

Don't Panic, Be Cautious, and Together We Can Stop the Coronavirus Epidemic!

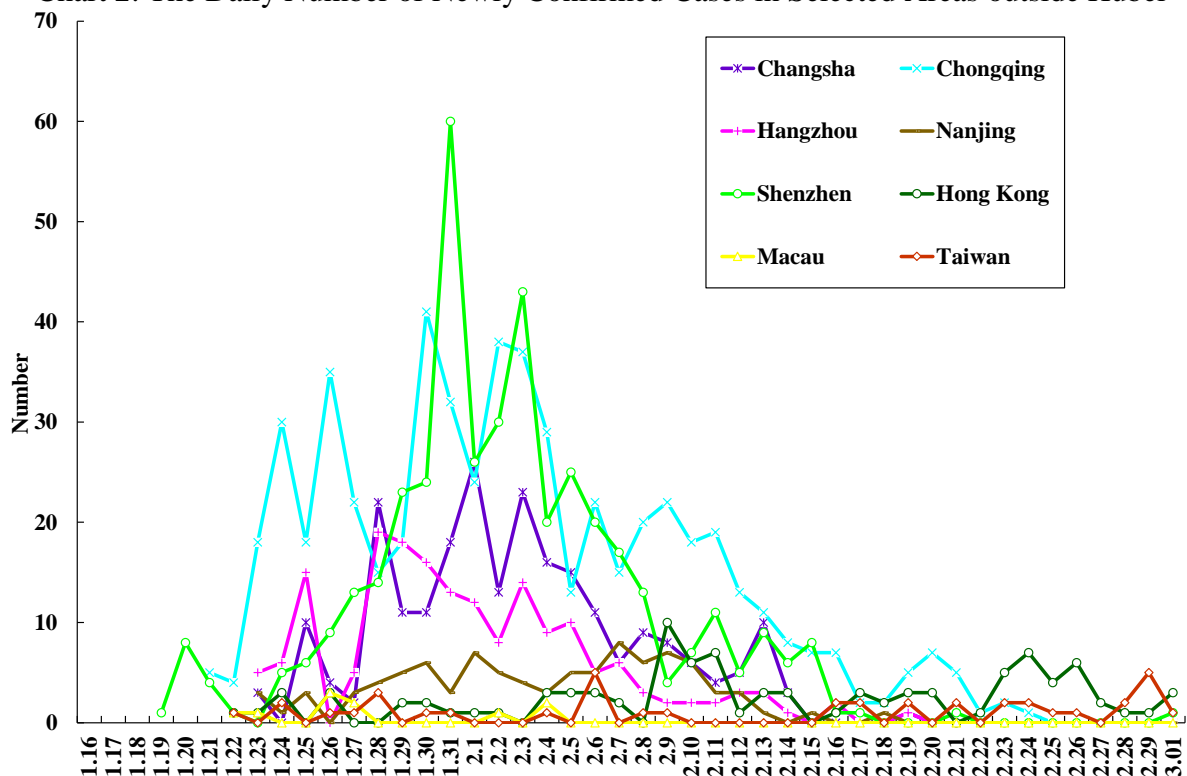
Lawrence J. Lau and Yanyan Xiong¹

1 March Supplementary Charts

2 March 2020

Since the publication of our paper in the *Asia Pacific Biotech News*², we have continued to monitor the development of the COVID-2019 epidemic on the Mainland of China. We have prepared this update, through midnight (2400) of 1 March, to some of the Charts in our original paper. We note that our earlier conclusions continue to be supported by the new data.

Chart 2: The Daily Number of Newly Confirmed Cases in Selected Areas outside Hubei



Sources: Same as Chart 1.

