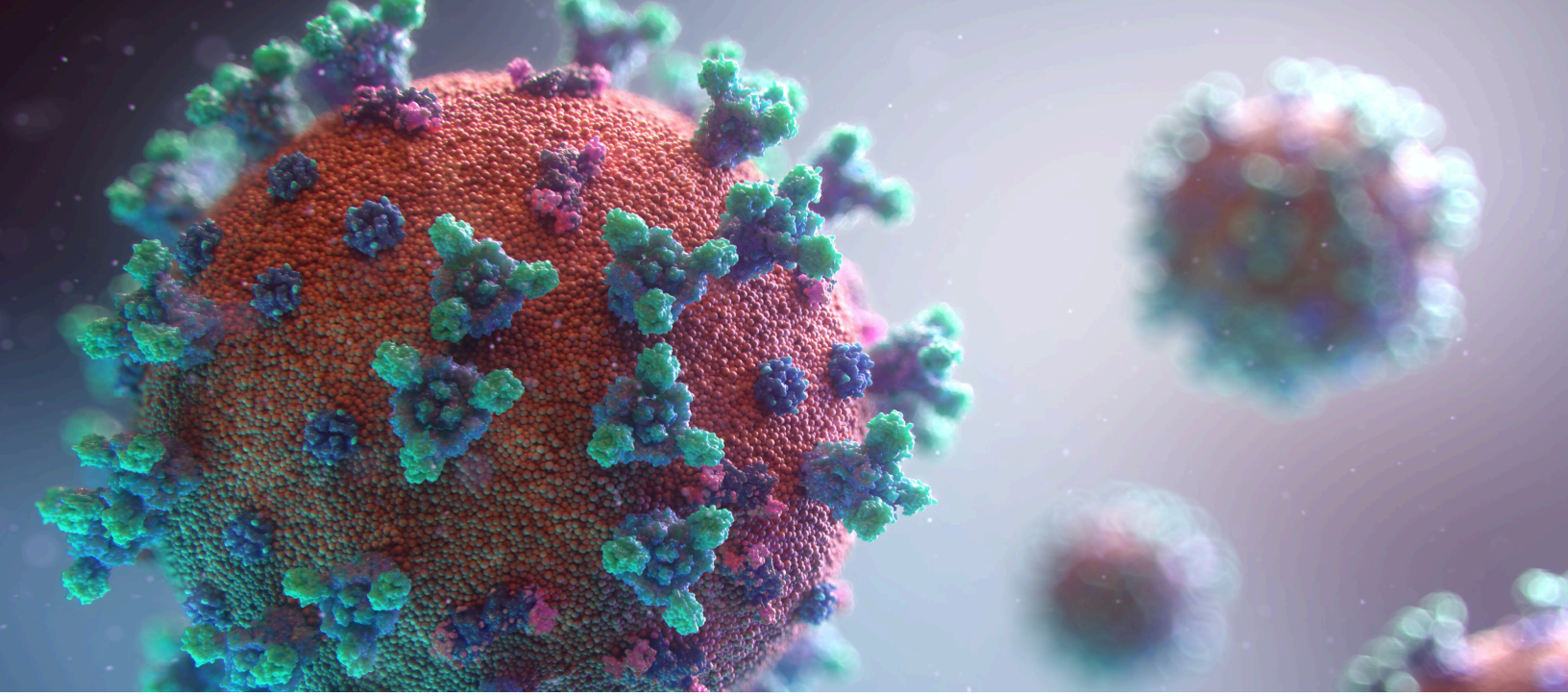

Viral Mistruths

Separating Fact from Fiction regarding China's Early COVID-19 Response

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May 2020

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Executive Summary

The world is facing a global economic challenge unseen since the Great Depression of the early-1930s and a global public health challenge unseen since the Great Pandemic of the late-1910s. Rather than come together to face the common challenge, the U.S. and China are growing apart as the Trump Administration and Congressional Republicans accuse China with increasing venom on the origins of the COVID-19 virus, alleged cover-ups, and – incredibly - on future damages due.

The bitter blame-game has been spawned by the uncritical acceptance by many of China's supposed early COVID-19 related failings. The **crux of the accusation is** that China knew - and the World Health Organization (WHO) was separately kept informed by Taipei - **that there was evidence of human-to-human transmission of COVID-19 as early as 31 December 2019**. Yet, rather than alert the U.S. and international public health community, **China allegedly suppressed this vital piece of information until 20 January 2020,** silenced the medical professionals who tried to raise the alarm, and engaged in deception. Had China acknowledged this truth and moved aggressively three weeks earlier, the number of global coronavirus cases could have been reduced significantly.

This accusation is, for the most part, misplaced.

First, **Taiwan did *not* alert the WHO to evidence of human-to-human transmission of COVID-19 on 31 December 2019**. What Taiwan did convey to the WHO on December 31st contained information that was no more useful than what the Wuhan Municipal Health Commission had, in fact, already publicly announced by that date, i.e. that a viral pneumonia of unknown causes had broken out in Wuhan and that the public should not go to enclosed public places or congregate; furthermore, face masks were recommended when stepping outdoors. As with any respiratory pathogen, it was understood that the risk of person-to-person spread could not be discounted.

Second, **the key question to ask regarding human-to-human transmission is not *whether* the COVID-19 virus was capable of person-to-person spread but, rather, *how* it is transmitted via person-to-person spread – as in, the nature (and uniqueness) of the virus' transmission-related parameters.** To argue that knowledge of person-to-person spread is sufficient to mount a

successful prevention, containment and mitigation regime is to entirely discount the ferocious characteristics of the COVID-19 virus – i.e., its *aggressive infection rate*, *long incubation period*, *asymptomatic carry-and-spread capability*, and *peak contagiousness at the pre-symptomatic stage.* **And to presuppose that these cryptic characteristics of COVID-19 would have been miraculously divined had China acknowledged human-to-human transmission three or two weeks earlier is to indulge in an utter fantasy**. As should be well known by now, there can be a considerable lag between new exposures to the virus and subsequent increase in infections and hospitalizations. It is telling, in this context, that even a full month after China's admittedly belated confirmation of human-to-human transmission of the COVID-19 virus on 20 January 2020, there was ambivalence on the part of senior U.S. infectious diseases specialists (let alone Donald Trump) to apply the war-paint and transition the U.S. to full battle stations mode. That heightened moment of alarm, and panic, did not occur in the scientific community until late-February/early-March and within the broader political establishment until mid/late-March. By this time, community transmission had already exploded domestically.

