



## COVID-19 Second Spike as an Aftermath of the Sudden Restrictions Ease: Kurdistan Region of Iraq as an Example

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### ABSTRACT

The global pandemic Coronavirus Disease 2019 (COVID-19) is a contagious disease caused by SARS-CoV-2, it has rapidly resulted in over 20 million confirmed cases and more than three quarter million deaths worldwide in less than 9 months. Due to the rocketed spread of the outbreak, early implementation of restrictions including quarantine, lockdown, isolation, social distancing and community containment was recommended to control the outbreak. Based on, in parallel with other countries, authorities in the Kurdistan Region (KR) of Iraq followed the WHO recommendations on restriction towards the outbreak: including strict measures of quarantine, lockdown and curfew to oppose the spread of the disease. Fortunately, these measures paid off its harvest, as a result of 2 months of measures implementation, COVID-19 confirmed cases crashed to zero for about two weeks and the virus was contained typically across the nationwide lockdown and curfew step. However, premature lifting of measures has put the region under storm of the second spike of the infection resulting in a dramatic increase of new cases. Here, we assessed the KR measures in each step and how they affect the infection rate and the spread of the disease.

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### Introduction

In December 2019, Wuhan Municipality in Hubei Province, China reported a cluster of pneumonia cases with unknown etiology. Chinese Center for Disease Control and Prevention identified on January 7, 2020 a new type of coronavirus (novel coronavirus, nCoV) as the causative agent of this outbreak [1, 2].

Unfortunately, the outbreak has occurred during the most famous Chinese traditional festival, Spring Festival, where a significant number of travelers attend the festival each year in Wuhan, an important crowded center in the festival, which boosts the spread of this disease and subsequently causes vast difficulties in control of the epidemic. Accordingly, there was a rapid increase in COVID-19 cases between January 10<sup>th</sup> -22<sup>nd</sup> [3].

On January 30, 2020, at least 7734 cases were reported in China. In addition, the disease was spread to other countries including East Asian countries, United Arab Emirates, United States, India, Australia, Canada and west Europe. The case fatality rate was

calculated to be 2.2% and threatening to trigger a global outbreak [4]. In Iran, the first official confirmed cases of SARS-CoV-2 infections announced on 19 February 2020 [5]. Then, on the first of March confirmed cases reached approximately 87831 cases worldwide [5]. As of March 11, 2020, due to the rapid spread of the disease WHO declared the COVID-19 outbreak as a global pandemic [5].

As COVID-19 spreads in some countries, authorities have imposed quarantines and travel bans on an unprecedented scale as implementing these measurements were often the first response against the new infectious disease [6]. When the seriousness of the issue was realized, China locked down whole cities, as well as Italy imposed draconian restrictions throughout the country. In the United States, thousands of people were subjected to legally enforceable quarantines or were in "self-quarantine." The federal government has also banned entry by non-U.S. nationals traveling from China, Iran, and most of Europe and is screening passengers returning from heavily affected countries [7]. Still, the numbers of cases and deaths continue to rise [7]. As Iran's significant trade links with China, left the country vulnerable to the spread of the virus. The outbreak in Iran is one of the world's largest, and many of the first cases

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registered in other places, including Iraq, Lebanon, Georgia, and even Qatar were attributable to individuals who had traveled from Iran [8-10]. At the early spread of the disease in Iran, which has a

wide border with Iraq, KR (semi-autonomous region in Iraq Figure 1) has issued several decisions in several subsequent steps to protect the spread of the outbreak in the region [11].



Figure 1: Map of the Iraqi Kurdistan Region [12]

In this review, it is important to highlight the early protection step measures that were released by KR authority to keep the region as safe as possible from COVID-19 outbreak and the consequences of the early and premature lifting of the restrictions.

