A Whole new World : A meta-analysis of pre-Omicron zero covid strategy China's post Wuhan clusters

A whole new world is the song Disney's Aladdin and Jasmine sing as they fly over the city of love at night on the magic carpet. In this article we invite you to explore Mainland China Covid dynamics in zero covid strategy era, it feels like a whole new world indeed…

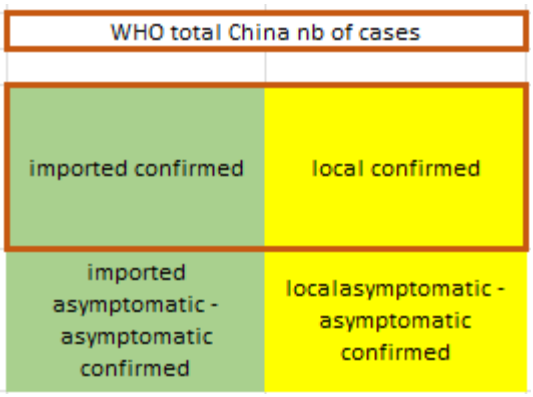
Zero Covid strategy entails a full set of prevention actions and also a **full different set of Key indicators and segmentation** of territories for the analysis of the epidemics. To explore those "Zero-Covid specific" metrics, we offer you to delve into Aladdin's treasure : the unique data sets curated on public sources for China and Globally by Solidarity Covid – Expats in China, a volunteer project started in the early days of the Wuhan lockdown by a group of French Expats in China, which continued over time to become a volunteer research project and an NGO. With a rich 2 years of back data collected every day by the team, we offer you unprecedented insights on the dynamics of the pandemic, the impact of vaccination, early detection through general screening at each outbreak on the sanitary impact of the disease with this meta-analysis of the China post-Wuhan clusters in the Global pandemic perspective.

Genie wish n° 1 : please give me an accurate segmentation of China cases

In China, there have been overall more imported cases (18 303) than local cases post Wuhan (10 361), those groups don't interact on each other so they need to be differentiated.

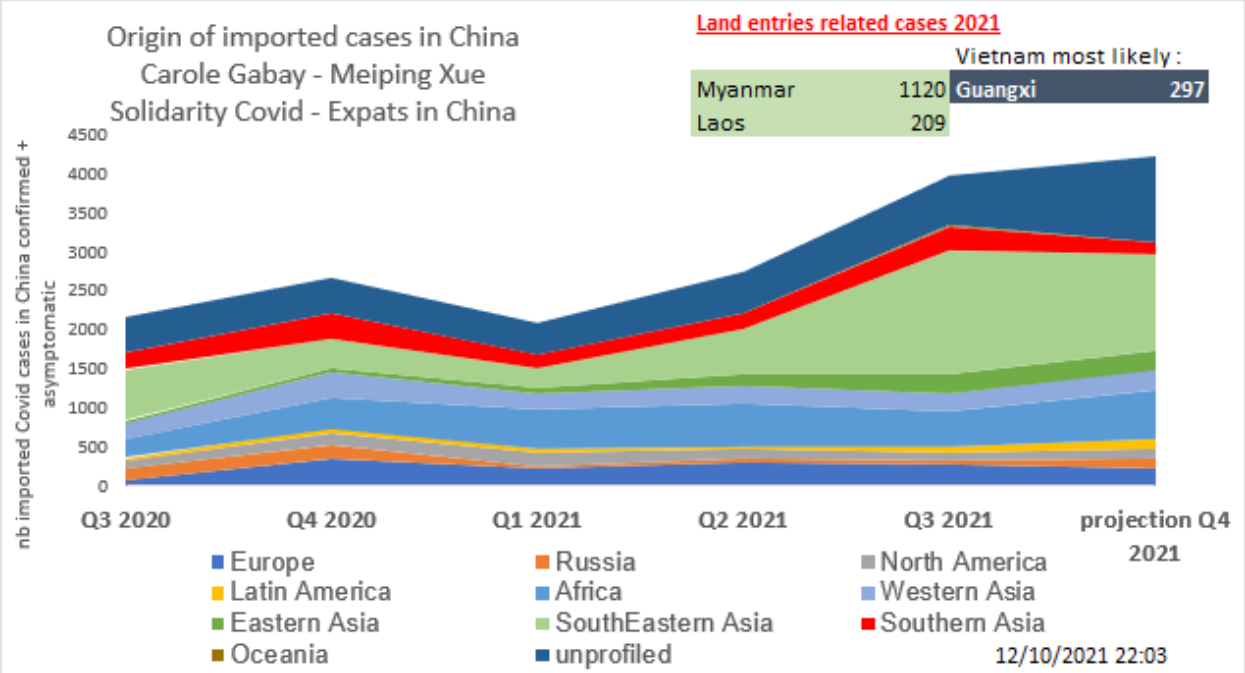
When WHO reports number of cases in China, one needs first to split the cases between imported and locally acquired, add the asymptomatic cases and deduct the asymptomatic cases that became confirmed for each of these groups. That's why the total reported at the WHO is not very significant, and it is necessary to go in the sub-national data to make those segments.

The public Covid data in China is specifically hard to collect, as each province reports differently, the frames used in the provinces / cities websites or WeChat accounts can change overnight, there is no back data available online, and there is no centralized monitoring of asymptomatic / severe cases by province or by origin for the imported cases, leading therefore to partial reporting from WHO (which doesn't integrate the asymptomatic cases in the count) and very challenging to set up machine scrapping algorithms.



Because China is almost covid free, with strict quarantines in sealed hotel rooms upon arrival from overseas, circuit breaker and shortage of flights, closed loop management of the arrival staff, the risk of

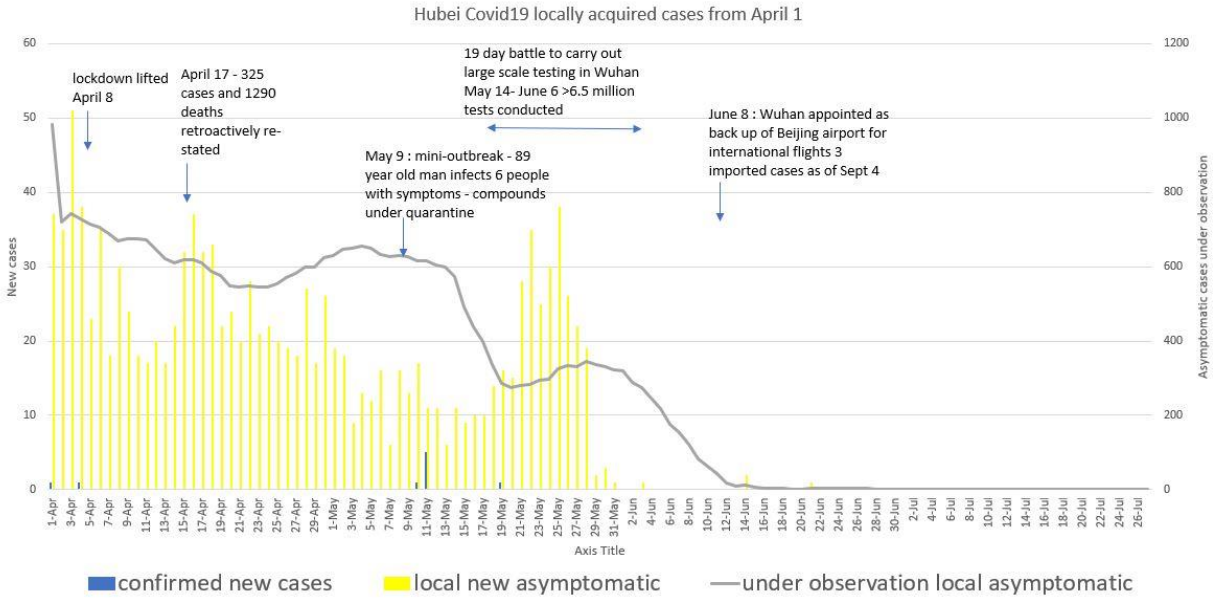
spillover of cases in the community is minimized, the number of imported cases is predictable and relatively stable (except for the surge of land entries of Chinese citizens from Myanmar, Laos, Cambodia and Vietnam in Yunnan and Guangxi), imported cases are a specific segment which we monitor separately and analyze every day, checking additionally on late quarantine cases and origin of cases with impact on flight suspensions.



Apart from South Eastern Asia which was before Delta much preserved from the pandemic the case load of imported cases from other regions has been pretty stable, with some small variations related to the waves of pandemic in those regions. That is the result of the mechanism of quota of flights and circuit breaker, delivering a predictable cohort of international travelers to escort and supervise in quarantine hotels and a manageable caseload in the hospitals.

We do the same for Hong Kong and benchmark with Singapore, although the latter became less relevant when Singapore got overwhelmed with Delta wave. Therefore, when we integrate the China data in our Global database we will process China, Hong Kong numbers in separate relevant sub-territories of imported and local cases **integrating the asymptomatic cases** for China.