Third, **there was no three-week delay in movement at the Chinese end. To the contrary, authorities were laser-focused on investigating, isolating and detecting the early spread of the COVID-19 virus.** The race to identify the pathogen kicked off on January 2nd; four institutions tasked with carrying out parallel laboratory testing the next day; the WHO notified on the differences with past respiratory pathogens (avian flu, MERS) on January 5th; the pathogen was confirmed as a new coronavirus on January 9th; its genetic sequence was deposited with the WHO on January 12th; and a detailed protocol of initial public health countermeasures were instituted on January 15th. **The WHO-China Joint Mission of 25 national and international experts termed China's response as the "most ambitious, agile and aggressive disease containment effort in history."** To those who argue that the country sat on its hands during the early days of the outbreak, the frenetic pace of China's early response utterly belies their claim.

Fourth, **there were no major shortcomings on China's part in alerting the U.S. and the international public health community**. The WHO as well as Hong Kong, Macao and Taiwan were informed of the brewing epidemic on January 3rd, the U.S. Centers for Disease Control and Prevention (CDC) was kept in the loop the next day (on the basis of which the CDC issued its highest level travel notice on January 6th), preliminary progress on pathogen identification was relayed to the WHO on January 9th, and COVID-19's genetic sequence shared with the WHO on January 12th. Counterparts from Hong Kong, Taiwan, Macao and the WHO even paid field visits between January 13th and January 20th. **This having been said, China was indeed parsimonious in sharing early epidemiological data on person-to-person spread to its international counterparts.** The epidemiological characteristics and investigation results of the virus was only published for the first time on January 21st and January 22nd.

Fifth, China could have done a better job in relaying the developing gravity of the COVID-19 outbreak to its own citizens. Notable public alerts were provided on December 31st, 2019 by the

Wuhan Municipal Health Commission and on January 9th, 2020 by the National Health Commission, when it released information on the virus' cause**. The public alerts should have been supplemented with earlier controls on population movement in and out of Wuhan and stronger monitoring, more broadly, of arrivals and exits in Hubei province -** the approaching lunar holiday travel period notwithstanding. **Arguably, this was the authorities' most significant failing.** And during the second trimester of January, a desire to downplay the possible infectiousness of the disease can also be detected.

Sixth**, the tragic muzzling of Dr. Li Wenliang,** whose message of December 30th was intended to alert colleagues and their families privately (but got disseminated publicly and resonated widely) of a potential SARS-type outbreak, **was handled crudely.** It reflects poorly on the authorities' knee-jerk propensity to exercise control, especially during a brewing public health emergency when immediate action on early alerts is to be encouraged, not suppressed. **That said, Dr. Li's message was neither the first to alert authorities and colleagues to the approaching peril (that distinction belongs to Dr. Zhang Jixian) nor was it materially significant.** His message was based, in fact, on the internal notification to medical institutions that had been sent out by the Wuhan Municipal Health Commission on December 30th. A day later, the Wuhan Municipal Health Commission even alerted the public and recommended respiratory pathogen-related common-sense precautions. These precautions could, and should, have been amplified though during the first half of January without necessarily stoking panic.

Seventh, and the above point having been made, the **only defense at the time of the outbreak – *as is also the case today* - was an early, concerted and strict prevention, containment and mitigation regime on the lines adopted by South Korea, Singapore, Taiwan and Hong Kong – failing which, the global case-load would have been just as large today.** It is instructive that the first imported case of COVID-19 was recorded in, both, the U.S. and these East Asian countries and regions between January 20th and January 24th. Yet, three months later at end-April 2020, the United States death count stands at 60,000-plus, the United Kingdom death count at 25,000-plus, while the analogous numbers for Seoul, Singapore, Taipei and Hong Kong are 247, 15, 6 and 4, respectively. And consistent with the foremost lesson learned from the Great Pandemic of 1918, countries, provinces and cities which have implemented multiple cautionary interventions – social distancing measures; isolation and quarantining measures - at the early phase of the COVID-19 outbreak are also the ones which have witnessed peak death rates that are orders of magnitude lower than their less vigilant peers.

The U.S. and the international community bear an obligation to reckon honestly with the facts of China's early coronavirus response. Failings there were on China's part, and from which China will no doubt learn. A once-in-100-year pandemic event does not lend itself to predictable management and facile solutions. The early 'fog of war' notwithstanding, the integrity of the Chinese authorities' initial response and successes, particularly in terms of isolating the causative virus and establishing diagnostic tools, overwhelmingly outweigh the failings. Febrile times in

international relations have not been conductive for the rigorous vetting of charged accusations (think: Iraq War of 2003), with calamitous consequences thereafter. With multilateralism on the back foot, this time all sides must do better.

Introduction

On April 21st, 2020, the Attorney General of the U.S. state of Missouri, Eric Schmitt, filed a lawsuit against the Chinese government and the Chinese Communist Party alleging that their actions to suppress information, arrest whistleblowers, and deny the contagious nature of the 2019 novel Coronavirus had led to loss of life and severe economic distress in Missouri. As per the lawsuit, during the critical weeks of the initial outbreak, the Chinese authorities "deceived the public, suppressed crucial information, arrested whistleblowers, denied human-to-human transmission in the face of mounting evidence, destroyed critical medical research, permitted millions of people to be exposed to the virus, and even hoarded personal protective equipment (PPE) – thus causing a global pandemic that was unnecessary and preventable" (State of Missouri v. People's Republic of China, April 21). The lawsuit seeks punitive damages for deaths and losses suffered.

The lawsuit is not the first instance of the accusation that China's negligence and complicity render it legally liable for COVID-19 under international law (Yoo, April 6). This does not make the lawsuit any less frivolous; the Boxer Rebellion age of punitive reparations has long passed. Foreign governments, including China, enjoy immunity from such action in U.S. courts under the *Foreign Sovereign Immunities Act of 1976*. In order to circumvent this immense legal obstacle, efforts (initiated not-coincidentally by an ex-Missouri Attorney General and current Republican Senator) are under way in Congress to write legislation that would strip China of immunity for the act of concealing or distorting information about the coronavirus (Hawley, April 3). The bill appears to be modelled on the *Justice Against Sponsors of Terrorism Act (JASTA)* that Congress passed in 2016 in order to allow lawsuits to proceed against Saudi Arabia for aiding acts of international terrorism (Bellinger, April 4). Needless to say, a similar measure against China would be dangerous in the extreme, both, for each countries' assets on the other's soil as well as for overall bilateral relations.