### Restriction Steps

To keep the region safe from COVID-19 outbreak, following measures have been put in place by the authority:

#### 1. Pre-disease recording step (Quarantine)

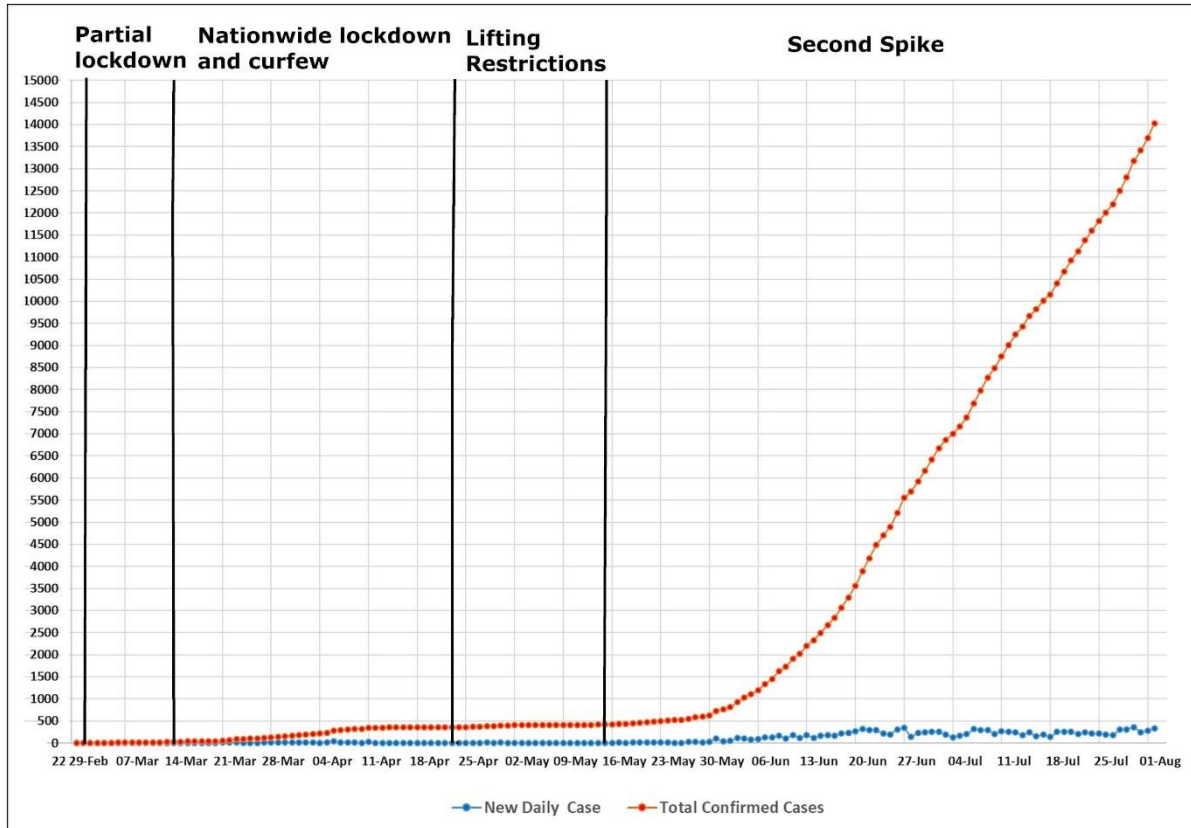
On February 22<sup>nd</sup> 2020 at the early spread of the disease in the neighboring countries, KR authority has imposed numerous preliminary restrictions as a first step to prevent the spread of the outbreak in the region. It started with two-week quarantine and COVID-19 diagnosis tests for Iraqi and foreign citizens who had arrived in the past 30 days from countries with a high rate of the COVID-19; China, Iran, Italy, Japan, South Korea, Thailand, Singapore, Kuwait, and Bahrain. Timely, flights from/to Iran were halted in KR airports. Visa issuance was also stopped for the passport holders of the listed countries, and KR citizens were prevented from

visiting them. Likewise, Iraqi travelers from outside the region were checked at the KR checkpoints. Subsequently, on 1<sup>st</sup> of March the international travelers who visited China and Iran were banned from entering KR. However, those who had the KR residency were allowed to enter the KR if they had not visited listed countries [11]. Also, people who had a history of travel from countries with COVID-19 epidemic or had contact with confirmed cases were quarantined for a recommended period of 14 days. Body temperature and general health status surveillance of the persons who returned from epidemic areas and those who had contact with confirmed cases are vital barriers to halt the spread of the outbreak according to WHO guidelines [13-18].