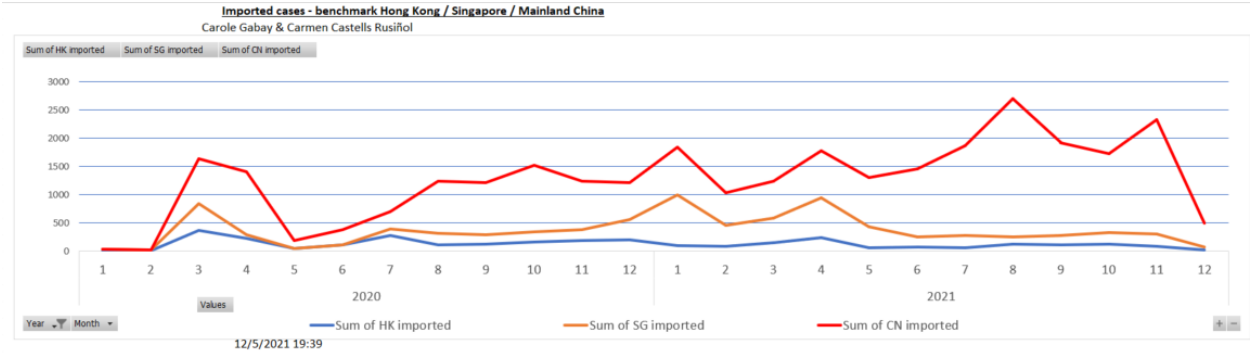
Why is China the only country to differentiate the asymptomatic cases from the confirmed cases, which can lead sometimes to misleading trends in the WHO reporting ? First because China was first to be hit, and in the worst days of Wuhan crisis there were not enough test kits to test all the sick people, cases were added based on clinical symptoms only (February 12-20 2020) so there was no way the healthy people would get tested. The massive testing capacity was introduced in April 2020 in Wuhan before the lockdown was lifted : no less than 900 positive cases were found, when there had been no new cases showing up in the hospitals for one week. It would have been psychologically devastating for the population of Wuhan to go from 0 to 900 news cases, so these cases were isolated indeed until the PCR turns negative two days in a row, but there were labelled “asymptomatic”.



A report on the Lingering cases in Hubei, there were asymptomatic cases until June 2020, and even August for travelers to other provinces.

Additionally, on this 'original strain' back in 2020, an asymptomatic carrier PCR+ was less contagious and infected other people asymptomatic until it reached a very fragile immunological profile (it happened in Wuhan in May 2020, one old man infected 6 neighbors all with symptoms), so if there are not a lot of cases, it is interesting to differentiate them from the confirmed cases. In China, local asymptomatic cases are handled same as confirmed cases, hospitalized in isolation, contacts isolated as well, but they do not trigger "medium risk area" classification, and they usually take a CT-scan to check spots in the lungs. There are cases where the patients have no clinical symptoms, only the CT-scan shows some spots.

In Singapore, the classification of cases was only based on clinical symptoms, no CT-scan, and with the overwhelming surge of cases from June 2021, the classification of cases based on symptoms was dropped, even for the imported cases which often arrive asymptomatic and a negative PCR at origin and may develop symptoms later. With the surge of local patients, there are no resources to hospitalize and monitor these imported patients.



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share of imported cases on total																						
China	50%	60%	21%	39%	22%	67%	98%	82%	82%	80%	26%	94%	94%	91%	89%	90%	79%	71%	75%	72%	64%	61%
Hong Kong	59%	70%	89%	91%	13%	7%	46%	67%	19%	8%	6%	14%	32%	78%	88%	94%	97%	98%	100%	99%	100%	100%
Singapore	59%	0.387%	0.005%	0.022%	1%	4%	17%	74%	95%	96%	96%	95%	98%	90%	41%	32%	9%	5%	1%	0.2%	0.3%	1.3%
share of asymptomatic	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
China exc Shanghai		7%	43%	40%	61%	64%	71%	63%	52%	42%	53%	58%	61%	52%	57%	49%	30%	22%	26%	30%	24%	12%
Hong Kong		36%	76%	70%	70%	90%	84%	82%	78%	79%	75%	78%	77%	79%	86%	69%	68%	74%	85%	83%	74%	69%
Singapore								76%	89%	87%	93%	91%	94%	88%	90%	88%						

*In Singapore and Hong Kong, the flights were not reduced beyond the demand as in China, so we have comparatively to the population a much larger number of imported cases than in China, true even if we reduce the China population for imported cases to the 158 million estimate nb of passport holders and foreigners in the population**. Share of asymptomatic is rather stable and much higher in HK / SG, outlining different criteria of classification for China, and even by province, depending much on the CT-scan equipment of the ports of entry, including the small towns bordering the South Eastern countries that had to adjust the quarantine and hospital capacity.*

** source : paper.cn, Jefferies, National Immigration Administration, Xinhua News agency

On top of these definitions, we add a space / time element to the China segmentation referring to the Wuhan wave : we look at Wuhan (which concentrated 62% of local cases and 84% of deaths as of May 31 2020), rest of Hubei (21%, of cases, 14% of deaths), and an aggregate “out of Hubei” for all the other provinces of mainland China (16% of cases, 2.6% of deaths).

These 4 territories (imported- Wuhan - rest of Hubei, out of Hubei) are integrated in our global database (sources Worldometer and our world in data.org for vaccination).

Genie wish n°2 : Please help me out with this jigsaw of indicators

Once we’ve differentiated imported from locally acquired (which has been integrated in the public apps from April 2020 for most provinces) and integrated the asymptomatic (reported separately in the apps), the public apps report by province and prefecture new confirmed / remaining / total infected (since 2020) / total deaths (since 2020) and new asymptomatic separately. Because the clusters can spread across several cities and provinces, we add another layer of segmentation by assigning a cluster to each line of new cases confirmed / asymptomatic / asymptomatic confirmed / cured / deaths (only 2 after April 2020) / severe cases by province and prefecture. We collect these mainly on Baidu every day, which also displays newsbriefs from the Health Commission wechat accounts/websites of the provinces or cities to collect information on the severe cases or details of cases (demographics, origin of imported cases). Typology of confirmed cases (light, ordinary, mild, severe, critical) and demographics are reported inconsistently across provinces, they can be reported in press articles sporadically and sometimes regularly on the apps / websites of the cities. The daily national report provides counts of imported and local cases with an

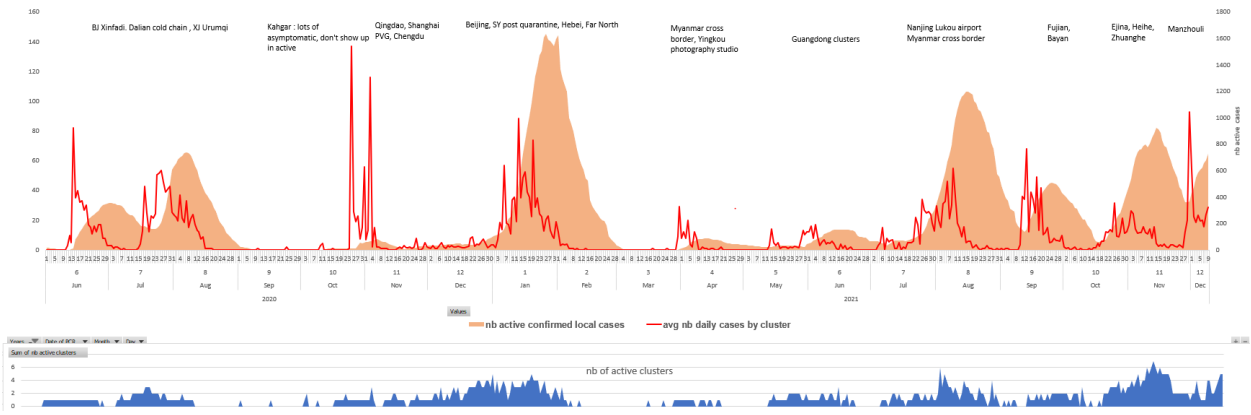
improving precision by province / prefecture as for confirmed, asymptomatic, asymptomatic confirmed. We would much appreciate more details on severe cases and remaining asymptomatic by province / prefecture to clear the inconsistencies and gaps we often deal with as we daily build the jigsaw puzzle of China cases.

The profiling of cases by cluster is done on different tables which we then connect together through Microsoft Access queries. It is necessary to collect the cases daily since all apps only display one time point with full details, it is not necessary to do the profiling every day, yet recommended to avoid mistakes and typos. On the national report and for some provinces only, we can explore archives of bulletins. Thanks to our daily curation of data and news briefs, and despite the complexity of not having back data available online to integrate the restatements or let us take a break some day, we are quite confident in the accuracy of this unique data set, certainly the most complete non-governmental dataset on China Covid dynamics.

Once we completed the profiling, we went into regular update, clean up as the analytics produced could outline some inconsistencies across the tables which we cleared gradually.

Since the Wuhan wave, China has known many local clusters (79 clusters, 8 median nb of cases), yet it is the only country in the world who has achieved to keep those clusters traceable and insignificant in terms of national incidence, thanks to superior digital tracking capabilities and strict and constant closed loop management and resilience of the population at risk.