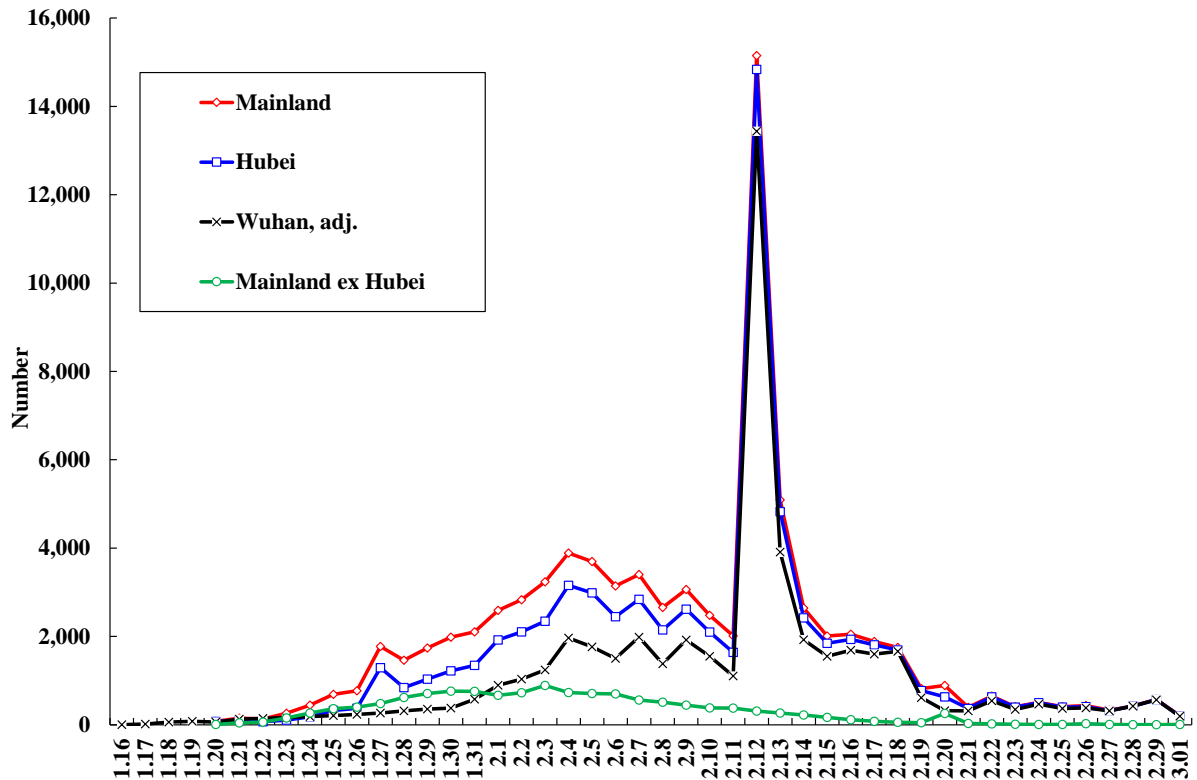
The updated Chart 2 shows that, on the Mainland, in areas outside of the Province of Hubei, the incidence of the COVID-2019 virus has continued to decline due to the successful

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² Lawrence J. Lau and Yanyan Xiong, "Don't Panic, Be Cautious, and Together We Can Stop the Coronavirus Epidemic," *Asia Pacific Biotech News*, Special Issue 1, March 2020, doi: s0219030320001202, pp. 90-107.

isolation of the confirmed infected patients and other precautionary measures undertaken locally. The numbers of newly confirmed cases have all fallen to low single-digit or even zero levels. The epidemic should be over in these areas by the middle of March. We have not included major cities such as Beijing, Shanghai and Tianjin in Chart 2 because the numbers of newly confirmed cases there have been quite small, ranging between zero and one recently, despite their large resident populations. The daily newly confirmed cases in Hong Kong and Taiwan have also remained at single-digit levels, indicating that widespread transmission is unlikely, given all the precautionary measures already undertaken.