President Trump Holds a News Conference on the Coronavirus. Source: The White House

Separately, on 23 April 2020, U.S. Secretary of State, Michael Pompeo, accused China of intentionally covering up the dangerous contagiousness of COVID-19 as well as of destroying samples of the novel coronavirus it gathered during the early stages of the outbreak in Wuhan. Speaking at a press briefing, he alleged that the Chinese Communist Party "didn't report sustained human-to-human transmission for a month …[and] censored those who tried to warn the world in order to halt the testing of new samples, and it destroyed existing samples" (Delaney, April 23). There is internal irritation within the White House, too, that the U.S. intelligence community has been unable to get behind the Administration's quasi-conspiracy theory that the virus originated at the Wuhan Institute of Virology, or a related Chinese laboratory, and was man-made (Mazzetti, April 30). U.S. intelligence agencies concur with the wide scientific consensus that COVID-19 was not man-made or genetically modified (Office of DNI, April 30) and the World Health Organization (WHO) has not received any evidence from the U.S. government of the virus' link to a Chinese bio-research laboratory either (WHO[a], May 4). For good measure, the Australians too have backed the U.S.' call for an independent global inquiry into the origins of COVID-19, how countries have dealt with the virus, and the openness and transparency with which information was shared – and not shared.

BOX 1: Donald Trump in his *Own Words*: On China, COVID-19 and U.S. Response

Like Herbert Hoover, who did not cause the Great Depression but saw his presidency crushed by his inept response to it, Donald Trump stands on the cusp of an imploding presidency due to his vainglorious and clumsy response to the novel coronavirus. With election season approaching and the U.S.' COVID-19 death-count mounting, President Trump has sought to externalize his Administration's failures by shifting the blame on China. Daily broadsides are tossed from the presidential pulpit, a U.S. government report on China's alleged culpability is reportedly being drawn up, and a torrent of anti-China advertisements has already been unleashed by his political action committee. Yet just a couple of weeks earlier, President Trump was singing a vastly different tune. Consider …

Jan. 22 -- *We have it totally under control. It's one person coming in from China, and we have it under control. It's going to be just fine.* - CNBC interview

Jan. 24 -- *China has been working very hard to contain the Coronavirus. The United States greatly appreciates their efforts and transparency. It will all work out well. In particular, on behalf of the American People, I want to thank President Xi!* - Twitter

Feb. 7 -- *Just had a long and very good conversation by phone with President Xi of China. He is strong, sharp and powerfully focused on leading the counterattack on the Coronavirus. He feels they are doing very well, even building hospitals in a matter of only days … Great discipline is taking place in China, as President Xi strongly leads what will be a very successful operation. We are working closely with China to help!* - Twitter

Feb. 10 -- *Looks like by April, you know, in theory, when it gets a little warmer, it miraculously goes away.* – New Hampshire campaign rally

Feb. 13 -- *I think they've handled it professionally and I think they're extremely capable and I think President Xi is extremely capable and I hope that it's going to be resolved.* – Fox News interview

Feb. 24 -- *The Coronavirus is very much under control in the USA. ... Stock Market starting to look very good to me!* - Twitter

Feb. 28 -- *It's going to disappear. One day, it's like a miracle, it will disappear.* – News conference

March 10 -- *We're prepared, and we're doing a great job with it. And it will go away. Just stay calm. It will go away.* – Meeting with Republican senators (on that date, 605 confirmed U.S. cases and 22 deaths)

March 15 -- *This is a very contagious virus. It's incredible. But it's something that we have tremendous control over.* – News conference

March 23 -- *America will again, and soon, be open for business — very soon — a lot sooner than three or four months that somebody was suggesting. ... We cannot let the cure be worse than the problem itself.* – News conference (on that date, 43,667 confirmed U.S. cases and 552 deaths)

March 24 -- *I'd love to have the country opened up and just raring to go by Easter.* - Fox News interview

Source: *Politico*, *The Washington Post*

But how accurate or fair is this characterization?

This report will break the key accusation down into its constituent parts and address each part separately. **It will find, overall, that the Chinese government marshaled a prompt, robust and adequately transparent response to the COVID-19 outbreak. Within the real-world constraints imposed by a once-in-100-year pandemic event, the system by-and-large worked – and worked commendably**. In its report released in late-February, the WHO-China Joint Mission of renowned international and Chinese infectious disease specialists noted that China "in the face of a previously unknown virus … ha[d] rolled out perhaps the most ambitious, agile and aggressive disease containment effort in history" (WHO[b], February 28). By the end of the second trimester of January 2020, the authorities realistically were, at most, a handful of days behind-the-cycle in terms of preparedness, transparency, prevention and containment – certainly, no big failure when placed in context of the exceptionality of this pandemic event. And China's post-January 23rd lockdown measures were extraordinary and did much to stanch the wider global spread of the virus.

There were **failings too, the most notable of which was the authorities' failure to impose earlier controls on population movement in and out of Wuhan** and stronger monitoring, more broadly, of arrivals and exits in Hubei province. The authorities could have amplified the outbreak-related alerts that they periodically put out to the public. And there was also scope for better epidemiological data sharing with foreign counterparts.

THE *MANY* RIGHTS AND *FEW* WRONGS OF CHINA'S EARLY COVID-19 RESPONSE

A variety of accusations have been laid at China's door over its advertent and inadvertent failings with regard to the handling – and mishandling – of its early novel coronavirus response. The accusations span the range from the serious to the conspiratorial. At its most serious, the essence of the accusation is that the Chinese government deliberately suppressed crucial information with regard to the breakout of the COVID-19 virus, and that its secrecy and deception is to blame for the mounting casualties in America and across the globe. This accusation essentially comes in three parts:

- First, China knew - and the World Health Organization (WHO) was separately kept informed by Taipei - that there was evidence of human-to-human transmission of COVID-19 as early as December 31st, 2019.

- Second, yet rather than alert the U.S. and international public health community, China suppressed this vital piece of information until January 20th, 2020, silenced the medical professionals who tried to raise the alarm, and engaged in deceptive practices.

- Third, had China acknowledged the truth on human-to-human transmission and moved aggressively on virus containment and mitigation three weeks earlier, the number of global coronavirus cases could have been reduced significantly – perhaps by as much as 95 percent.

It is worth examining each constituent part of the accusation on its individual merits.

I. China knew – and the World Heal Organization (WHO) was separately kept Informed by Taipei – that there was evidence of human-to-human transmission of COVID-19 as early as 31 December 2019.

The initial part of the accusation is partly correct. China ***suspected* – not knew** – as early as December 27th,December 2019 that it had a case of non-influenza-linked viral infection that was potentially transmittable through people-to-people spread on its hands (prior *non*-transmission cases were recorded as early as December 1st (Huang, February 15). A family cluster in Wuhan had displayed tell-tale signs. An elderly couple and their son had abnormalities in their lungs which looked like flu or common pneumonia but, on further examination, exhibited features different from flu or common pneumonia**. Crucially, the son showed no symptoms or discomfort unlike his elderly parents. It was unlikely that the trio had contracted the virus at the same time and, hence, the virus must have likely passed through human-to-human contagion for the son to have become infected** (Ya, April 16)**.** Similar symptoms and lung images were detected in another patient the following day, leading the hospital to alert the

Wuhan Center for Disease Control and Prevention of a "… viral disease, *probably* infectious." On 30 December 2019, the Wuhan Municipal Health Commission issued an urgent notice to medical institutions under its jurisdiction about a viral "pneumonia of unknown etiology" and announced 27 cases of atypical pneumonia to the public the next day (December 31st). As with any respiratory pathogen, it was understood that the risk of person-to-person spread could not be discounted. **Local authorities made no effort to officially suppress this information**; to the contrary, it cautioned the public to wear face masks when stepping outdoors and to avoid congregating particularly in enclosed spaces.