Let's start the exploration with a timeline. The humps of active confirmed cases will be familiar showing the succession of local outbreaks, with a multiplication of outbreaks since the Delta era, and some long periods of quiet in the second half on 2020 and spring of 2021, those days are gone with Delta…

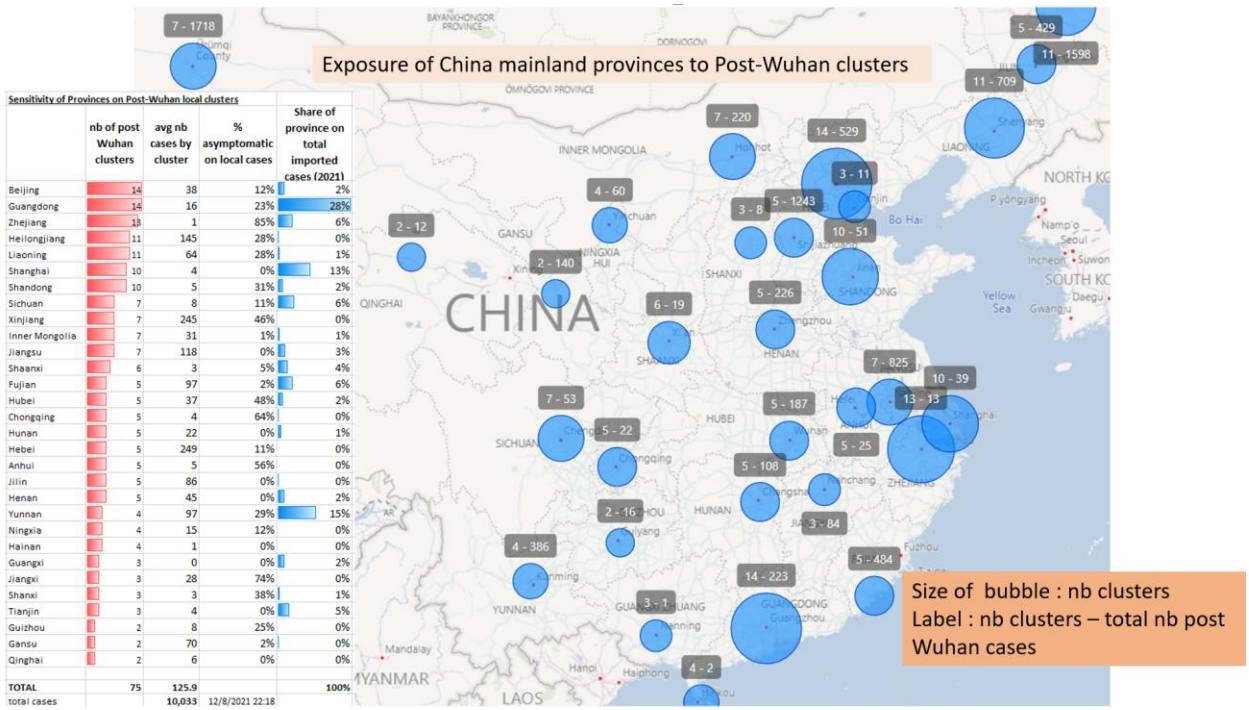


active confirmed local cases. An active case is an infected patient still hospitalized as Covid patient. We exclude here the imported cases, we also have to exclude the asymptomatic, mainly because the nb of active asymptomatic cases in observation is inconsistently reported across provinces. it is easier to monitor the new asymptomatic cases, so these are integrated in the red line (avg number of cases by cluster, with limited variations in the recent clusters. The lower graph is the nb of active clusters delivering cases. The latest hump was not even down to half until other clusters bring it up again.

With the Delta variant, we have a multiplication of local clusters, so the humps never die out until another cluster brings the cases up. We've had up to 6 clusters per day in November 2021 : even though the total nb of active cases was not higher than previous episodes, it was a small nb of cases, yet split across a lot of clusters, one of them in Yunnan / Myanmar border area being "chronic" with cases almost every day since July 2021 and a town of (previously) 200 000 inhabitants in permanent lockdown.

Genie wish n°3 : please draw me a map !

When all over the world, all maps of Covid epidemiology will outline the nb of cases or deaths, in China the most relevant mapping criteria is the nb of clusters post Wuhan, since every new outbreak in an area regardless of the number of cases has tremendous impact on the lives of the residents with school and leisure / gathering activities closures and cancelations, travel restrictions, lockdowns and so on… In the Tier I cities, there have been a lot of clusters, because people travel more and these cities are entry ports of international travelers and goods. Yet only 3 provinces have an average nb of cases by cluster above 100. The city of Harbin in Heilongjiang has known 3 medium size clusters since September 2021. This is quite upsetting for the 4 million population of this city to go in lockdown so often, and with the tightening of the prevention regulations on trade / transit / import of cold chain goods triggered by the numerous Delta outbreaks, these cities are now doomed to have all workers related to trade of imported fresh food live in "closed loop management", meaning have shifts of work in a "bubble", followed by quarantine, followed by rest with the family, just like the Hazmut workers in the airport, that ain't much attractive... It is no surprise that a border city like Manzhouli in Inner Mongolia which was built on the trade with Siberia has seen its population decline by half since the borders closed to travelers in 2020.



Sensitivity of Provinces on Post-Wuhan local clusters

	nb of post Wuhan clusters	avg nb cases by cluster	% asymptomatic on local cases	Share of province on total imported cases (2021)
Beijing	14	38	12%	2%
Guangdong	14	16	23%	28%
Zhejiang	13	1	85%	6%
Heilongjiang	11	145	28%	0%
Liaoning	11	64	28%	1%
Shanghai	10	4	0%	13%
Shandong	10	5	31%	2%
Sichuan	7	8	11%	6%
Xinjiang	7	245	46%	0%
Inner Mongolia	7	31	1%	1%
Jiangsu	7	118	0%	3%
Shaanxi	6	3	5%	4%
Fujian	5	97	2%	6%
Hubei	5	37	48%	2%
Chongqing	5	4	64%	0%
Hunan	5	22	0%	1%
Hebei	5	249	11%	0%
Anhui	5	5	56%	0%
Jilin	5	86	0%	0%
Henan	5	45	0%	2%
Yunnan	4	97	29%	15%
Ningxia	4	15	12%	0%
Hainan	4	1	0%	0%
Guangxi	3	0	0%	2%
Jiangxi	3	28	74%	0%
Shanxi	3	3	38%	1%
Tianjin	3	4	0%	5%
Guizhou	2	8	25%	0%
Gansu	2	70	2%	0%
Qinghai	2	6	0%	0%
TOTAL	75	125.9		100%
total cases		10,033	12/8/2021 22:18	

Almost all provinces of China have had clusters post Wuhan. The share of asymptomatic varies a lot according mainly to the IT equipment of the hospitals in the area of the outbreak. The case load of

imported cases is also a factor in the nb of clusters, because we will get a number of cases related to international arrivals (quarantine hotel staff, freight workers, lab test workers…)

The origin of the first infection is not always well established, yet there are sensitive areas with exposure to international passengers or imported goods, these are the key categories of clusters :

- Accessible Land border areas with exchange of goods and all sorts of business men
- coastal ports with arrival of imported goods even more exposed when the goods are fresh
- airports with arrival of international passenger or cargo flights
- clusters related to interaction with quarantined passengers or imported patients in hospitals
- finally, clusters related to post quarantine cases

Deep dive into the clusters of China post Wuhan

From this database of clusters, we have built analytics displayed in a massive table in annex and which we will segment by timeline and size.

We are setting the date cut from one group to the other at June 30 2021 for the date of outbreak. Era I is mainly unvaccinated and infected by the original strain / Alpha whereas Era II will be well vaccinated and infected by Delta strain.

Identification

- name : would be the event, place of initial infection, it is often not known before two or three days, until the strain of the cases is analyzed to identify the chain of transmission.
- Dates of first case, last new case, territory (main prefecture and province reporting case)

Spread and intensity

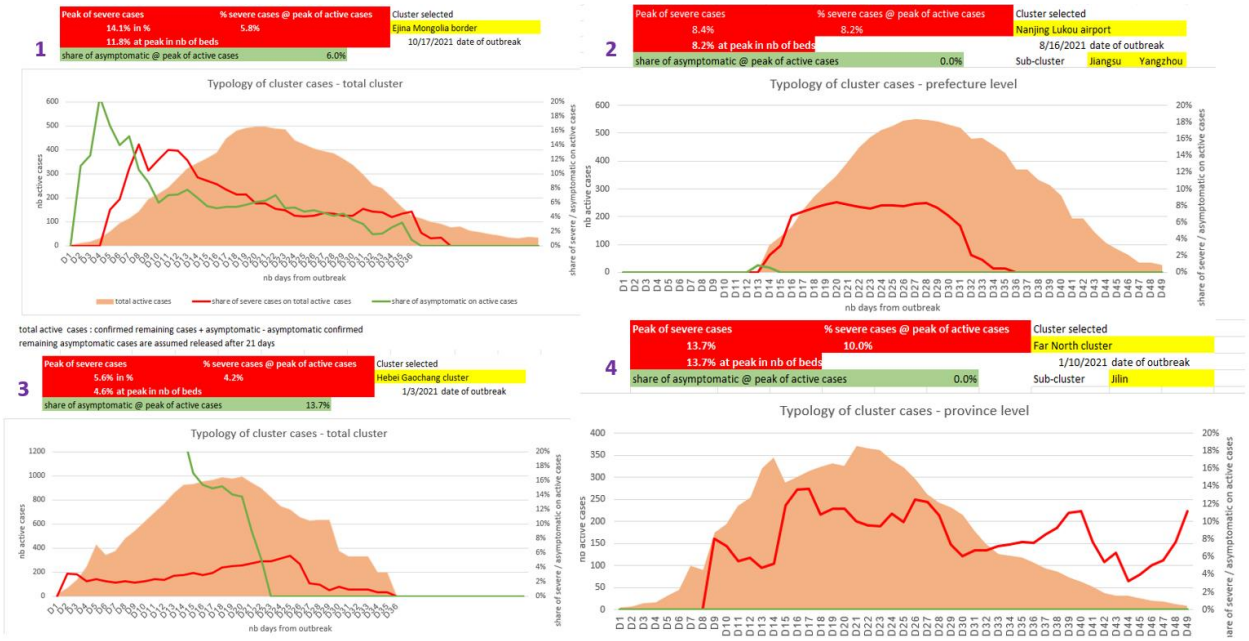
- Total nb of cases : new confirmed + new asymptomatic – asymptomatic becoming confimed, and metrics computed from these (nb of provinces an prefectures, duration of spread, cases per day average and peak)

Severity and profile : In China post Wuhan, we don't talk about incidence vs Population, deaths and hospitalizations as everywhere else. Why so ? Because new local cases remain always below 150 per day and all positive cases go to hospital, we've had only 2-3 deaths post Wuhan (per the definition of death during the initial Hospitalization following positive PCR), so in order to assess severity, we will look into :

- share of severe cases at different time points of the cluster (peak of active cases, peak of severe cases)
- share of asymptomatic cases (varies a lot by province and availability of CT-scan)
- pace of discharge : date of earliest discharge, how many days to discharge 50% of confirmed cases.

