**Lessons Learned from the Re-emergent COVID-19 Cases in Areas of Long Reported No Community Transmission**

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As the world nears the post-pandemic phase of COVID-19, countries need to be wary of the potential of new outbreaks especially when relaxing containment measures. A recent study observed that the easing of social distancing measures in Hong Kong on July 2020 after a period of stability may have led to a third wave of outbreak, with the study showing that these cases being more related to imported cases than local strains in the previous waves of outbreak, implying that outside travel rather than asymptomatic silent transmission being the main cause (1). The focus must therefore be on border control to prevent illegal immigration and early detection of cases.

On January 23, 2020 (2), China deemed certain restrictions necessary to halt the virus such as suspending movement from and to certain provinces, as well as travel by train and plane and confining citizens to their homes. With these restrictions in place, regions in China that were hit the hardest eventually were able to declare they had entered a period of zero community transmission as seen in Wuhan on March 19, 2020 (3). As regions began to see a decrease in the number of cases, provinces in China began to slowly lift certain restrictions, including travel and border closures. Wuhan's reopening on April 8, 2020, was followed by a reemergence of COVID-19 cases on April 14, 2020 (4), quickly ending its one-month period of having no new cases. The same pattern was seen in neighboring regions in China as restrictions were lifted and travel between regions began to pick up.

Similarly, the Municipality of Beijing went two months with no new cases of COVID-19 and zero local transmission starting on April 16, 2020. A month after Heilongjiang reported its first reemergent case of COVID-19 in April, Beijing followed suit, reporting its first reemergent cluster of COVID-19 cases on June 11, 2020. Since then, an additional 200 cases of COVID-19 have been reported in Beijing, all linking back to a local fish market, Xinfadi Wholesale Market. Genomic sequencing of strains from the reemergent cases showed homology between strains from regions in China that were farther away, including those in the northeast such as Shulan and Heilongjiang as well as nucleotide variations characteristic to strains in Europe (5). This showed that while outside travel into China was allowing for the reemergence of cases into regions such as Heilongjiang, Chinese locals then traveling within provinces of China would introduce these new strains into other provinces, setting off new clusters of COVID-19 cases in regions that had previously been case free for some time.

Nepal on July 21, 2020, announced measures to relax nationwide lockdown measures. This included the opening of restaurants and bars; however, long-distance public transport, international and domestic flights, and places of large gatherings such as cinemas and colleges remain closed. According to the World Health Organization data, a steady rise of active COVID-19 cases was then observed, reaching its peak around July 1, 2020. Since then, the rolling seven-day average of cases has been trending down, from the week of June 28, 2020 peaking to 500 to 550 new cases to an average of approximately 100 new cases during the week of July 13. Provinces Gandaki and Bagmati have been reported to only have sporadic cases as of July 21 (6).

Western provinces of Nepal have had the highest cumulative count of COVID-19 cases, with 72% of total cases (as of July 2020) in Sudurpaschim, Province 2, and Province 5 (6). According to WHO, a potential reason for this relative increase could be due to the fact these provinces border India, as cases have been rising in India and Nepalese workers from there are returning home (6). Illegal or undocumented immigration into the country could also contribute. Chalise points out the lack of COVID screening for individuals returning to the country. As migrant workers return from India, many of them may be asymptomatic carriers,

contributing to recent community outbreaks within these provinces. Therefore, contact tracing of these cases is difficult since their immigration is not properly documented (7).

Vietnam reported a local case of COVID-19 with no travel history, on 25th July 2020 in Da Nang city, a tourism hub, nearly after 99 days with no cases of community transmission of COVID-19 which was followed by two new local cases on 26th July 2020 which prompted the Ministry of Health to establish three special working teams to support prevention and control of COVID-19 in Da Nang City. In the following days, there was an explosive surge of COVID-19 cases to 253 newly detected local cases as of 4th August 2020 (8). The initial findings had shown that this outbreak was hospital-based but the cases have rapidly spread to the community and cases have been found in other cities of Vietnam too, most cases having been linked to Da Nang City (8). Various reasons have been hypothesized for this new outbreak. The virus in the newly confirmed patients in Da Nang City had a different strain than the existing Vietnam one, which strongly suggests it came from outside the country which probably bypassed its stringent border control measures. This finding of an undocumented strain is in congruence with recent instances of illegal immigration in Vietnam. Approximately, 21 to 24 Chinese nationals were found to have illegally immigrated into Vietnam in mid-July in Da Nang City and Quang Nam province, which were the most affected areas by this outbreak. Another reason which has been hypothesized for the resurgence of community transmission is the testing criteria in Vietnam. Vietnam previously only tested individuals having an epidemiological history suggestive of COVID-19; this was recently updated on August 4th, 2020 which has the testing criteria to now include all suspected patients with pneumonia irrespective of epidemiological history (10). During contact tracing of the new cases, it was found that more than 200 had direct contact, while more than 1,000 had indirect contact. Shops selling medicine are now required to report all who purchase antipyretic medicine, with self-reporting of fevers being asked of civilians (9).

In conclusion, to prevent new wave outbreak, countries may need travel restriction and collaboration with other countries to control illegal immigration. Testing all people with pneumonia and high risk of COVID-19 exposure such as healthcare workers regardless of epidemiological history may be considered depending on urgency. Stricter border controls against certain countries based on sequencing of new cases and clusters should be considered. Finally, contact tracing is essential to contain early outbreaks if they happen. Therefore, measures that focus on better documentation and monitoring is necessary especially in areas of new COVID-19 outbreaks.



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