

COVID-19 Evidence Update

COVID-19 Update from SAHMRI

27 April 2021

Safe Return of International Students

To be read in conjunction with

- *International Exemplars (July 2020)*
- *Real world impact of vaccines and implications for COVID-19 control (March 2021)*
- *Symptoms, Vaccination and Infectiousness (17 February 2021)*

Executive Summary

This review covers the available evidence on the control of COVID-19 in jurisdictions from which most of (South) Australia's international students originate, in order to estimate the risks of importation of new cases. Countries and jurisdictions of highest relevance are: **China, Hong Kong, Singapore, and Vietnam** (the focus of this briefing), as well as India, South Korea, Philippines, Indonesia, Malaysia and Japan.

The risk of importation of SARS-COV-2 to Australia and subsequent outbreak is predominantly driven by:

- Country of origin COVID-19 control: burden of community transmission, which is mitigated by local COVID-19 controls and vaccination roll out
- Vaccination status of individual international arrivals
- Controls in place during transit and on arrival in Australia to prevent incursion (quarantine) and
- Vulnerability of the Australian population (rate of vaccine roll out and community COVID-19 controls e.g. testing, contact tracing and physical distancing)

State of the evidence:

Countries of Origin - cases, testing, vaccination, COVID-19 incursion and transmission controls:

- Original data come from official government sources in each jurisdiction.
- Data are published on countries' governmental websites, and collated on world-wide tracking websites (e.g. Johns Hopkins, Our World in Data (University of Oxford), Bloomberg Vaccine tracker).
- The World Health Organization provides status reports based on information they receive from countries.
- Countries' COVID-19 controls are also reported on by business advisory services, airline websites and in the media.

Vaccine efficacy and real-world effectiveness:

- Vaccine efficacy against mild to severe disease and vaccine safety data from Phase 3 trials are published in high-ranking peer-reviewed medical journals (for Pfizer, AstraZeneca, Moderna) and also provided to regulatory agencies who assess and approve the vaccines.
- Different governments have reported on efficacy rates from Phase 3 trials for Sinovac and Sinopharm.
- Real world effectiveness data and reports of impact on transmission are growing. Reports are from government sources, pre-print reports and three high-quality peer-reviewed publications.

1. Cases and community transmission:

While any active cases create risk, cases of community transmission pose greatest risk.

- **Daily cases** in **Vietnam, China, Hong Kong** and **Singapore** are **very low**, with the vast majority of cases being international arrivals, similar to Australia.
- **Community transmission** and **outbreaks are rare** and are **responded to very quickly** with local lockdowns (Vietnam, China), quarantining contacts (all) and extensive contact tracing (all).

Suggested citation: Miller C, Dono J, Wesselingh S. (2021) Safe Return of International Students. SAHMRI, Adelaide, South Australia. <https://www.sahmri.org/covid19/>

2. Testing:

- Governments of Vietnam, Singapore, and Hong Kong publish data on rates of testing, as well as details of tests used and authorised laboratories. These data are not readily available for China, however other reports indicate that testing is likely to be widespread and of a high quality.
- Testing in all four jurisdictions is comprehensive and can be relied upon for the purposes of detecting community outbreaks and assessing individuals.
- Contact tracing capability in each of these jurisdictions is very high.

3. Vaccination Rollout

- Singapore leads in the pace of vaccine rollout and coverage per capita, followed by Hong Kong. China is administering the highest number of doses of vaccine per day.
- Rates of population coverage by vaccination in Vietnam are similar to Australia, and have been impacted by access to supply of vaccine
- International students needing to travel may apply for priority vaccination in Singapore.
- Vaccines used are:
 - Pfizer (HK, Singapore) AstraZeneca (Vietnam), Moderna (Singapore) - published, high-level efficacy data from Phase 3 trials
 - Sinovac (HK, China) - published Phase 2 efficacy data plus other governments' reports of large trials
 - Sinopharm (China) - self-published and other governments' reports of efficacy from Phase 3 trials
 - Real-world effectiveness data are being reported by governments, in pre-prints and published in high-ranking journals (Pfizer and AstraZeneca)