These indicators are highly dependent on the ages of the cases, which we try to collect but those are not consistently published : we get the name of the patient, the full 14 day itinerary, but often missing the demographics and vaccination status, it's up to each municipality to publish the case details and itineraries in the format of their own…

Another factor that can influence the indicators of severity is the vaccination rate at the time of the outbreak.



The severe cases metrics are assessed in this analysis with a drop down box at total cluster level, province or prefecture levels, so we can explore sub-clusters that we know affected senior patients.

On this visual, 4 clusters are reviewed on the analysis tool : 1, Ejina, which affected senior tourists mostly vaccinated at the beginning, so we had most severe cases at early stage. For the Nanjing Lukou airport (2), there were elderly patients and severe cases in Yangzhou subcluster, the largest sub-cluster, hence the share of severe cases plateaued during two weeks. We do not have the vaccination data of these cases, but we heard several times from the authorities that the vaccination rate of elderly was not as high. Hebei cluster (3) in the first era, was middle aged (with all generations in the cases) and the severe cases went on for a long time. At the same time, in Jilin (4), the cluster which affected a majority of elderly people in Heath seminars reached levels of severe cases above 10 to 14%.

Clusters with 1-10 cases

	Era I until June 30 2021	2nd Era – Delta + Vaccination from July 1 2021
Nb of clusters	27	18
Total nb cases	85 (3.1 per cluster)	39 (2.2 per cluster)
Average duration in days	6.4	2.8
Severe cases	None	None
Average nb of days from outbreak to discharge of 50% of patients	19	24.7

Whether vaccinated or not, small clusters do not generate severe cases, because they hit first young people, workers who are exposed to imported goods / objects or passengers. Those cases are often detected very early, through routine screening, and the early detection is the most compelling element to limit severity of symptoms, more than vaccination with inactivated virus.

The treatments used in China are based on Traditional Chinese Medicine and Western Medicine. A China developed antibody therapy developed by Tsinghua University, Shenzhen 3rd Hospital and Brii Biosciences (with headquarters in China and USA) was approved in December 2021 to be given to patients with risk factors for progression to severe should be added to the treatment regimen. The small clusters are usually located in urban, well-equipped areas that already treat imported cases in manageable quantities, so the conditions are optimized to limit severe cases. If we compare with over countries, the share of severe cases remains high on local cases, meaning that the criteria of admission in ICU are lower, since there is no saturation in China. That doesn't apply though for imported cases which are younger, many remain asymptomatic, and most come in vaccinated now and stay shorter in the hospital (from 10 to 20 days vs 40 in 2020).

Clusters with 11-30 cases

	Era I until June 30 2021	2nd Era – Delta + Vaccination
Nb of clusters	7	1
Total nb cases	146 (20.9 avg by cluster)	21
Average duration in days	14	26
Severe cases	1 patient from Beijing Daxing Alpha cluster	None
Average nb of days from outbreak to discharge of 50% of patients	28	25

The Delta variant being more contagious, there are almost no mid-size clusters in Delta era. It was another Mongolia border cluster detected by routine check-up, which is the case of most of the small clusters. In the case of the cluster in the border town of Erenhot, we have a long duration of 26 days for only 21 cases, reflecting the long incubation period of the Delta variant with close contacts testing negative more than 10 times before the end of their isolation.

Clusters over 30 cases

	Era I until June 30 2021	2nd Era – Delta + Vaccination
Nb of clusters	14	13
Total nb cases	5769 (412 avg by cluster)	4183 (avg 349 by cluster)
Average duration in days	26	24.5*
Severe cases	All of them except Beijing Shunyi December 2020 (43 cases, avg age 32.8)	5 out of 8 closed clusters reported severe cases
Average threshold in days from outbreak for discharge of 50% of patients	27.1	25.6 *

*on closed clusters excluding Yunnan / Myanmar cross border 2

The most striking difference on the “large” clusters between the two eras will be in the severe cases. Post vaccination, we’ve had several large clusters (from 97 to 285 total cases) that reported no severe cases whereas before vaccination, only one out of 14 clusters didn’t report severe cases. It was a very young cluster in age and only 43 cases, whereas the clusters in the second Era who remained mild went up to 339 cases although some of them had a majority of students and young patients, but also some older generations.

On the pace of discharge, we can also note a slight decrease from post vaccination phase, yet not as significant than what we observe on the imported cases (most of those arriving on flights being vaccinated with mNRA vaccines).

A global benchmark on share of severe cases / lethality

Our flying carpet has flown all over China, from Kashgar to Wenzhou, from Harbin to Xichuangbanna, to explore the characteristics of the outbreaks in China, unknown and misunderstood outside of China so much the approach is different in a Zero-covid strategy area. Let’s have a look now at the China KPIs in the Global perspective.

We place our segmented territories of China (as explained in the first chapter), and divide the timeline in Semesters. Each of them define a different phase in terms of test capacity, variants, vaccination uptake.

Booster shot + Delta + Alpha | Vaccination uptake enhanced | Testing capacity First wave, limited testing

Epidemics KPIs by semester — filter on Population > 2 Million - territories ranked ascending on Lethality S2 2021 — 12/10/2021 21:48

Carole Gabay for Solidarity Covid - Expats in China	epidemic KPIs on S2 2021 to date			Epidemics KPIs on S1 2021			Epidemics KPIs on S2 2020			Epidemics KPIs on S1 2020		
	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop
China - Wuhan	0.00%	0	0.05	0.00%	0	0.00	0.00%	0	0.00	7.69%	30.7%	25
China - Hubei exc Wuhan	0.00%	0.2%	0.01	0.00%	0.0%	0.00	0.00%	0.0%	0.00	3.73%	0.0%	2
China - imported	0.00%	0.2%	0.24	0.00%	0.9%	0.17	0.00%	1.6%	0.16	0.00%	0.0%	0
China - out of Hubei	0.00%	5.2%	0.02	0.08%	6.6%	0.01	0.00%	6.0%	0.01	0.91%	12.2%	0
Hong Kong - imported	0.00%	0.0%	0.45	0.28%	3.8%	0.52	0.00%	0.0%	0.76	0.52%	0.0%	1
World exc China	1.6%	-		2.1%			1.8%			5.2%		
Qatar	0.09%	1.7%	48	0.44%	2.2%	150	0.28%	1.5%	90	0.12%	0.7%	181
New Zealand	0.18%	1.0%	12	0.17%	0.0%	1	0.47%	8.0%	1	1.44%	1.9%	2
Denmark	0.19%	0.1%	255	0.95%	0.4%	124	0.46%	0.3%	141	4.74%	4.0%	12
Netherlands	0.19%	0.1%	407	0.71%	0.3%	286	0.71%	0.3%	237	12.16%	4.7%	16
Norway	0.20%	0.0%	196	0.44%	-	83	0.46%	-	41	2.82%	-	9
Nicaragua	0.21%	-	8	1.22%	0.0%	2	2.32%	0.0%	3	3.29%	0.0%	2
Switzerland	0.22%	0.1%	277	1.29%	0.2%	160	1.35%	0.4%	264	6.19%	3.7%	20
Ireland	0.24%	0.1%	419	1.53%	-	202	0.76%	-	73	6.82%	-	28
Laos	0.27%	-	69	0.14%	0.0%	2	0.00%	0.0%	0	0.00%	0.0%	0
Belgium	0.28%	0.2%	428	1.30%	0.7%	210	1.66%	0.4%	273	15.87%	5.0%	29
UK	0.31%	0.1%	527	2.36%	-	188	1.50%	-	177	14.23%	-	23
UAE	0.31%	-	68	0.27%	-	237	0.22%	-	87	0.65%	-	27
Israel	0.35%	0.8%	357	0.74%	1.4%	267	0.75%	1.2%	250	1.27%	9.2%	16
Singapore	0.35%	0.2%	218	0.18%	0.9%	4	0.02%	0.0%	14	0.06%	0.1%	41
Hong Kong	0.36%	0.5%	0	2.05%	5.4%	2	1.85%	4.4%	6	0.58%	9.6%	1
France	0.39%	0.3%	218	1.40%	0.8%	281	1.51%	0.5%	192	19.28%	14.4%	13
Japan	0.39%	0.9%	45	1.99%	1.8%	25	1.15%	1.9%	9	5.23%	5.7%	1
Austria	0.41%	0.4%	384	1.55%	1.7%	178	1.61%	0.9%	207	3.97%	7.6%	11
Finland	0.42%	0.0%	114	0.68%	0.1%	59	0.81%	0.3%	28	4.55%	2.9%	7
Dominican Republic	0.47%	0.7%	47	0.91%	0.9%	79	1.21%	1.0%	69	2.29%	2.7%	16
Portugal	0.50%	0.3%	181	2.19%	0.5%	252	1.43%	0.6%	198	3.74%	2.2%	22
Spain	0.51%	0.3%	191	1.60%	0.2%	222	1.28%	0.2%	194	11.32%	5.5%	30
Germany	0.52%	0.5%	191	2.88%	1.5%	131	1.62%	1.3%	100	4.62%	7.8%	13
Slovenia	0.53%	0.6%	525	1.27%	0.8%	359	2.15%	0.9%	315	6.94%	19.4%	4
Mongolia	0.54%	0.3%	501	0.49%	0.3%	193	0.10%	2.2%	2	0.00%	0.0%	0
Czechia	0.61%	0.4%	360	1.97%	1.0%	489	1.59%	0.6%	359	2.92%	22.3%	6
Australia	0.61%	0.7%	46	0.05%	0.1%	0	3.91%	0.6%	4	1.33%	1.9%	2
S. Korea	0.61%	1.2%	41	1.16%	2.3%	10	1.30%	2.0%	5	2.19%	4.7%	1