The latter part of the accusation related to Taipei's role is grossly erroneous. **Taipei provided no alert on human-to-human transmission to the World Health Organization (WHO) on 31 December 2019**. What Taiwan's Ministry of Health and Welfare did email the WHO on December 31st was that "at least seven atypical pneumonia cases [had been] reported in Wuhan, China …that the cases were believed [to be] not SARS, [and while] the samples [were] still under examination, [the] cases ha[d] been *isolated for treatment*." **There was no mention whatsoever in the message of "human-to-human transmission".** Pressed to elaborate on its embellishment in mid-April, **Taiwan's Health and Welfare Minister could only feebly claim that patients being "*isolated for treatment*" should have been construed as evidence of potential human-to-human transmission** (Lee, April 12). Given that there were no confirmed cases on the island on that date (December 31st, 2019), Taiwan could not state that human-to-human transmission was a definitive fact (Taiwan CDC, April 11).

BOX 2: Dueling Messages or Communicating the Same Thing? China and Taiwan on December 31

December 31, 2019 -- *The Wuhan Municipal Health Commission releases a briefing on its website about the outbreak of pneumonia of unknown cause in the city, confirming 27 cases and telling the public not to go to enclosed public places or congregate. It suggests wearing face masks when going out.*

- Xinhua (April 6)

On **December 31, 2019**, *Taiwan sent an email to the International Health Regulations (IHR) focal point under the World Health Organization (WHO) … Taiwan's aim was to ensure that all relevant parties remained alert, especially since the outbreak occurred just before the Lunar New Year holiday, which sees tremendous amounts of travel. To be prudent, in the email we took pains to refer to atypical pneumonia, and specifically noted that patients had been* ***isolated for treatment****. Public health professionals could discern from this wording that there was a real possibility of human-to-human transmission of the disease.* ***However, because at the time there were as yet no cases of the disease in Taiwan, we could not state directly and conclusively that there had been human-to-human transmission.***

- Taiwan Centers for Disease Control (April 11)

Source**:** *Xinhua*; *Taiwan Centers for Disease Control*

The Taiwanese dissembling on human-to-human transmission aside, the revelation to the WHO contained no more useful information than what the Wuhan Municipal Health Commission had already publicly announced on December 30th, 2019 (outbreak of viral "pneumonia of unknown etiology") and on December 31st, 2019 (confirmation of 27 cases and that the public should wear face masks and avoid closed or poorly ventilated public spaces). The basis of WHO head Dr. Tedros Adhanom Ghebreyesus's disenchantment with the campaign-style propaganda mounted against his director-generalship by Taipei may have its origins in the Tsai Ing-wen government's factual embroidery of its December 31st email.

Dr. Tedros at a press conference. Source: The United Nations

II. Yet, rather than alert the U.S. and international public health community, China suppressed this vital piece of information until January 20th, 2020, silenced the medical professionals who tried to raise the alarm, and engaged in deceptive practices.

China was indeed parsimonious in sharing early epidemiological data on person-to-person spread. As already noted, a family cluster with *suspected* person-to-person spread was detected as early as December 27th. As late as January 15th, the view in Beijing was that the "risk of sustained human-to-human transmission was low" - even though the first confirmable cases of person-to-person spread was becoming clearer by that date (Chan, February 15). It was only on January 20th that a high-level expert team headed by celebrated infectious disease specialist, Dr. Zhang Nanshan, confirmed the fact of human-to-human transmission of the COVID-19 virus. And over the January 21-22nd period, the epidemiological characteristics and epidemiological investigation results of the virus were published for the first time.

BOX 3: COVID-19 Epidemic Situation Response (End-December to January 15): Timeline of Key Investigation, Isolation, Detection and Containment Measures Undertaken

Late-December 2019

-- The Wuhan Center for Disease Control and Prevention (CDC) in central China's Hubei Province detects cases of pneumonia of unknown causes.

Dec. 30, 2019 -- The Wuhan Municipal Health Commission issues an urgent notification to medical institutions under its jurisdiction, ordering efforts to appropriately treat patients with pneumonia of unknown cause.

Dec. 31, 2019 -- The National Health Commission (NHC) sends a working group and an expert team to Wuhan to guide epidemic response and conduct on-site investigations.

January 2020

Jan. 2

-- The Chinese Center for Disease Control and Prevention (China CDC) and the Chinese Academy of Medical Sciences (CAMS) receive the first batch of samples of four patients from Hubei Province and begins pathogen identification.

-- The NHC comes up with a set of guidelines on early discovery, early diagnosis and early quarantine for the prevention and control of the viral pneumonia of unknown cause.

Jan. 3 -- The NHC authorizes the China CDC and three other institutions to carry out parallel laboratory testing of the samples for pathogen identification.

Jan. 5

-- Laboratory test results rule out respiratory pathogens, such as influenza, avian influenza, adenovirus, the Severe Acute Respiratory Syndrome (SARS) coronavirus, and Middle East Respiratory Syndrome (MERS) coronavirus, as the cause of the epidemic.

-- The WHO releases its first briefing on cases of pneumonia of unknown cause in Wuhan.

Jan. 7 -- The China CDC succeeds in isolating the first novel coronavirus strain.

Jan. 9 -- The expert assessment group of the National Health Commission publicly releases information on cause of unexplained viral pneumonia in Wuhan; the pathogen is initially judged as a new coronavirus.

Jan. 10

-- Research institutions including the Wuhan Institute of Virology (WIV) develop testing kits. Wuhan City organizes tests of all relevant cases admitted at hospitals in the city.

-- China CDC shares the specific primers and probes for detecting the novel coronavirus with WHO.

Jan. 12

-- The Wuhan Municipal Health Commission changes the name of "viral pneumonia of unknown cause" to "pneumonia caused by the novel coronavirus" for the first time in a briefing.

-- The China CDC, the CAMS and the WIV under the Chinese Academy of Sciences (CAS), as designated agencies of the NHC, submit to the WHO the genome sequence of the novel coronavirus (2019-nCoV), which is published by the Global Initiative on Sharing All Influenza Data (GISAID) and shared globally.