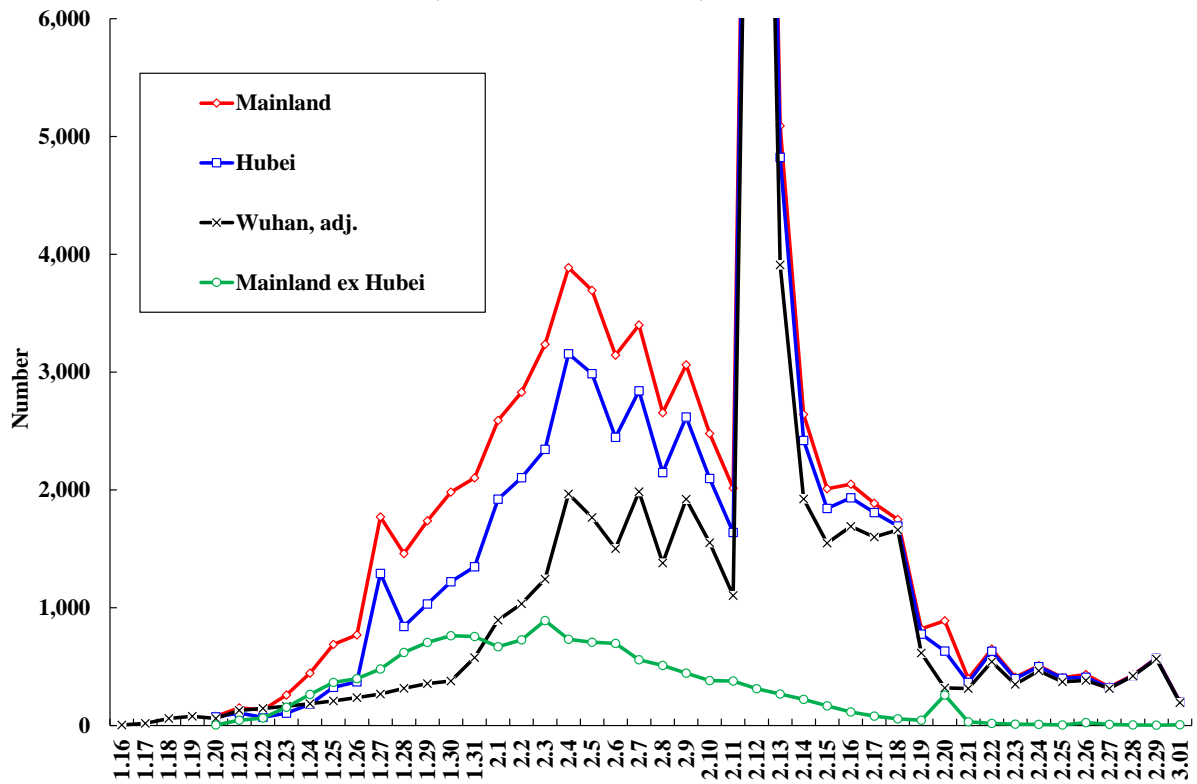
Chart 3: The Daily Number of Newly Confirmed Cases under the Current Definition:
The Mainland, Mainland ex Hubei, Hubei and Wuhan



Sources: Same as Chart 1.

The updated Chart 3 shows that under the current definition of a “confirmed case”, the daily numbers of newly confirmed cases on the Mainland and even in Hubei and Wuhan have continued their generally declining trends begun on 4 February. What is encouraging is that in both Hubei and Wuhan, the daily number of newly confirmed cases has fallen to the level of hundreds on 19 February, earlier than the end of February as previously predicted by us. Almost all of the daily newly confirmed cases on the Mainland during the past week have been from Hubei, and within Hubei, from Wuhan. The number of daily newly confirmed cases on the Mainland, in Hubei and Wuhan on 28 February were respectively 427, 423 and 420. The same numbers were 573, 570 and 565 on 29 February, and 202, 196 and 193 on 1 March. I am hopeful that the number of newly confirmed cases in Wuhan will fall below 100 by the end of the current week. The developments outside Hubei are represented by the line Mainland ex Hubei. It shows a continuous decline since 3 February with the exception of an unexpected one-off uptick on 20 February. As of midnight (2400) of 1 March, the total number of daily newly confirmed cases in the entire Mainland ex Hubei was only 6.