We could write a book exploring these metrics across phases of the pandemic and countries. Please have a look in annex at the table segmented by continent. Here we rank the countries in ascending order of S2 2021 lethality and have excluded Africa, where some countries stand as outliers due to irregular reporting.

The history of severe cases (source : daily curation of https://www.worldometers.info/coronavirus/ platform) is an exclusivity of our work. We can explore here the drop of lethality and severe cases over time, the countries that score best (Israel and Singapore neck to neck on lethality, yet a different definition of severe cases across countries (intubation critical in Singapore, ICU in Israel). 0.2% of global lethality is the target of China to reopen borders, we stand at 1.6% globally currently, still a long way and many vaccine shots to go, and a lot of Arabian nights tales to tell through sleep every night…

Annex 1 : the full analysis of the clusters of mainland China

	Anatomy of China Covid local clusters					12/10/2021 20:15		Alpha strain		Delta strain	
	Carole Gabay				spread of cluster				intensity		
	Cluster	date of outbreak	Last case	total nb of cases	nb prefectures with cases	nb provinces with cases	Main prefecture reporting cases	Main province reporting cases	duration of cluster in days	avg nb cases / day	maximum daily incidence
4	Wuhan wave	1/1/2020	8/1/2020	57,988	445	30	Wuhan	Hubei	214	271.0	13,436
5	related to imported	3/31/2020	8/20/2020	118	35	11	unspecified	Heilongjiang	143	0.8	19
7	Russian border 1	4/9/2020	5/24/2020	132	10	7	Harbin	Heilongjiang	46	2.9	11
10	Xinfadi market	6/11/2020	7/17/2020	425	22	6	Fengtai	Beijing	37	11.5	59
12	Kazakhstan horses	7/15/2020	8/17/2020	1,259	5	2	Wulumuqi	Xinjiang	34	37.0	114
13	Cold Chain Dalian 1	7/22/2020	8/5/2020	217	6	4	Dalian	Liaoning	15	14.5	39
19	Kashgar factory	10/24/2020	11/7/2020	448	1	1	Kashgar	Xinjiang	15	29.9	137
24	Russian border Manzhouli	11/21/2020	12/9/2020	30	1	1	HulunBuir	Inner Mongolia	19	1.6	8
26	Chengdu market	12/7/2020	12/17/2020	14	1	1	Chengdu	Sichuan	11	1.3	5
27	Russian border Dongning	12/9/2020	12/20/2020	24	1	1	Mudanjiang	Heilongjiang	12	2.0	4
29	cold chain Dalian 2	12/15/2020	1/5/2021	76	2	1	Dalian	Liaoning	22	3.5	9
32	post quarantine SY	12/22/2020	1/10/2021	42	3	2	Shenyang	Liaoning	20	2.1	5
33	post quarantine Shunyi	12/23/2020	1/19/2021	43	3	1	Shunyi	Beijing	28	1.5	7
36	Russian border Heihe	12/29/2020	1/7/2021	13	1	1	Heihe	Heilongjiang	10	1.3	4
37	Hebei Gaochang cluster	1/3/2021	2/14/2021	1,076	12	6	Shijiazhuang	Hebei	43	25.0	114
38	Far North cluster	1/10/2021	2/10/2021	1,472	10	3	Suihua	Heilongjiang	32	46.0	125
41	pre-trip test Alpha	1/17/2021	1/29/2021	29	1	1	Daxing	Beijing	13	2.2	6
42	Fudan hospital worker	1/21/2021	2/4/2021	22	4	1	Huangpu	Shanghai	15	1.5	6
48	Myanmar cross border 1	3/30/2021	4/20/2021	121	1	1	Dehong Dai Jing	Yunnan	22	5.5	29
49	Photography studio	5/13/2021	5/24/2021	43	4	2	Liu'an	Anhui	12	3.6	9
50	Guangzhou Liwan	5/15/2021	6/18/2021	185	4	1	Guangzhou	Guangdong	35	5.3	18
51	Yantian	5/22/2021	6/7/2021	14	1	1	Shenzhen	Guangdong	17	0.8	3
54	Myanmar cross border 2	7/2/2021	12/9/2021	260	1	1	Dehong Dai Jing	Yunnan	161	1.6	20
58	Nanjing Lukou airport	7/20/2021	8/26/2021	1,141	37	13	Yangzhou	Jiangsu	38	30.0	58
61	Zhengzhou 6th hospital	7/31/2021	8/23/2021	129	8	2	Zhengzhou	Henan	24	5.4	32
69	Xianyou Primary school	9/10/2021	10/2/2021	477	4	1	Putian	Fujian	23	20.7	40
70	Bayan Forestry	9/21/2021	10/5/2021	97	2	1	Harbin	Heilongjiang	15	6.5	15
72	Erenhot Mongolia border	10/13/2021	11/7/2021	21	1	1	Xilingol	Inner Mongolia	26	0.8	3
74	Ejina Mongolia border	10/17/2021	11/19/2021	665	42	17	Alxa League	Inner Mongolia	34	19.6	36
75	Heihe Russian border 2	10/27/2021	11/15/2021	285	2	1	Heihe	Heilongjiang	20	14.3	44
76	Shangrao GeXian	10/30/2021	11/16/2021	148	6	3	Shangrao	Jiangxi	18	8.2	16
77	Zhuanghe Cold Chain	11/4/2021	11/27/2021	339	1	1	Dalian	Liaoning	24	14.1	60
78	Suzhou architecture conference	11/25/2021	12/9/2021	34	7	3	Ningbo	Zhejiang	15	2.3	9
79	Russian border Manzhouli 2	11/27/2021	12/9/2021	566	6	4	HulunBuir	Inner Mongolia	13	43.5	93
82	Shaoxing Zhejiang Dec 21	12/7/2021	12/9/2021	42	2	1	Shaoxing	Zhejiang	3	14.0	17

We have listed in chronological order (from date of outbreak) and we have filtered to show only the clusters with over 10 cases (98.7% of cases post Wuhan, cases integrate the asymptomatic who remain in that category until release, 43% of clusters).

Part 2, we check here the factors assessing the severity of cases that have been contained with vaccination.