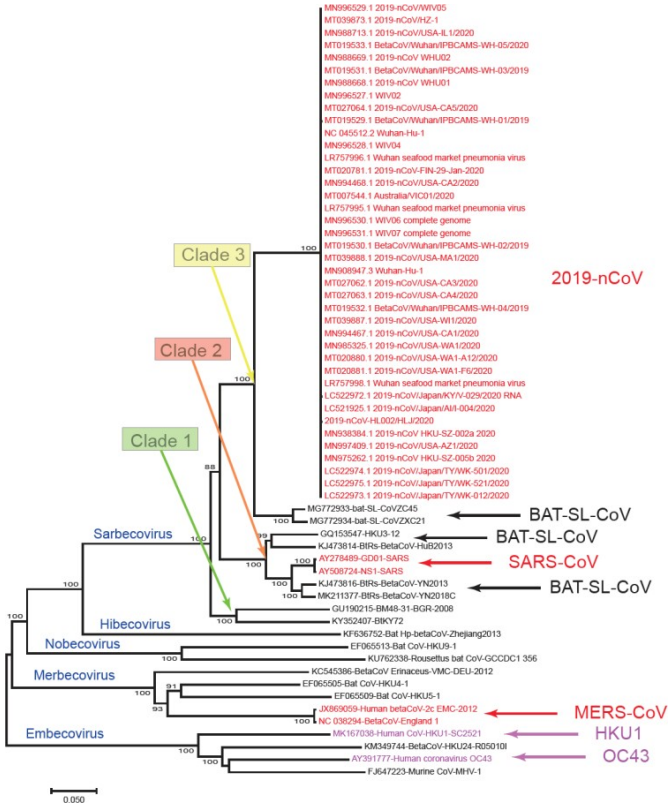
Jan. 13 -- The NHC instruct Wuhan authorities to further strengthen social management measures and body temperature monitoring at ports and stations, as well as reduce crowd gathering.

Jan. 15 -- The NHC unveils the first version of guidelines on diagnosis and treatment for pneumonia caused by novel coronavirus, along with the guidelines on prevention and control measures.

Source: *Xinhua*

There are a number of mitigating circumstances. **Through the first two weeks of January, Chinese central and provincial authorities were laser-focused on investigating and isolating the virus and, thereafter, detecting the extent of its early spread.** As displayed in Box 2 (p. 10), the race to identify the pathogen kicked off on January 2nd and four institutions tasked the next day to carry out parallel laboratory testing (accusations of destruction of other samples is meritless). By January 5th, China was able to report to the WHO that the outbreak differed in structure from other respiratory pathogens such as influenza, avian flu, Middle East respiratory syndrome (MERS), etc. - in turn, enabling the latter to report globally for the first time that cases of an unknown pneumonia had broken out in Wuhan (WHO[c], January 5). On January 7th, the first new virus strain was isolated; by January 9th, the pathogen was confirmed to be a new coronavirus; its full genetic sequence deposited with the WHO on January 12th; and a detailed protocol of initial public health countermeasures instituted by China's National Health Commission on January 15th. **To those in the U.S. Administration who argue that China sat on its hands during the early days of COVID-19's outbreak, the frenetic pace of China's early response utterly belies their claim.**

FIGURE 1: Phylogenetic Analysis of COVID-19 Virus and Related Genomes



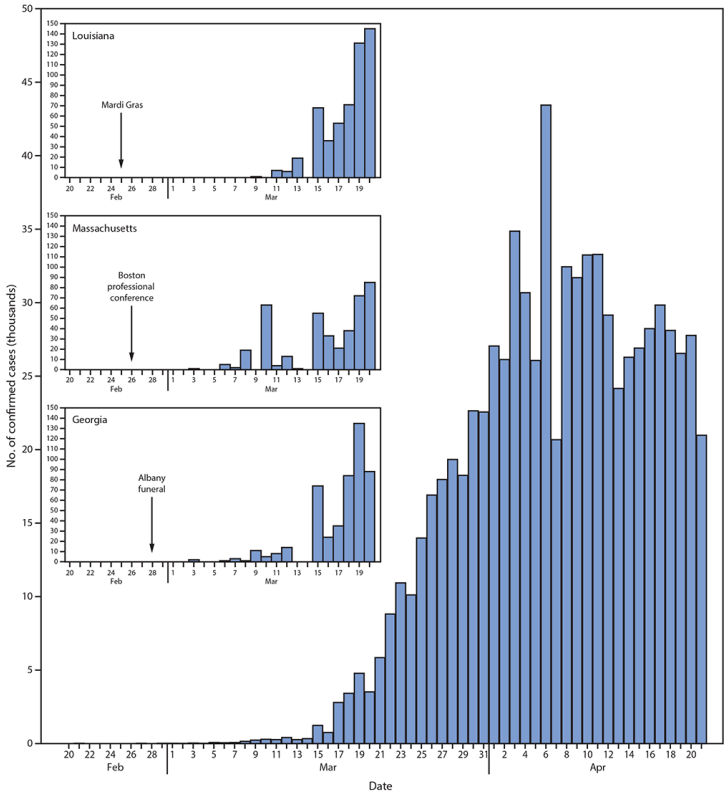
Source: *World Health Organization*

Moreover, the official infection count was still comparatively low during this period. **The *confirmable* – not suspected - cases of human-to-human transmission was even smaller** (Chan, February 15). **The WHO's January 14th tweet that there was "no clear evidence of human-to-**

human transmission" was more-or-less consistent with the situation on the ground through the first trimester of January. As late as January 17th, a revised count of only 62 official cases of pneumonia caused by the novel coronavirus was confirmed by the Wuhan Municipal Health Commission. That number rose to 198 on the eve of Dr. Zhang's confirmation of person-to-person spread on January 20th, 2020. Observers have raised doubts abouts about the veracity of the low COVID-19 official case count through the first three weeks of January, particularly in light of the exploding post-January 23rd lockdown numbers (Associated Press[a], April 15). *Prima facie*, there could be an argument to be made in this regard; the official numbers are on the low side.