4. COVID-19 Incursion prevention and other controls

- China, Singapore, Vietnam, and Hong Kong all have:
 - very effective systems of COVID-19 control
 - international border closures and controls and strictly monitored quarantine
 - some social distancing
 - targeted lockdowns when required, which is rarely
 - And are frequently cited as world leaders in epidemic control.
- Universal mask wearing is mandatory in Singapore and widely required in Hong Kong, China and Vietnam.
- Electronic and other surveillance of citizens is high, in all jurisdictions compared to Australia. Wearable technology and contact tracing apps are used (and sometimes mandated).

Vulnerability of the Australian population

- Australia has been very successful in preventing and controlling COVID-19, a consequence of which is the population's ongoing vulnerability to outbreaks.
- Testing and contact tracing capabilities are high.
- Limited physical distancing provisions are in place.
- Supervised quarantine arrangements are robust with ongoing, occasional incursions (est 3.1 per 100,000 arrivals and 2.0 per 1,000 arrivals with SARS-CoV-2) [1]
- Australia's rate of total population vaccination coverage, and immunity, is very low.

Conclusion:

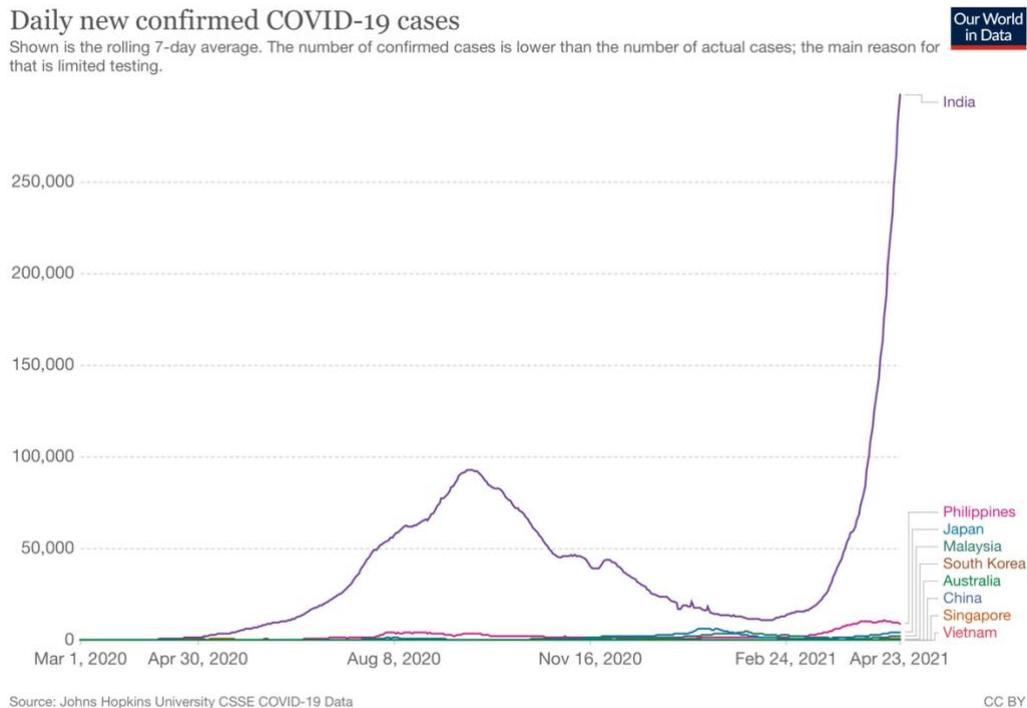
- **China, Hong Kong, Vietnam and Singapore are world leaders in COVID-19 control, similar to Australia and New Zealand.** These jurisdictions have low case numbers, predominantly among supervised returning travellers. Community cases are either absent or very low and well controlled. COVID-19 incursion prevention (quarantine) and other COVID-19 controls are similar to Australia, and often stronger (e.g. mask wearing, electronic surveillance).
- **International arrivals from China, Hong Kong, Vietnam and Singapore pose very low risk** of being infected with SARS-CoV-2 upon arrival in Australia. The risk posed is far lower than arrivals from many other countries e.g. UK, USA.
- Testing international arrivals for virus and antibodies further mitigates this risk; by detecting cases or immunity.
- Any individual arrivals who have already been vaccinated have substantially lower risk of becoming unwell with COVID-19 (in line with efficacy rate of vaccine) and transmitting virus (not yet proven, but likely).
- Quarantine upon arrival in Australia also further mitigates this risk. Quarantine arrangements can be nuanced, according to risk-assessments, informed by the factors noted above.