Anatomy of China Covid local clusters				Alpha strain			Delta strain							
Carole Gabay				pace of discharge			typology of cases				demographics			vaccination
Cluster	date of outbreak	Last case	total nb of cases	nb days of earliest discharge	nb days until cluster reached 50% discharged	12 last clusters weighted avg nb days until 50% dischage reach	% severe case @ peak of active cases	Peak of share of severe cases	% severe cases at peak of severe cases	% asympto matic	% of 60 Y+ cases	average age	% of cases profiled with age	nb shots on Population national at date of outbreak
Wuhan wave	1/1/2020	8/1/2020	57,988	35	54		29.6%	41.3%	29.6%	0.6%	31.1%	50.9	77%	
related to imported	3/31/2020	8/20/2020	118	5	25					39.8%				
Russian border 1	4/9/2020	5/24/2020	132	27	30					2.3%				
Xinfadi market	6/11/2020	7/17/2020	425	15	32		2.9%	8.0%	7.8%	14.6%				
Kazakhstan horses	7/15/2020	8/17/2020	1,259	12	31		3.0%	8.9%	4.6%	32.1%				0.00%
Cold Chain Dalian 1	7/22/2020	8/5/2020	217	14	23	20.3	3.3%	3.5%	3.5%	56.2%				0.00%
Kashgar factory	10/24/2020	11/7/2020	448	10	16	29.7	1.8%	3.0%	3.0%	82.6%				0.00%
Russian border Manzhouli	11/21/2020	12/9/2020	30	15	25	29.6	-			6.7%				0.00%
Chengdu market	12/7/2020	12/17/2020	14	19	35	29.7				7.1%				0.00%
Russian border Dongning	12/9/2020	12/20/2020	24	17	21	29.6	-			54.2%				0.00%
cold chain Dalian 2	12/15/2020	1/5/2021	76	31	31	28.9	3.2%	4.3%	4.3%	32.9%	24.4%	49.5	100%	0.10%
post quarantine SY	12/22/2020	1/10/2021	42	3	24	23.2	9.2%	13.3%	9.2%	11.9%	48.7%	53.7	93%	0.10%
post quarantine Shunyi	12/23/2020	1/19/2021	43	20	24	23.4				18.6%		32.8	91%	0.10%
Russian border Heihe	12/29/2020	1/7/2021	13	19	19	23.3	-			23.1%	23.1%	38.4	100%	0.10%
Hebei Gaochang cluster	1/3/2021	2/14/2021	1,076	11	29	27.7	4.2%	5.6%	4.6%	11.8%	31.6%	50.9	30%	0.31%
Far North cluster	1/10/2021	2/10/2021	1,472	9	29	28.8	4.8%	11.1%	5.7%	24.0%				0.63%
pre-trip test Alpha	1/17/2021	1/29/2021	29	9	36	28.9	3.7%	4.3%	3.7%	-3.4%	43.8%	50.8	55%	0.69%
Fudan hospital worker	1/21/2021	2/4/2021	22	23	33	28.9	-							1.04%
Myanmar cross border 1	3/30/2021	4/20/2021	121	15	25	28.7	0.3%	0.4%	0.4%	23.1%	1.7%	32.5	96%	8%
Photography studio	5/13/2021	5/24/2021	43	7	17	28.7	4.3%	4.4%	4.4%	44.2%	13.0%	34.1	53%	25%
Guangzhou Liwan	5/15/2021	6/18/2021	185	6	44	29.8	6.8%	11.1%	9.5%	13.5%	32.7%	46.4	84%	27%
Yantian	5/22/2021	6/7/2021	14	20	0	29.8	-			78.6%		40.9	100%	35%
Myanmar cross border 2	7/2/2021	12/9/2021	260	2	54	41.2	3.6%	4.3%	4.3%	30.0%	3.8%	32.8	51%	89%
Nanjing Lukou airport	7/20/2021	8/26/2021	1,141	17	40	40.4	5.2%	5.6%	5.5%	6.7%	28.6%	45.4	83%	103%
Zhengzhou 6th hospital	7/31/2021	8/23/2021	129	6	38	40.3	-			-29.5%	17.9%	41.9	52%	115%
Xianyou Primary school	9/10/2021	10/2/2021	477	13	27	37.7	1.8%	2.7%	2.7%	1.9%	5.6%	33.2	75%	148%
Bayan Forestry	9/21/2021	10/5/2021	97	10	20	37.0				8.2%				152%
Erenhot Mongolia border	10/13/2021	11/7/2021	21	18	25	35.2	-					38.3	14%	155%
Ejina Mongolia border	10/17/2021	11/19/2021	665	8	30	33.9	5.8%	14.1%	11.8%	5.3%	20.1%	40.1	45%	155%
Heihe Russian border 2	10/27/2021	11/15/2021	285	11	26	28.7	-	2.6%	2.4%	2.1%				157%
Shangrao GeXian	10/30/2021	11/16/2021	148	7	0	-	0.0%		0	33.1%				158%
Zhuanghe Cold Chain	11/4/2021	11/27/2021	339	15	24	26.7	0.0%		0	11.2%	14.1%	46.8	19%	160%
Suzhou architecture conference	11/25/2021	12/9/2021	34	0	0	-	0.0%		0	55.9%	26.7%	38.1	44%	171%
Russian border Manzhouli 2	11/27/2021	12/9/2021	566	0	0	-	0.0%		0	0.2%	14.3%	35.7	5%	173%
Shaoxing Zhejiang Dec 21	12/7/2021	12/9/2021	42	0	0	-	-		0	64.3%		34.4	12%	

National report 新型冠状病毒肺炎疫情防控_宣传司 (nhc.gov.cn)

Baidu app for case count and some newsbriefs 实时更新：新型冠状病毒肺炎疫情地图 (baidu.com)

List of websites from provinces and cities (to retrieve details of cases, local or imported)

For Hebei new cases
http://hebwb.hebei.gov.cn/syscolumn/ztzl/yqzb/yyu/index.html

Guangdong :
http://news.southcn.com/gd/default_2.htm http://wsjkw.gd.gov.cn/zwyw_yqxx/

Zhejiang
http://www.zjzwfw.gov.cn/zjservice/front/index/page.do?webId=1

Shaanxi
http://sxwjw.shaanxi.gov.cn

Yunnan :
http://yn.gov.cn/
http://ynswsjkw.yn.gov.cn/wjwWebsite/web/col?id=UU15797642832628206 7&cn=xxgzbd&pcn=xxgzbd&pid=UU157976428326282067

Jilin
http://www.jl.gov.cn/szfzt/jlzxd/
Heilongjiang
http://yiqing.ljjk.org.cn/index/Pcontrol/newslist
http://wsjkw.hlj.gov.cn/pages
Jiangsu
http://wjw.jiangsu.gov.cn/col/col7290/index.html
南京市卫生健康委员会 Nanjing
Shandong
http://wsjkw.shandong.gov.cn/ztzl/rdzt/qlzhxxgzbdfyyqfkgz/
Liaoning
http://wsjk.ln.gov.cn/wst_zdzt/xxgzbd/yqtb/202103/t20210304_4092661.html

Hubei
http://wjw.hubei.gov.cn/bmdt/ztzl/fkxxgzbdgrfyyq/xxfb/

Sichuan
http://wsjkw.sc.gov.cn/

Hunan
http://wjw.hunan.gov.cn/wjw/xxgk/gzdt/zyxw_1/index.html
Henan
http://wsjkw.henan.gov.cn/ztzl/xxgzbdfyyqfk/yqtb/
Fujian
卫生健康要闻_工作动态_福建省卫生健康委员会 (fujian.gov.cn)
Putian
权威发布_政务公开_莆田市卫生健康委员会 (putian.gov.cn)

We can also search for information on case details on the wechat accounts on the cities.

Toutiao app : https://i.snssdk.com/ugc/hotboard_fe/hot_list/template/hot_list/forum_tab.html

Annex 2 : the global data by region

Epidemics KPIs by semester	filter on Population > 2 Million - territories ranked ascending on Lethality S2 2021											12/10/2021 21:52
	epidemic KPIs on S2 2021 to date			Epidemics KPIs on S1 2021			Epidemics KPIs on S2 2020			Epidemics KPIs on S1 2020		
Carole Gabay for Solidarity Covid - Expats in China	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop
Qatar	0.09%	1.7%	48	0.44%	2.2%	150	0.28%	1.5%	90	0.12%	0.7%	181
New Zealand	0.18%	1.0%	12	0.17%	0.0%	1	0.47%	8.0%	1	1.44%	1.9%	2
Laos	0.27%	-	69	0.14%	0.0%	2	0.00%	0.0%	0	0.00%	0.0%	0
UAE	0.31%	-	68	0.27%	-	237	0.22%	-	87	0.65%	-	27
Israel	0.35%	0.8%	357	0.74%	1.4%	267	0.75%	1.2%	250	1.27%	9.2%	16
Singapore	0.35%	0.2%	218	0.18%	0.9%	4	0.02%	0.0%	14	0.06%	0.1%	41
Hong Kong	0.36%	0.5%	0	2.05%	5.4%	2	1.85%	4.4%	6	0.58%	9.6%	1
Japan	0.39%	0.9%	45	1.99%	1.8%	25	1.15%	1.9%	9	5.23%	5.7%	1
Mongolia	0.54%	0.3%	501	0.49%	0.3%	193	0.10%	2.2%	2	0.00%	0.0%	0
Australia	0.61%	0.7%	46	0.05%	0.1%	0	3.91%	0.6%	4	1.33%	1.9%	2
S. Korea	0.61%	1.2%	41	1.16%	2.3%	10	1.30%	2.0%	5	2.19%	4.7%	1
Lebanon	0.69%	0.5%	125	1.76%	0.8%	294	0.80%	0.9%	143	1.91%	67.0%	1
Turkey	0.81%	0.3%	257	0.91%	-	255	0.90%	-	69	1.02%	-	29
Uzbekistan	0.82%	-	15	0.36%	-	6	0.86%	-	11	0.31%	-	1
Jordan	0.86%	1.8%	148	1.29%	0.7%	247	1.30%	0.4%	156	0.80%	164.4%	1
Kuwait	0.87%	1.8%	81	0.50%	1.6%	267	0.56%	1.6%	133	0.77%	1.3%	59
Iraq	0.91%	0.6%	112	0.58%	-	103	1.99%	-	74	3.96%	-	7
Thailand	1.00%	2.6%	166	0.78%	-	20	0.08%	-	0	1.83%	-	0
Kyrgyzstan	1.30%	0.9%	55	1.47%	0.8%	37	1.51%	1.0%	63	3.83%	4.7%	5
Nepal	1.32%	-	39	1.92%	0.0%	72	0.74%	0.0%	46	0.21%	0.0%	3
Malaysia	1.33%	0.5%	363	0.74%	1.1%	109	0.34%	0.6%	18	1.40%	5.0%	1
Georgia	1.42%	-	785	2.03%	0.0%	192	1.10%	0.0%	309	1.62%	1.6%	1
Kazakhstan	1.53%	0.4%	180	0.78%	0.5%	79	1.56%	0.7%	38	0.86%	2.6%	6
Iran	1.57%	1.2%	214	1.47%	1.3%	130	4.45%	2.3%	65	4.75%	16.8%	15
Saudi Arabia	1.65%	11.7%	11	1.28%	13.1%	20	2.66%	3.6%	27	0.86%	3.9%	30
Palestine	1.68%	0.5%	143	2.46%	1.3%	192	2.05%	1.1%	145	0.66%	13.9%	3
India	1.76%	-	19	1.24%	0.2%	81	1.37%	0.9%	38	2.98%	4.1%	2
Philippines	1.78%	1.7%	79	1.64%	1.0%	47	1.83%	2.1%	22	3.37%	6.8%	2
Pakistan	1.97%	6.0%	9	2.55%	6.0%	12	2.15%	2.5%	7	2.06%	3.1%	5
Vietnam	2.01%	2.6%	85	0.30%	0.0%	1	3.15%	0.2%	0	0.00%	0.0%	0
Bangladesh	2.03%	2.1%	25	1.74%	-	13	1.55%	-	12	1.27%	-	5
Papua New Guinea	2.13%	-	13	1.01%	0.1%	10	1.17%	0.0%	0	0.00%	0.0%	0
Armenia	2.77%	-	240	2.57%	0.0%	122	1.78%	0.0%	246	1.73%	0.3%	47
Oman	2.80%	1.8%	43	1.15%	-	151	1.49%	-	95	0.44%	-	43
Cambodia	3.39%	-	26	1.20%	-	17	0.00%	-	0	0.00%	-	0
Sri Lanka	3.68%	-	89	1.33%	0.0%	56	0.47%	0.0%	10	0.54%	0.5%	1
Syria	3.92%	-	8	8.27%	-	4	6.29%	-	3	3.23%	-	0
Indonesia	4.11%	-	46	2.53%	-	29	2.80%	-	14	5.10%	-	1
Myanmar	4.30%	-	41	2.00%	0.0%	3	2.15%	0.0%	12	2.01%	0.0%	0
Afghanistan	6.31%	2.4%	6	4.08%	-	10	6.93%	-	3	2.37%	-	4
Taiwan	10.53%	-	0	4.58%	-	3	0.00%	-	0	1.57%	-	0
Yemen	19.06%	-	1	15.58%	-	1	31.67%	-	0	26.94%	-	0