Quarantine for the asymptomatic persons who are the main sources of SARS-CoV-2 infection [19], which may escalate the spread of COVID-19, considered to be the most effective method to overcome these problems in the public [20]. Moreover, COVID-19 modeling studies that simulated the outbreak scenarios in China, the UK, and South Korea, and on the cruise ship reported the advantage of quarantine in limiting the spread of the disease. In addition, quarantine of travelers returned from a country with the outbreak and of people exposed to confirmed cases may avert high proportions of infections compared to no

measures. The study also shows combination of quarantine with other prevention and control measures, such as school closures, travel restrictions, and social distancing, had a great effect on the reduction of the transmission [21]. The KR's population of 5 million was at risk to the pandemic, as it shares hundreds miles of border with Iran, busy with multi-travel and trade crossing points [22]. The early and urgent imposing

measures to defeat the spread were remarkably successful, especially when compared to neighboring countries and regions, as in two months of implementation, before easing the measures, only 337 confirmed cases were recorded. Surprisingly, for 6 days the numbers remained in the steady state without recording any confirmed cases (Figure 2).



**Figure 2:** COVID-19 confirmed daily (blue) and total (red) cases in KR during period of about 5 months from 1st of March 2020 (first confirmed cases) until 2nd of August 2020 in different steps of measurement; quarantine, Partial lockdown, post confirmed case restriction and 2nd spike [23].

## 2. Lockdown and further restrictions

### 2.1. Partial Lockdown

From the late February of 2020 to the first week of March, the COVID-19 outbreak reached around one hundred thousand confirmed cases worldwide. China, Italy, Japan and Iran were the top listed countries [24, 25].

Countries around the world implemented measures to slow the spread of the disease by performing partial lockdown including prohibiting public gathering, sport events and school activity limitations [26].

Timely, the KR closed the governmental institutions from the period of 26<sup>th</sup> February to 10<sup>th</sup> March as a partial lockdown measure, including public and private schools, nursing, kindergartens and universities in order to reduce physical contact. However, private hospitals, public places, restaurants, markets, mosques, and sport centers were allowed to be open and public transportation remained operative. During this step the public were advised to follow WHO guidance specially social distance, physical contact and encouraged residents to avoid crowded places [23].

### 2.2. Post Confirmed Case Restrictions

In March, after emerging of the disease, authorities in most countries issued strict measures to oppose further spread of the disease [27]. Meanwhile, on the 1<sup>st</sup> of March, 2020 Ministry of Health in KR announced the first 4 confirmed cases that pressured the authority to authorize stricter measures, including; total travel ban between the KR and other Iraqi provinces; non-emergency travel ban in KR provinces; banning all kind of public transports in side and between the cities of KR; all emergency travels required approval from the authority to travel between different cities; canceling all sport events and social gathering; banning a Kurdish new year (Nawroz) related celebration and gathering; prohibiting all kinds of tourism; halting all religious ceremonies, rituals, and activities including Friday prayers, church events, and temples; limitation of movement and trade imports in crossing borders, trade were reorganized so that no touching took place between people and drivers between both side on the border; people were advised to stay at home to prevent the spread of the infection.

While cases continued to deteriorate and confirmed cases were increased to 28 cases until 13<sup>th</sup> of March (Figure 2), the lockdown of the organizations were extended and lockdown included other

employments belonging to all ministries except the ministry of health and entries which they stopped fingerprint attendance systems [23].

### 2.3. Curfew and Nationwide Lockdown

COVID-19 outbreaks continued to spread worldwide, some countries implemented strict measures to halt the spreading. In 10<sup>th</sup> of March 2020 when diagnosed cases in Italy reached above 27000, the country authorized nationwide restrictions on movement [28]. Likewise, in KR due to the increase of confirmed cases, the curfew was first imposed at midnight 13<sup>th</sup> March until 18<sup>th</sup> March, inside the cities of Erbil and Sulaymaniyah (Figure 1) and their surrounding towns. On 18<sup>th</sup> March the nationwide lockdown and curfew was taken as an effort to stem the spread of the coronavirus disease (COVID-19). Due to the sharply rising of the confirmed cases (210 confirmed cases) in the region (Figure 2), KR put in place a two days complete lockdown starting from midday of 4<sup>th</sup> April then extended for a half day and ended at 00:00 am, 7<sup>th</sup> April to make sure that the lockdown works effectively in preventing the further spread of the new coronavirus. In this step all shops, pharmacies, bakeries, and other services were closed down during the complete lockdown. Afterward, until 23<sup>rd</sup> of April the nationwide lockdown and curfew were continued [23].