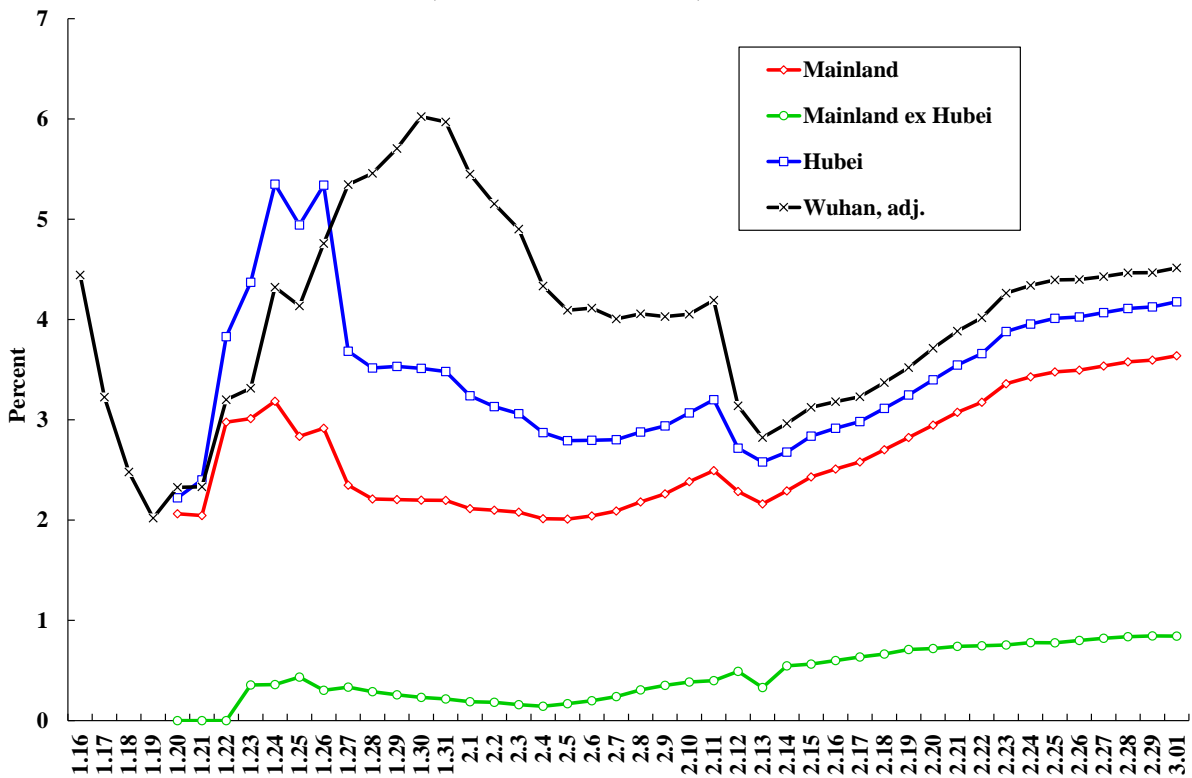
Chart 3A: The Daily Number of Newly Confirmed Cases under the Current Definition:
The Mainland, Mainland ex Hubei, Hubei and Wuhan



Sources: Same as Chart 3.

In order that the more recent developments can be seen more clearly, we have added a Chart 3A, with a different scale from Chart 3, omitting the data points on 12 February when a jump occurred because of a change in the definition of a “confirmed case” in Hubei. Chart 3A confirms the generally declining trends in the daily newly confirmed cases on the Mainland, and in Hubei and Wuhan. As pointed out above, the number for Mainland ex Hubei has since fallen to 6 on 1 March. Moreover, it shows that even Hubei outside of Wuhan has been relatively free of newly confirmed cases, with only 3 on 1 March.

Chart 5: The Instantaneous Cumulative Mortality Rates:
The Mainland, Mainland ex Hubei, Hubei and Wuhan