Asia + Oceania - A number of countries who didn't vaccinate a majority of the population with mNRA vaccines are experiencing a growth in lethality in the last semester even though the incidence may have dropped. Taiwan, although a modern and well-equipped territory, scores last to one in lethality due to late and less efficient vaccination.

Epidemics KPIs by semester		filter on Population > 2 Million - territories ranked ascending on Lethality S2 2021											12/10/2021 21:53
		epidemic KPIs on S2 2021 to date			Epidemics KPIs on S1 2021			Epidemics KPIs on S2 2020			Epidemics KPIs on S1 2020		
Area	Carole Gabay for Solidarity Covid - Expats in China	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop
Central America	Nicaragua	0.21%	-	8	1.22%	0.0%	2	2.32%	0.0%	3	3.29%	0.0%	2
Caribbean	Dominican Republic	0.47%	0.7%	47	0.91%	0.9%	79	1.21%	1.0%	69	2.29%	2.7%	16
Caribbean	Cuba	0.91%	1.0%	416	0.64%	1.2%	87	0.63%	1.5%	5	3.67%	2.8%	1
Central America	Panama	1.10%	1.0%	108	1.61%	0.5%	201	1.59%	0.4%	269	1.88%	1.1%	42
South America	Venezuela	1.28%	4.3%	35	1.31%	2.0%	31	0.91%	1.8%	21	0.87%	5.2%	1
Central America	Costa Rica	1.33%	0.5%	239	1.25%	0.7%	215	1.31%	0.5%	177	0.46%	13.0%	4
South America	Uruguay	1.68%	1.7%	57	1.55%	1.5%	557	0.85%	1.4%	28	2.88%	24.5%	1
Central America	Guatemala	2.08%	-	112	2.83%	-	48	3.37%	-	37	4.29%	-	5
South America	Bolivia	2.33%	0.0%	58	2.70%	0.2%	132	6.40%	0.1%	59	3.33%	0.3%	15
South America	Argentina	2.55%	2.0%	119	1.79%	2.1%	348	2.56%	2.9%	188	5.16%	13.1%	8
South America	Colombia	2.65%	4.1%	102	2.44%	4.0%	282	2.58%	1.5%	165	3.41%	4.9%	10
South America	Brazil	2.72%	1.0%	104	2.97%	1.8%	283	2.16%	2.8%	160	4.24%	4.1%	36
South America	Chile	2.72%	4.2%	71	1.68%	-	274	3.02%	-	103	2.29%	-	70
Central America	Honduras	2.95%	0.3%	72	2.75%	-	78	2.57%	-	57	2.58%	-	10
Caribbean	Jamaica	3.23%	0.2%	85	2.07%	0.2%	70	2.41%	0.5%	22	1.43%	5.2%	1
Central America	El Salvador	3.44%	2.3%	39	3.19%	2.4%	28	2.94%	4.6%	33	2.70%	21.6%	5
South America	Ecuador	3.48%	1.5%	25	2.93%	1.6%	77	7.37%	1.3%	49	22.86%	1.9%	16
Central America	Mexico	4.52%	-	66	9.82%	-	47	8.19%	-	50	12.29%	-	9
Caribbean	Haiti	4.54%	-	4	2.31%	0.0%	4	3.21%	0.0%	2	1.77%	0.0%	3
South America	Peru	4.59%	0.7%	36	8.86%	1.9%	174	7.33%	1.3%	120	16.46%	1.9%	47
South America	Paraguay	8.93%	1.6%	34	3.37%	-	244	2.12%	-	81	0.77%	-	2

Latin America, except for 3 countries including Cuba and is high standard Health system and domestic vaccine, has persisting high lethality rates as the incidence dropped with vaccination uptake / herd immunity

Epidemics KPIs by semester		filter on Population > 2 Million - territories ranked ascending on Lethality S2 2021											12/10/2021 21:56
		epidemic KPIs on S2 2021 to date			Epidemics KPIs on S1 2021			Epidemics KPIs on S2 2020			Epidemics KPIs on S1 2020		
Area	Carole Gabay for Solidarity Covid - Expats in China	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop
Northern Europe	Denmark	0.19%	0.1%	255	0.95%	0.4%	124	0.46%	0.3%	141	4.74%	4.0%	12
Northern Europe	Netherlands	0.19%	0.1%	407	0.71%	0.3%	286	0.71%	0.3%	237	12.16%	4.7%	16
Northern Europe	Norway	0.20%	0.0%	196	0.44%	-	83	0.46%	-	41	2.82%	-	9
Western Europe	Switzerland	0.22%	0.1%	277	1.29%	0.2%	160	1.35%	0.4%	264	6.19%	3.7%	20
Northern Europe	Ireland	0.24%	0.1%	419	1.53%	-	202	0.76%	-	73	6.82%	-	28
Western Europe	Belgium	0.28%	0.2%	428	1.30%	0.7%	210	1.66%	0.4%	273	15.87%	5.0%	29
Northern Europe	UK	0.31%	0.1%	527	2.36%	-	188	1.50%	-	177	14.23%	-	23
Western Europe	France	0.39%	0.3%	218	1.40%	0.8%	281	1.51%	0.5%	192	19.28%	14.4%	13
Western Europe	Austria	0.41%	0.4%	384	1.55%	1.7%	178	1.61%	0.9%	207	3.97%	7.6%	11
Northern Europe	Finland	0.42%	0.0%	114	0.68%	0.1%	59	0.81%	0.3%	28	4.55%	2.9%	7
Southern Europe	Portugal	0.50%	0.3%	181	2.19%	0.5%	252	1.43%	0.6%	198	3.74%	2.2%	22
Southern Europe	Spain	0.51%	0.3%	191	1.60%	0.2%	222	1.28%	0.2%	194	11.32%	5.5%	30
Western Europe	Germany	0.52%	0.5%	191	2.88%	1.5%	131	1.62%	1.3%	100	4.62%	7.8%	13
Southern Europe	Slovenia	0.53%	0.6%	525	1.27%	0.8%	359	2.15%	0.9%	315	6.94%	19.4%	4
Eastern Europe	Czechia	0.61%	0.4%	360	1.97%	1.0%	489	1.59%	0.6%	359	2.92%	22.3%	6
Northern Europe	Sweden	0.63%	0.1%	79	0.74%	0.2%	348	1.10%	0.2%	210	7.79%	5.1%	37
Eastern Europe	Slovakia	0.73%	0.5%	409	4.89%	0.7%	215	1.19%	0.7%	177	1.68%	40.7%	2
Southern Europe	Italy	0.77%	0.3%	91	2.48%	0.6%	197	2.11%	0.5%	168	14.45%	3.8%	22
Eastern Europe	Belarus	0.83%	-	163	0.77%	0.0%	130	0.78%	0.4%	76	0.63%	0.4%	36
North America	Canada	0.88%	1.7%	66	1.28%	1.6%	122	1.47%	2.9%	69	8.24%	6.6%	15
Eastern Europe	Serbia	0.91%	0.2%	387	1.01%	0.1%	239	0.91%	0.1%	201	1.90%	4.5%	9
Southern Europe	Albania	0.96%	0.2%	149	1.72%	0.1%	142	2.01%	0.2%	105	2.45%	3.8%	5
Southern Europe	Greece	1.11%	0.9%	332	2.77%	0.6%	150	3.43%	0.5%	71	5.63%	33.4%	2
Southern Europe	Croatia	1.14%	0.8%	423	2.88%	1.6%	201	1.83%	1.2%	275	3.85%	24.3%	4
North America	USA	1.22%	0.3%	295	1.89%	0.3%	235	1.27%	0.4%	292	4.84%	2.1%	43
Northern Europe	Lithuania	1.22%	0.6%	465	2.12%	-	280	0.99%	-	277	4.29%	-	4
Eastern Europe	Poland	1.40%	0.4%	142	2.93%	-	231	2.15%	-	181	4.25%	-	5
Eastern Europe	Hungary	1.70%	0.4%	232	4.21%	-	278	2.81%	-	179	14.08%	-	2
Western Europe	France - metropole	1.79%	0.2%		1.32%	-	300	1.38%	-	206	18.08%	-	14
Eastern Europe	Moldova	2.79%	1.9%	169	2.87%	1.5%	153	1.90%	4.9%	173	3.28%	13.4%	22
Eastern Europe	Ukraine	2.90%	-	181	2.86%	-	149	1.72%	-	126	2.61%	-	6
Eastern Europe	Romania	3.33%	1.0%	225	4.02%	-	129	2.33%	-	171	6.12%	-	8
Eastern Europe	Russia	3.42%	-	184	3.32%	0.4%	89	1.90%	0.4%	94	1.44%	0.9%	24
Southern Europe	North Macedonia	3.53%	0.2%	184	4.12%	-	192	2.86%	-	201	4.77%	-	17
Eastern Europe	Bulgaria	3.91%	0.7%	254	4.78%	-	175	3.72%	-	154	4.61%	-	4
Southern Europe	Bosnia and Herzegovina	4.26%	-	140	5.97%	-	158	3.63%	-	176	4.18%	-	7