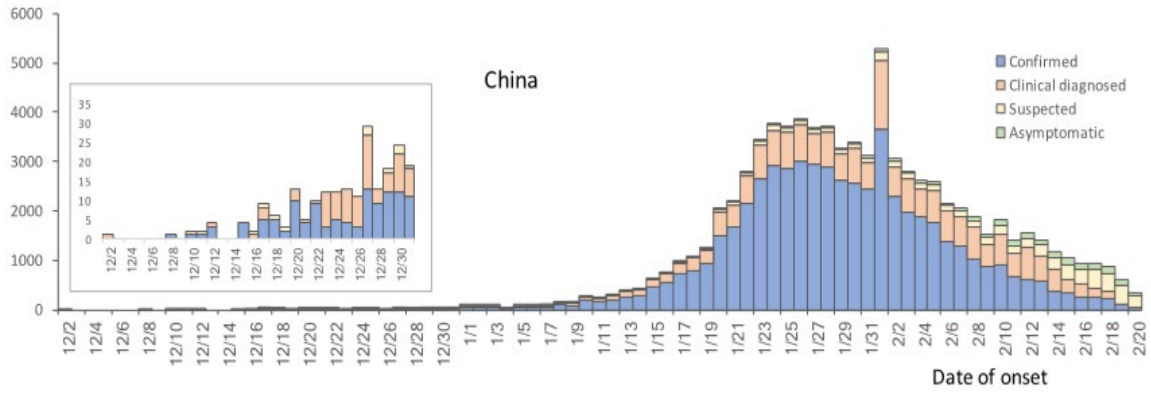
On the other hand, it is equally worth noting that while just 14 cases of COVID-19 were diagnosed in the U.S. from January 21st, 2020 through February 23rd, 2020, that case count exploded more than 1,000-fold from late-February to mid-March. **Until a threshold density of community transmission is under way, the COVID-19 virus case count can stay deceptively low, as subsequent experience has now painfully demonstrated. Yet once that threshold of community transmission was breached,** especially following the return of Europe-based U.S. citizens (from where the virus was primarily imported into America (Zimmer, April 8)) from mid-February on, **the numbers skyrocketed over a short period of time**. A similar dynamic likely played out in Wuhan and Hubei province too. ***Confirming* evidence of human-to-human transmission at the time was not as simple as it may post-facto seem**.

FIGURE 2: U.S. and Confirmed COVID-19 Cases – February 20 to April 21



Source: *U.S. Centers for Disease Control and Prevention*

FIGURE 3: China and Confirmed COVID-19 Cases – 1 December 2019 to 20 February 2020



Source: *World Health Organization (on basis of China National Infectious Disease Information System data)*

It is also well-known that Dr. Li Wenliang (and seven other physicians) had tried to alert colleagues and their families on December 30th about a potential SARS-type outbreak, for which he was reprimanded for rumor-mongering and public order disturbance (the reprimand was posthumously revoked). The tragic case of Dr. Li justifiably garnered widespread sympathy inside and outside China. During a brewing infectious disease emergency when immediate action is of the essence, early information alerts are to be encouraged – not suppressed. This isn't just good practice; the WHO's 2005 International Health Regulations demand that it be the case.

This having been said, Dr. Li was not the first to alert authorities or colleagues of a potential SARS-type outbreak – that distinction belongs to Dr. Zhang Jixian who had treated the elderly couple and son on December 27th and relayed her prescient suspicion of a potentially novel coronavirus to higher-ups immediately thereafter (Ya, April 16)**.** Indeed, Dr. Li's private WeChat chat group text message, which was to later get disseminated widely, was itself based on the internal notification sent out by the Wuhan Municipal Health Commission on December 30th. The whistle had already been blown on the virus and, as the Box 2 (p. 10) list of response measures undertaken highlights, central and provincial authorities were actively seized of the matter. The public, too, were alerted by local authorities the next day and enjoined to observe respiratory disease-related common-sense precautions. On January 9th, the cause of the hitherto unexplained

pneumonia was also revealed to the public by the National Health Commission. **Chinese authorities could, nevertheless, have progressively raised the public alert level as more information on the virus came online without necessarily stoking panic. Information, after all, has come to light – courtesy the U.S. Department of Homeland Security's intelligence report of May 1st – that medical supplies were being stockpiled beginning early-January (Associated Press[b], May 4). And,** indeed, a tendency to publicly downplay the possible infectiousness of the virus can be detected during the second trimester of January. This is a useful lesson to heed, going forward.

On the other hand, the charge that China deliberately failed to alert the U.S. and the international public health community early-on, as Secretary of State Pompeo has bellowed, is utterly false. As Box 3 (p. 11-12) makes abundantly clear, there were no major shortcomings on the early notification front. Following the Wuhan City Health Committee's viral "pneumonia of unknown etiology" notice of December 30th, the WHO as well as counterparts in Hong Kong, Macao and Taiwan were informed of the brewing epidemic on January 3rd. The U.S. Centers for Disease Control (CDC) was kept in the loop the next day (on the basis of which the CDC issued its highest level travel notice on January 6th), preliminary progress on pathogen identification was relayed to the WHO on January 9th and, as noted earlier, the full genetic sequence was deposited with the body for research and dissemination on January 12th. For added measure, the President Xi Jinping presided over an epidemic control-related Politburo Standing Committee meeting on January 7th and further outreach to American disease control counterparts was initiated on January 8th and, again, later in mid-January. Counterparts from Hong Kong, Taiwan, Macao and the WHO even paid field visits between January 13th and January 20th.

BOX 4: COVID-19 Epidemic Situation Response (End-December to January 15): Timeline of Key International Cooperation and Transparency Measures Undertaken

Late December 2019

-- The Wuhan Center for Disease Control and Prevention (CDC) in central China's Hubei Province detects cases of pneumonia of unknown causes.

Dec. 30, 2019 -- The Wuhan Municipal Health Commission issues an urgent notification to medical institutions under its jurisdiction, ordering efforts to appropriately treat patients with pneumonia of unknown cause.

Dec. 31, 2019 -- The Wuhan Municipal Health Commission releases a briefing on its website about the pneumonia outbreak in the city, confirming 27 cases and telling the public not to go to enclosed public places or congregate. It suggests wearing face masks when going out.

January 2020

Jan. 3

-- Starting Jan. 3, China begins informing the WHO, relevant countries and regions, including Hong Kong, Macao and Taiwan about the pneumonia outbreak.

-- China begins to inform the United States of the pneumonia outbreak and response measures.
-- The Wuhan Municipal Health Commission provides an updated briefing on its website about the situation of viral pneumonia of unknown cause, reporting a total of 44 cases.

Jan. 4 -- Head of the China CDC talks over the phone with director of the U.S. CDC about the pneumonia outbreak. The two sides agreed to keep in close contact for information sharing.

Jan. 5
-- The Wuhan Municipal Health Commission provides an updated briefing on the situation of viral pneumonia of unknown cause, reporting a total of 59 cases.
-- China informs the WHO about the outbreak updates.
-- The WHO releases its first briefing on cases of pneumonia of unknown cause in Wuhan.

Jan. 6 -- The NHC gives a briefing on cases of pneumonia of unknown cause at a national health conference, calling for efforts to strengthen monitoring, analysis and study, and take timely measures.

Jan. 7 -- Xi Jinping, general secretary of the CPC Central Committee, issues instructions on epidemic response while presiding over a meeting of the Standing Committee of the CPC Political Bureau.

Jan. 8 -- Heads of China and U.S. CDCs talk over the phone to discuss technological cooperation.