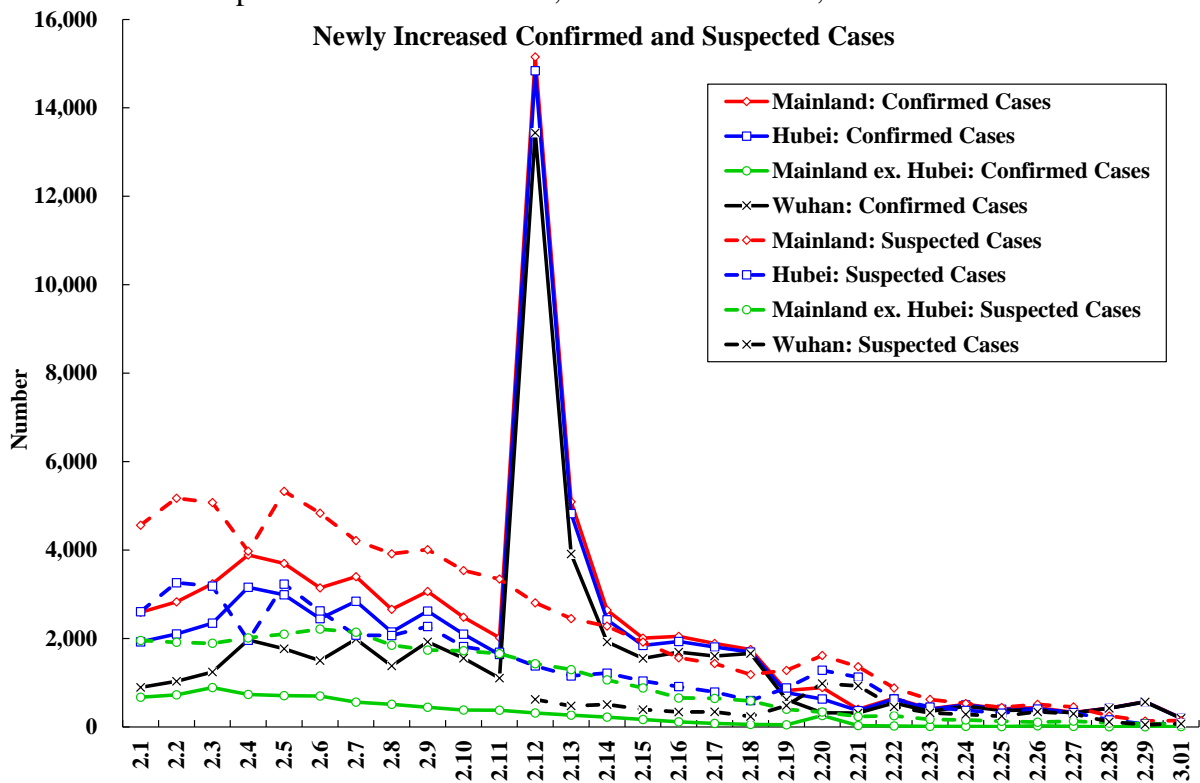


Sources: Same as Chart 1.

The updated Chart 5 shows that while the instantaneous cumulative mortality rate (the cumulative total number of deaths due to the COVID-2019 virus divided by the cumulative newly confirmed cases to date) has continued to rise in Wuhan (4.5% as of 1 March), causing the Mainland and Hubei mortality rates to rise as well, it has done so at a greatly reduced rate since 23 February. This reflects the improved availability of medical care in Wuhan. Outside of Hubei, the mortality rate of the Mainland has remained steady and been rising very gradually because of the decline in the increases of the number of newly confirmed cases. It stood at 0.84% as of 1 March, in marked contrast to Hubei and Wuhan.

In Chart 8, the daily newly confirmed cases are compared with the daily newly increased suspected cases. Suspected cases are cases that have yet to become confirmed cases pending further clinical observations and/or nucleic acid tests. Once a case is determined one way or the other, it will no longer be retained as a suspected case. Thus, in general, the number of newly increased suspected cases should exceed the number of newly confirmed cases, or at least should do so after a short time lag.

Chart 8: The Daily Newly Confirmed Cases and Newly Increased Suspected Cases: A Comparison for the Mainland, Mainland ex Hubei, Hubei and Wuhan



Sources: Same as Chart 1.