Europe and North America are peaking in incidence in the last phase. Yet the lethality rate and share of severe on active cases has consistently dropped in the last phase, except for Russia.

Epidemics KPIs by semester		filter on Population > 2 Million - territories ranked ascending on Lethality S2 2021											12/10/2021 22:00
		epidemic KPIs on S2 2021 to date			Epidemics KPIs on S1 2021			Epidemics KPIs on S2 2020			Epidemics KPIs on S1 2020		
Area	Carole Gabay for Solidarity Covid - Expats in China	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop	Lethality (deaths on cases)	share of severe cases @ peak	average daily Incidence vs Pop
Eastern Africa	CAR	0.07%	-	6	1.61%	0.1%	2	1.31%	27.8%	1	1.26%	29.5%	4
Western Africa	Burundi	0.20%	-	8	0.13%	-	2	0.15%	-	0	0.59%	-	0
Western Africa	Benin	0.34%	-	8	1.21%	2.4%	2	1.12%	0.1%	1	1.75%	0.2%	1
Eastern Africa	South Sudan	0.80%	0.8%	1	0.74%	0.3%	4	1.61%	0.1%	1	1.89%	0.1%	1
Western Africa	Togo	0.92%	-	9	0.59%	-	7	1.81%	-	2	2.15%	-	0
Eastern Africa	Chad	0.93%	-	0	2.47%	0.0%	1	2.41%	0.0%	0	8.55%	0.0%	0
Western Africa	Gabon	0.97%	0.4%	34	0.62%	1.0%	38	0.53%	0.3%	10	0.78%	0.6%	13
Southern Africa	Botswana	1.03%	-	328	1.97%	0.0%	129	0.28%	0.0%	34	0.44%	0.5%	1
Western Africa	Ghana	1.22%	0.9%	7	1.12%	1.8%	7	0.60%	0.4%	6	0.63%	0.2%	3
North Africa	Libya	1.27%	-	163	1.84%	0.0%	75	1.46%	0.0%	79	2.91%	0.0%	1
North Africa	Morocco	1.31%	1.8%	69	2.07%	-	14	1.68%	-	63	1.82%	-	2
Southern Africa	Mozambique	1.40%	0.1%	15	1.23%	0.3%	10	0.90%	0.0%	3	0.67%	0.0%	0
Eastern Africa	Rwanda	1.47%	0.2%	29	1.13%	0.3%	13	1.22%	0.0%	3	0.20%	0.0%	0
Western Africa	Nigeria	1.81%	-	1	1.04%	0.0%	2	1.13%	0.0%	2	2.30%	0.1%	1
Western Africa	Cameroon	1.87%	0.6%	6	1.60%	3.3%	11	0.99%	2.0%	3	2.49%	1.5%	3
Western Africa	Mauritania	1.89%	0.6%	25	2.20%	2.5%	8	2.18%	1.8%	12	2.96%	2.5%	5
Southern Africa	Madagascar	2.28%	3.2%	1	2.66%	7.3%	5	1.55%	2.8%	3	0.90%	8.6%	0
Western Africa	Senegal	2.33%	0.5%	11	3.15%	1.3%	8	2.41%	1.3%	4	1.65%	2.5%	2
Eastern Africa	Kenya	2.38%	0.3%	8	2.24%	-	9	1.69%	-	9	2.32%	-	1
Eastern Africa	Eritrea	2.48%	-	3	0.43%	-	7	0.27%	-	2	0.00%	-	0
Western Africa	Sierra Leone	2.49%	-	1	0.81%	-	2	1.39%	-	1	4.10%	-	1
Western Africa	Mali	2.49%	-	1	3.49%	0.0%	2	3.12%	0.0%	1	5.32%	0.0%	1
Eastern Africa	Ethiopia	2.59%	2.9%	5	1.58%	-	7	1.54%	-	6	1.76%	-	0
Southern Africa	South Africa	2.63%	-	115	3.51%	0.2%	85	2.85%	0.3%	83	1.76%	0.7%	14
Eastern Africa	Zambia	2.64%	6.2%	18	1.35%	5.9%	40	1.90%	0.8%	6	1.51%	3.0%	0
Eastern Africa	Tanzania	2.76%	-	3	0.00%	2.3%	0	0.00%	2.3%	0	4.13%	2.3%	0
Southern Africa	Zimbabwe	2.77%	0.1%	43	3.96%	-	13	2.68%	-	5	1.18%	-	0
Western Africa	Ivory coast	2.90%	-	3	0.68%	0.0%	5	0.53%	0.0%	3	0.72%	0.0%	2
Eastern Africa	Congo	3.00%	-	7	1.04%	0.0%	5	1.18%	0.0%	6	3.40%	0.0%	1
Western Africa	Guinea	3.09%	1.9%	3	0.90%	0.7%	4	0.58%	1.5%	3	0.61%	1.4%	2
Eastern Africa	Angola	3.16%	0.4%	5	2.32%	0.6%	4	2.27%	0.7%	3	4.58%	27.0%	0
North Africa	Algeria	3.32%	0.1%	10	2.40%	0.1%	5	2.15%	0.2%	11	6.56%	2.3%	2
North Africa	Tunisia	3.50%	0.7%	154	3.66%	1.1%	131	3.35%	0.6%	63	4.26%	41.6%	1
Western Africa	Gambia	4.11%	-	10	2.50%	-	5	3.26%	-	8	4.08%	-	0
Western Africa	Burkina Faso	4.27%	-	1	1.23%	0.0%	2	0.56%	0.0%	1	5.51%	0.0%	0
Southern Africa	Malawi	4.28%	2.2%	8	3.41%	-	9	3.27%	-	2	1.14%	-	0
Western Africa	Niger	4.38%	1.9%	0	4.11%	-	0	1.65%	-	1	6.23%	-	0
Eastern Africa	Uganda	4.68%	4.0%	6	1.72%	4.9%	5	0.73%	0.0%	4	0.00%	0.0%	0
Southern Africa	Namibia	5.10%	0.4%	97	1.99%	-	143	0.86%	-	51	0.00%	-	0
North Africa	Egypt	5.57%	-	5	5.96%	-	8	6.71%	-	4	4.32%	-	4
Eastern Africa	Sudan	5.83%	-	1	9.64%	0.0%	2	6.37%	0.0%	2	6.18%	0.0%	1
Eastern Africa	Somalia	6.86%	-	3	6.30%	0.0%	4	2.23%	0.1%	1	3.08%	0.1%	1
Western Africa	Liberia	9.14%	-	2	1.94%	-	3	4.70%	-	1	4.62%	-	1

In **Africa**, the testing capacity remains low, so the incidence numbers are highly understated, but the lethality rates are not much higher than in Latin America. Vaccination rates are still very low, so no impact on the severity and lethality metrics.

- Title (110 characters maximum, including whitespaces)
- Abstract (170 words maximum, no references)
- Background & Summary (700 words maximum)
- Methods (unlimited length)
- Data Records (unlimited length)
- Technical Validation (unlimited length)
- Usage Notes (unlimited length)
- Code Availability
- References
- Figures (generally no more than three per manuscript)
- Tables (generally no more than ten per manuscript)

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