Restrictions and other measures were put in place to reduce the spread rate to be in line with KR's non-experienced health capability. Figure 2 shows how each step of implemented measures along the restriction period has had effect on maintaining the new confirmed cases with the threshold of the KR health capability. Surprisingly, as a result during the period of April 17<sup>th</sup>-22<sup>nd</sup>, 2020 recorded zero confirmed cases with maintaining the total of 357 diagnosed cases [23]. Studies revealed similar strategies to oppose the outbreak in some European countries including, extended school and university closure, traffic restriction, sustained physical distancing and eventually lockdown had a greater role for limiting the spread of COVID-19 and reducing the magnitude of the epidemic peak of the disease. Lowering and flattening of the epidemic peak is particularly important, as this reduces the pressure on the health-care system [29-32].

Fortunately, KR authorized measures before the appearance of the disease which seems to have helped to maintain the outbreak under control. However, the countries which delayed the restrictions after recording significant numbers of cases experienced a dramatic increase of the COVID-19 cases. As Ma Guoqiang, municipal Communist Party secretary for Wuhan said "Right now I'm in a state of guilt, remorse and self-reproach. If strict control measures had been taken earlier, the result would have been better than now" [33].

### 3. Post restrictions Ease and Second Spike

In the absence of vaccine and effective medicine, strict lockdown conditions during the COVID-19 pandemic appeared to be the most effective barrier in controlling the disease and delaying the second wave. China can be considered the best example for following such strategy [34, 35]. In addition, Italy and Spain were able to flatten the epidemic peak and then contain the outbreak by implementing the same measures. However, prolonged restrictions and lockdown cause economic stress. Therefore, gradual easing of the restriction strategy will reflect on the manageable number of newly diagnosed cases [36]. In contrast, re-allowing a vast physical mobility can lead to a second spike [36]. Recently Spain has experienced an increase in confirmed case by ten times from around 300 to 3000 confirmed cases by the end of July

in comparison to late June as a consequence of fast easing of restrictions, which can be considered as a second spike [37].

In KR, from 23<sup>rd</sup> of April onward the curfew and lockdown restrictions were extremely eased by allowing shopping centers, private clinics, restaurants and gym centers to be opened. Unfortunately, about 40 new confirmed cases were recorded in a week (Figure 2), and the cases continues to rise. As a consequence, every missed day in the restrictions has increased the number of infected cases (Figure 2). Sudden and premature lifting of measures and restrictions has led to deterioration of the outbreak by a rocket rise in infection rates later [27].

During the containing period, the efficiency of restriction measures and their effectiveness relies on how well individuals follow restrictions and on accuracy of the imposing period. Also, easing any steps in these measures must depend on epidemiological and modeling evidence to prevent the risk of the further peak of COVID-19 outbreak, which subsequently leads to further deaths [38]. Therefore, a calibrated and step-wise approach must be followed to exit lockdown strategies [39]. However, after a premature, unplanned and sudden ease of the restrictions (in lifting restriction step) in KR, the disease has re-attacked the region severely. The number of the confirmed cases since the last 2 weeks of spread has increased sharply across the region (Figure 2) [23]. This has devastated the hopes of containing the outbreak. Accordingly, the regional government was shocked and rushed to authorize new measures to contain the second spike [40]. However, due to experiencing financial difficulties by the public in the region from the first restriction measures (in nationwide lockdown and curfew) which were imposed previously in the past 3 months the new measures were rejected widely by the public and they have not been implemented [40].

For the current alarming stage of the spread only strict lockdown and quarantine measures as imposed in the first spike can curb the COVID-19 disease, authorities must synchronize it by supporting the workers, employees and other vulnerable sectors financially during this period. Otherwise, social distancing is the most important measure to help slow down the spread of the virus if coupled with using masks in crowded places particularly in indoor places [41].

### Conclusion

The studies and data included in this review consistently conclude that quarantine plays an important role in controlling the spread of COVID-19 disease. It's well known that an early implementation of quarantine and its combination with other public health measures works crucially to eradicate the infection. The efficiency of quarantine and restriction measures and their effectiveness during viral outbreak relies on timing and accuracy of the imposing period. So, authorities need to carefully consider epidemiological and modeling evidence before lifting these measures to mitigate the impact of a second spike of the COVID-19 outbreak.

### Conflict of interest

None.

### Author contributions

All authors contributed equally in this review.

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