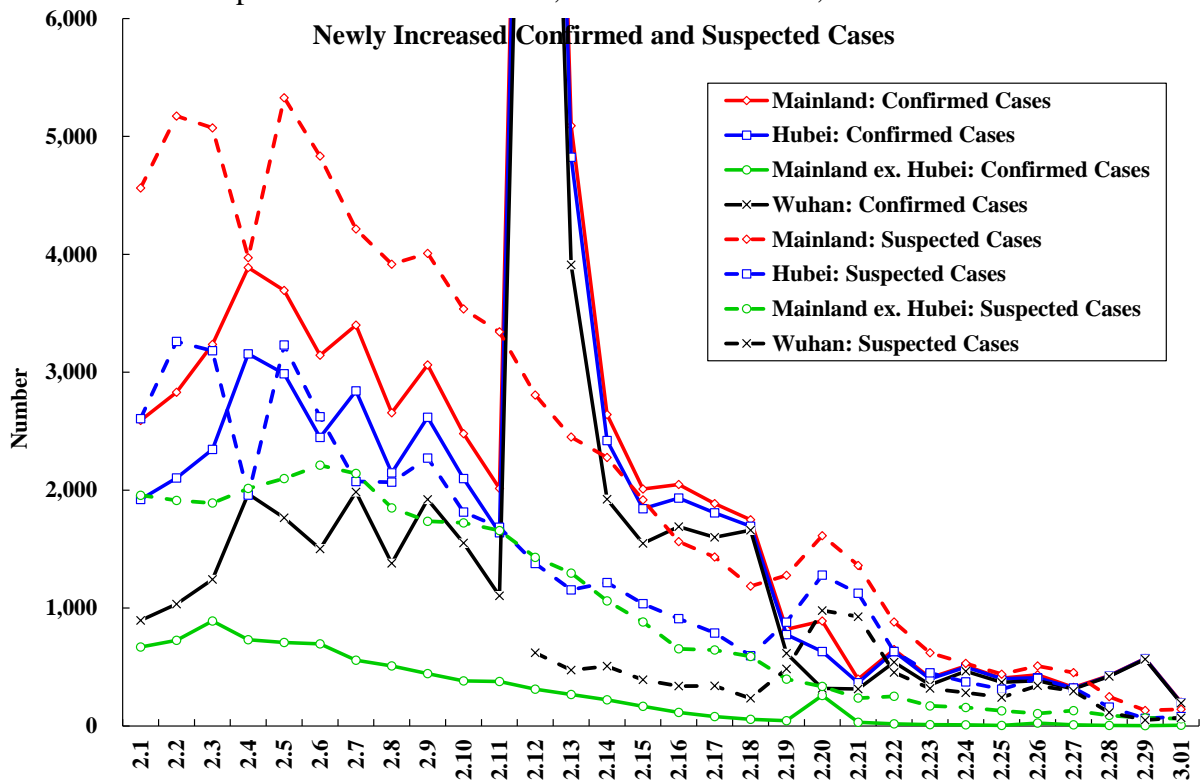
Chart 8 shows that the number of new suspected cases for Mainland ex Hubei has been declining continuously since 6 February. Moreover, the number of new suspected cases in Mainland ex Hubei has always been considerably higher than the number of newly confirmed cases (except on 20 February), which means that, in general, a substantial number of the suspected cases has turned out not to be COVID-2019 cases. This is an indication that the epidemic is under control in Mainland ex Hubei.

This is, however, not yet true of Hubei. The number of new suspected cases were below the number of newly confirmed cases between 12 February and 19 February for Hubei and Wuhan. But these were actually good signs because they indicated that the proportions of as yet unidentified true COVID-2019 cases among the suspected cases in Hubei and in Wuhan had begun to decline. The net result was that the number of new suspected cases on the Mainland as a whole also exceeded the newly confirmed cases on 19 February, the first time this happened since the definition of a confirmed case was changed in Hubei (and Wuhan) on 12 February. Overall, what has been happening should be regarded as a positive development.

In order that the more recent developments can be seen more clearly, we have also added a Chart 8A with a different scale from Chart 8, omitting the data points on 12 February. Chart 8A shows clearly that the numbers of new suspected cases on the Mainland and in Hubei and Wuhan have continued their declines after an interruption on 18-19 February. And in Hubei, they have been higher than the number of newly confirmed cases. However, in Wuhan, between 22 February and 1 March, the number of new suspected cases has consistently remained below the number of newly confirmed cases. This reflects the greatly improved availability of medical care in Wuhan and Hubei so that the backlog of suspected cases can be

cleared much more quickly. This further suggests that the number of newly confirmed cases in Wuhan, and hence in Hubei and on the Mainland, is likely to continue to fall in the near future, to below 100 at the end of the current week. Our prediction is that the number of newly confirmed cases in Wuhan should reach single-digit levels, if not zero, by the end of March.

Chart 8A: The Daily Newly Confirmed Cases and Newly Increased Suspected Cases: A Comparison for the Mainland, Mainland ex Hubei, Hubei and Wuhan



Sources: Same as Chart 8.