Jan. 9
-- The expert assessment group of the National Health Commission publicly releases information on cause of unexplained viral pneumonia in Wuhan; the pathogen is initially judged as a new coronavirus.
-- China reports information regarding the epidemic to the WHO, shares the preliminary progress regarding pathogen identification of the unknown viral pneumonia to the WHO.
-- The WHO releases a statement on its website regarding pneumonia cases in Wuhan, saying that preliminary identification of a novel coronavirus in a short period of time is a notable achievement.

Jan. 10
-- Head of the NHC Ma Xiaowei as well as Head of China CDC exchange information over the phone with WHO Director-General Tedros Adhanom Ghebreyesus about the epidemic response.
-- China CDC shares with the WHO the specific primers and probes for detecting the novel coronavirus.

Jan. 12
-- The Wuhan Municipal Health Commission changes the name of "viral pneumonia of unknown cause "to "pneumonia caused by the novel coronavirus "for the first time in a briefing.
-- The China CDC, the CAMS and the WIV under the Chinese Academy of Sciences (CAS), as designated agencies of the NHC, submit to the WHO the genome sequence of the novel coronavirus (2019-nCoV), which was published by the Global Initiative on Sharing All Influenza Data (GISAID) and shared globally.

Jan. 13
-- Delegations from the Hong Kong and Macao special administrative regions and Taiwan visit Wuhan (until Jan. 14.)
-- Wuhan Municipal Health Commission provides an updated briefing on its website, saying Wuhan had reported a revised total of 41 cases of pneumonia caused by the novel coronavirus as of Jan. 12.

Jan. 14 -- The NHC holds a national teleconference, making arrangements for Hubei Province and Wuhan City to strengthen epidemic prevention and control, while ordering the whole country to prepare for epidemic prevention and response.

***Source**: Xinhua*

III. Had China acknowledged the truth on human-to-human transmission and moved aggressively on virus containment and mitigation three weeks earlier, the number of global coronavirus cases could have been reduced – perhaps by as much as 96 percent.

The 95 percent lower case-count is based on a non-peer reviewed study that was conducted early during the outbreak (Lai, March 13). Set this study result aside for the time being. The broader accusation is entirely specious. First, China did move early and aggressively on virus discovery, prevention and containment, as already attested. Second, the crucial question to ask with regard to human-to-human transmission is **not *whether* the COVID-19 virus was capable of person-to-person spread but, rather, *how* it is transmitted via person-to-person spread – as in, the nature (and uniqueness) of the virus' transmission-related parameters.** To argue that knowledge of person-to-person spread is sufficient to mount a successful prevention, containment and mitigation regime is to entirely discount the ferocious characteristics of the COVID-19 virus, i.e., its *aggressive infection rate*, *long incubation period*, *asymptomatic carry-and-spread capability*, and *peak contagiousness at the pre-symptomatic stage.* **And to presuppose that these cryptic characteristics of COVID-19 would have been miraculously divined had China acknowledged human-to-human transmission two or three weeks earlier is to indulge in an utter fantasy.** As should be well known by now, there can be a considerable lag between new exposures to the virus and the subsequent increase in infections and hospitalizations.

It is telling, in this context, that *even a full month after* China's admittedly-belated (probably by a week) confirmation of person-to-person spread on January 20th, one of the U.S.' senior-most infectious disease specialists, *who had just returned from China after having been part of the WHO's on-the-ground senior experts delegation*, was ambivalent to raise the alarm domestically to its highest severity level (Cohen, March 6). That heightened moment of alarm, and panic, occurred in the scientific community only in late-February/early-March and within the broader political establishment until mid/late-March - fully 50-55 days after the Chinese Center for Disease Control had confirmed person-to-person transmission on January 20th, 2020. In retrospect, the unrecognized community transmission during the initiation and acceleration phase of the U.S. outbreak owed in significant measure to the virus' cryptic characteristics and transmission parameters (Schuchat, May 1).

The **only defense at the time of the outbreak – as is also the case today - was an early, concerted and strict prevention, containment and contact tracing regime on the lines adopted by South Korea, Singapore, Taiwan and Hong Kong, and which was strongly recommended by the WHO - failing which, the global case-load would have been just as large today** (WHO[b], February 28). It is instructive that the first imported case of COVID-19 was recorded in, both, the U.S. and these East Asian countries and regions between January 20th and January 24th. Yet, three months later at the end of April 2020, the U.S. fatality count stands at

60,000-plus (US CDC) while the analogous numbers for Seoul, Singapore, Taipei and Hong Kong are 247, 15, 6 and 4, respectively (on the key measures that were instrumental in breaking the virus' chain of transmission in the four East Asian countries and regions, see Box 5.). South Korea even kept its border open to Chinese arrivals during the peak of the outbreak in China, limiting its ban to Hubei province and its capital Wuhan. In mid-April, it conducted a parliamentary election, recording the highest voter turnout in 28 years. **Prior knowledge of human-to-human transmission, while useful, was clearly insufficient to tackle and contain the virus. And China's belated confirmation of person-to-person spread was materially inconsequential to the exploding global case load that is witnessed today.**

Box 5: Shortcomings in China's Early Response: WHO-China Joint Mission Report

While the scale and impact of China's COVID-19 operation has been remarkable, it has also highlighted areas for improvement in [China's] public health emergency response capacity. These include overcoming any obstacles to act immediately on early alerts, to massively scale-up capacity for isolation and care, to optimize the protection of frontline health care workers in all settings, to enhance collaborative action on priority gaps in knowledge and tools, and to more clearly communicate key data and developments internationally.

***Source**: World Health Organization*

Rather, what was likely consequential during the early stages of what was at-the-time unrecognized community transmission was **China's failure to institute earlier controls on population movement in and out of Wuhan and stronger monitoring, more broadly, of arrivals and exits in Hubei province -** the approaching lunar holiday travel period notwithstanding. A case of infection was reported in Thailand on January 13th; human mediums had already transported the virus beyond China's borders (and had probably done so much earlier). **Arguably, this was the authorities' most significant failing.** And while China's post-January 23rd lockdown measures were extraordinary and did much to stanch the wider global spread of the virus, it could only partially make up for this earlier failing.

Box 6: *Test, Isolate, Contact Trace, Quarantine – Repeat*: Successful Lessons of the COVID-19 Overachievers

The "Spanish" flu of 1918 is considered as one of the most lethal pandemics in human history. Over the course of a year-and-a-half, starting early-1918, the flu infected a third of the world's population and killed almost 40-50 million people. As devastating as it was, the pandemic also left important lessons for future public health practitioners – the foremost of which was that (U.S.) **cities which had implemented multiple cautionary interventions (social distancing measures; isolation and quarantining measures) at the early phase of the outbreak were also the ones to witness peak death rates which were almost 50 percent lower than their initially less-vigilant peers** (Hatchett, May 2007).

