transportation	Allowed (outside Wuhan)	Allowed
Groceries	One person per household once in every three days	No requirement on frequency and person numbers
School	Closed	Closed
Healthcare	Yes	Yes
Food delivery	No	Yes
Exercise (walk, hike, ride)	No	Yes
Social distancing	No	Yes

extension of Spring Festival holidays to February 2, and delayed the going back to school date with no estimated reopen date announcement.[37] The proclamation initiated a nation-wide quarantine in China. On February 13, an extension of order to shut down all non-essential businesses including schools was issued in Hubei Province until at least February 20,[38] which was further extended until March 10.[39]

On March 13, 18 days after the first community transmission case was reported, President Donald Trump declared a national emergency over the COVID-19 outbreak.[40] Before and right after Trump's declaration, almost all states declared emergency, closed the schools, and shifted to work from home.

US declared emergency and imitated nation-wide quarantine sooner than China, but China was at a specific time — the Spring Festival, when schools remained closed as on January 18 and most people were off the work around that time. Chunyun and union raised the risk of COVID-19 spread.

Field hospital for mild cases

In response to the overwhelming surge of COVID-19 patients, on the same day of Wuhan shutdown, a 1,000-bed emergency specialty field hospital designed to treat COVID-19 infected patients, named Huoshenshan Hospital, was started to be built. It opened on February 2, taking only 10 days for the whole construction. A second 1,500-bed facility, Leishenshan Hospital, opened on February 8 (Refs. 41 and 42) in order to overcome the insufficiency of hospital beds and to eventually accept mild cases.

The US constructed similar temporary hospitals to aid beleaguered medical staff as well. Four types of buildings including hotels, stadiums, convention centers, and college dormitories were utilized to serve recovering patients. In New York, a 68-bed Central Park operation took four days to set up and treated the first patient on April 1. The installation of a 970-bed care center at a convention center in Detroit took nine days. By April 16, 22 facilities had been converted to temporary care centers with totally 13,323 beds.[43]

Comparatively, both China and US built temporary hospitals in a short period of time to treat non-severe patients. The difference was that mild patients in China had eventually been hospitalized while in the US so far, they have been isolated at home.

Imported Cases Prevention

Health screen and entry restriction of foreign nationals

China is facing a second breakout of COVID-19 dominantly caused by imported cases, which had risen to 1,664 by April 30 since the first case was reported on February 26.[44] Effective from March 16, all passengers arriving at Beijing airport from foreign countries were subjected to a 14-day quarantine in a center and a nucleic acid test (effective from March 25).[45,46] The measures had been copied by other provinces in the following days.[44] Since March 26 China had suspended the entry of foreign nationals, but a majority of passengers were Chinese citizens.[47]

US reported the first confirmed case of COVID-19 on January 23, 2020, who was on a Wuhan travel and returned to Washington State four days ago.[47,48] Actually, the US authorities began health screening on January 17, but only of travelers arriving from Wuhan in San Francisco and Los Angeles and at the New York's John F. Kennedy International Airport.[49] However, according to VariFlight, an aviation data company based in China, about 4,000 people had already entered the US directly from Wuhan.[50]

After the first case was confirmed, US expanded the screening to all passengers who had traveled to China within the last 14 days at eight (JFK/New York, ORD/Illinois, SFO/California, SEA/Washington, HNL/Hawaii, LAX/California, ATL/Georgia, and IAD/Virginia) plus three (EWR/New Jersey, DFW/Texas, and DTW/Michigan) airports on February 2 and 3. Additionally, the US citizens who had returned from Hubei Province within 14 days were subjected to up to 14 days of mandatory quarantine. US citizens who had a travel to other areas of Mainland China within 14 days had to undergo up to 14 days of self-quarantine to ensure they had not contracted the virus and did not pose a public health risk. Foreign nationals (other than the immediate families of US citizens, permanent residents, and flight crew) who had traveled to China within 14 days of their arrival, would be denied entry into the US.[51] However, the screening process in some airports was lax as majority of travelers only received passing scrutiny and temperature check, with minimal follow-up. Those who had a symptom got a medical evaluation and was sent to a hospital if needed.[50]

When US was at emergency, the Arrival Restrictions were applied to nearly all foreign nationals who had been to China, Iran, and certain European countries. These European countries include Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom. After being screened at 13 assigned airports and reporting the destination, individuals had to immediately self-quarantine in their home and monitor their health. Local and State public health officials followed up by contacting them in the days and weeks in order to ensure compliance.[52]

Border restriction

On March 21, the Department of Homeland Security (DHS) implemented the measures to limit all non-essential travels across the borders of Canada and Mexico.[53] On April 20, these measures were extended for an additional 30 days.

Similarly, China National Immigration Administration (NIA) announced the border restriction on non-essential travel on April 13.[54]

Airline suspension

To prevent second epidemic spread, China Civil Aviation Administration (CCAA) announced to cut down international flights on March 19.[55]

Three of the largest US airlines — Delta Air Lines, American Airlines (AA), and United Airlines (UA) — had canceled flights between the US and China from early February through the end of March or April.[56] However, before the restrictions took effect, just in January, more than 1,300 flights with about 381,000 passengers arrived from China based on the U.S. Department of Commerce data. In February, when American airlines suspended the US–China flights, Chinese airlines still operated and about 60% of travelers who directly flew from China were not US citizens.

Table 4. Imported cases screening and prevention in China versus the US.

	China	US
Temperature measure	Everyone	Individuals who have fever or self-symptom
Nucleic acid test	Everyone	Individuals who have fever or self-symptom
Quarantine	In a left	At home
Airlines suspension	Reduced international flights	AA, UA, and Delta Air Lines suspended China-USA flights
Entry restriction of foreign nationals	Yes	Yes
Border restriction	Yes	Yes (Canada, Mexico)

Thus, the two countries had set up similar imported case restrictions. Relatively, screening and quarantine were stricter in China than in the US (Table 4). It also explained why China has an asymptomatic case report.

Summary

Since March 13, the strict restrictions had been gradually removed in Hubei Province as the control of epidemic took significant effect.[57–60] As on March 18, no new case was reported in Wuhan. On March 25, Hubei lifted the lockdown outside of Wuhan.[61] Wuhan eventually lifted its lockdown on April 8,[62,63] marking a success in phase-1 epidemic control. So far, it is needed for everyone in China to check their "Health code" classification prior to joining any social activity. US is considering reopening when the situation gets better.

With comparison, we found that the two countries have taken similar epidemic prevention measures against COVID-19 spread. The main measures in China that were different from the US include the following: (1) Wearing mask was made compulsory as early as the epidemic broke out; (2) international travelers were quarantined in a center; (3) grid workers aided in carrying out the mandate of stay at home; and (4) mild patients were isolated in hospital.

Conflict of Interest

The author declares that there is no conflict of interest.

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