Figure 4: Early Cautionary Intervention and Case Fatality Rates – U.S., U.K., and South Korea

See: *Shiva, Mehdi. "We need a Better Head Start for the Next Pandemic." VoxEU, 26 April 2020*

Hundred year later, no four countries and regions have epitomized this imperative for prompt and multiple cautionary interventions better than South Korea, Singapore, Taiwan and Hong Kong. As per a **Stringency Index** (see brown dashed line in figure above) prepared by scholars at the University of Oxford to reflect the strictness of government interventions undertaken to create social distancing and augment public health provision, South Korea's early, rapid and rigorous measures were instrumental in "creat[ing] a proper 'head start' [that] made South Korea's intervention exemplary" (Shiva, April 26). **Compared to the U.S. and the U.K, Seoul's measures were: (a) instituted earlier, (b) were far more stringent and (c) kicked-in well before the case fatality rates (CFR, i.e. reported deaths among total cases - see green line in figure) had begun to shoot up. Not only did South Korea begin mass testing across the nation relatively early but the country also benefited for a significantly greater health capacity.** By contrast, the lack of screening in the U.S. in the first month of the outbreak is clearly seen in the significant 'bump' in the CFR (green line) figure.

When the COVID-19 pandemic is in the rear-view mirror and the manual is written on preventing, containing and mitigating the next great pandemic, South Korea, Singapore, Taiwan and Hong Kong's measures will feature at its very top. All four did three things that was key to breaking the virus' chain of transmission.

First, each instituted a widespread and rigorous regime of early testing and contact tracing. South Korea famously has conducted more than 620,000 diagnostic tests by end-April (one for every 83 residents), including the first ever drive-through system in the world. Each confirmed patient's contacts were then exhaustively tracked down, offered free testing, and transmission pathways blocked. This was reflected in unusually low fatality rates.

Second, all four astutely deployed information and communication technology to trace contacts, keep track of aggregations of movement, provide real time notifications on virus spread, monitor quarantines, etc. Taiwan set the bar here. After integrating its public health databases with border controls as well as household registry and national identification system, it linked private mobile phones to the government's epidemic control center – enabling, among other things, the police to electronically monitor and efficiently enforce the quarantine regime. As a result, the rate of local transmission cases to imported infections is one of the lowest in the world. South Korea's real-time notification system on infection spread and IT-enabled 'self-quarantine app' and 'self-diagnosis app' to monitor self-isolation cases was just as good. Privacy considerations were compromised but life was protected – and protected in spades.

Third, citizens in all four voluntarily displayed a high level of self-discipline, including following stay-at-home orders, social distancing measures, avoidance of crowds, and tolerance of degraded privacy protections during this emergency period. Researchers have pointed to the role of 'civic capital' in slowing the spread of the virus. Specifically, communities with high civic values adopt social distancing measures of their own volition when they are advised to do so but not required to do so. Such early spontaneous adoption can be extremely valuable during the initial stages of an epidemic when government is still hesitant to issue strict lockdown orders.

… and China's Success and Lessons for the U.S.

The case of China's successful containment and mitigation of the outbreak may be more relevant to the U.S. today, given that community transmission had already exploded there before authorities had a firm handle on the spread. Quarantining was key to China's success. Makeshift hospitals, schools, hotels, conference halls, etc. were repurposed as quarantine centers on an industrial scale to house all but the most severe and critical cases (who were hospitalized) in order to relieve the burden on the hospital system. **Importantly, suspected patients and close contacts were kept separately within these makeshift quarantine centers too, and isolated from the larger population body until full recovery.** As a Chinese wall was gradually constructed between the uninfected and the suspicious/asymptomatic cases, the chain of transmission began to be cut. A similar "smart isolation and quarantine" based adaptation will be required on the part of the U.S. public (Fineberg, April 7). Testing must be ramped up, and a wall of separation created between the uninfected and the asymptomatic/suspicious/mildly-ill cases until the latter have fully returned to normal health.

Conclusion

For the second time in the short space of 20 years, a global public health emergency that has ravaged lives and livelihoods at home and abroad has originated on Chinese soil. The Belt and Road will become synonymous as a gateway on which viruses, too, travel. Africa's development has potentially been set back by many years. China's exotic wildlife markets must be quashed, the wild animal-eating habits of its diners socially altered, and Africa supported with significant debt relief.

Overall, however, the Chinese government did marshal a commendably prompt, robust and adequately transparent response to the COVID-19 outbreak. Within the real-world constraints imposed by a once-in-100-year pandemic event, the system by-and-large worked. **By the end of the second trimester of January 2020, the authorities realistically were, at most, a handful of days behind-the-cycle in terms of preparedness, transparency, prevention and containment – certainly, no big failure when placed in context of the exceptionality of this pandemic event.** There were failures too. Authorities should have imposed earlier and stronger controls over population movement, amplified rather than downplayed the possible infectiousness of the outbreak in mid-January, and shared epidemiological data better with foreign counterparts.

At this time, **there is valuable bilateral and international cooperation underway in China, beneath the political radar, to scientifically hunt for the origins of the COVID-19 virus**. U.S. infectious disease scientists and Chinese researchers have teamed up to inquire into two inter-related questions: (a) on the animal-to-human transmission origins of the coronavirus; and (b) whether the virus had emerged in other parts of China before it was first discovered in Wuhan in December (Manson, April 27). The former question assumes importance given that the animal origin of the Covid-19 virus is as yet unknown. This means that previously infected zones cannot be said to be entirely immune to the risk of viral reintroduction. Obtaining viral sequences from animal sources is thought to be the most conclusive way to detail its origins. With regard to the latter question, it assumes importance given that, as is now known, a significant minority of COVID-19 carriers do not carry symptoms of the virus. Accessing blood bank samples of pneumonia patients nationwide in December, and even earlier, could shed light on whether COVID-19 was already present in the population before it was discovered in late-December in Wuhan. This Sino-American scientific research effort is a world removed from the conspiracy

theories being peddled by the Trump Administration on the virus' man-made and genetically modified laboratory origins.

The world is simultaneously facing a global economic challenge unseen since the Great Depression of the early-1930s and a global public health challenge unseen since the Great Pandemic of the late-1910s. Rather than come together to face the common challenge, key parties are growing apart as they bicker with increasing venom on COVID-19's origins, cover-ups and – incredibly - on future damages due. In no small measure, this bitter blame-game has been spawned by the uncritical acceptance by many of China's supposed early COVID-19 related failings. Failings there indeed were - and from which China will no doubt learn – but the successes far outweigh the failings. The U.S. and the international community, too, bear an obligation to reckon honestly with the facts of China's early coronavirus response. Febrile times in international relations have not been conductive for the rigorous vetting of charged accusations (think 2003 Iraq War), with calamitous consequences thereafter. With multilateralism on the back foot, this time all sides must do better.

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