1. MULTIPLE JURISDICTIONAL COMPARISONS

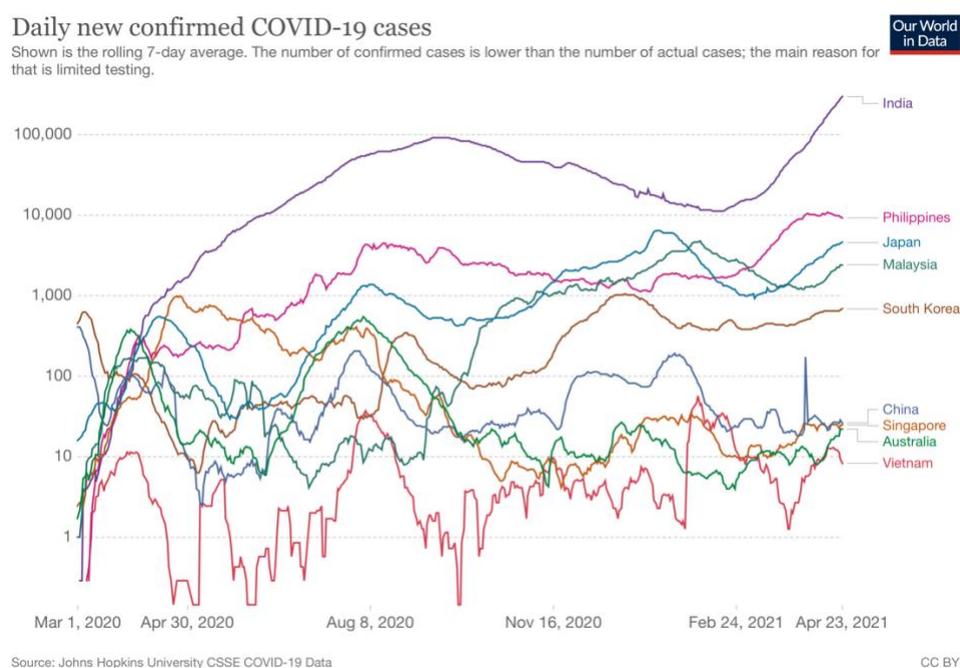
CASES

- Source: Our World in Data (Johns Hopkins University CSSE) [Coronavirus \(COVID-19\) Cases](#)
- Daily case rates are very low and comparable to Australia in China*, Singapore, Vietnam.
- India, Philippines, Malaysia, South Korea, Japan and South Korea all have large case numbers and outbreaks of concern

Daily cases across 10 countries* – linear scale



Daily cases across 10 countries* – log scale



*Note - Hong Kong data are no longer available from Our World in Data and are presumed to be included in totals for China

TESTING

- Source: Our World in Data (Johns Hopkins University CSSE) [Coronavirus Testing](#)
- Case detection is highly dependent on testing rate.
- Testing is usually driven by risk – those suspected to be at risk or with symptoms are encouraged or required to test. Testing strategies vary by jurisdiction and over time.

What is counted as a test?

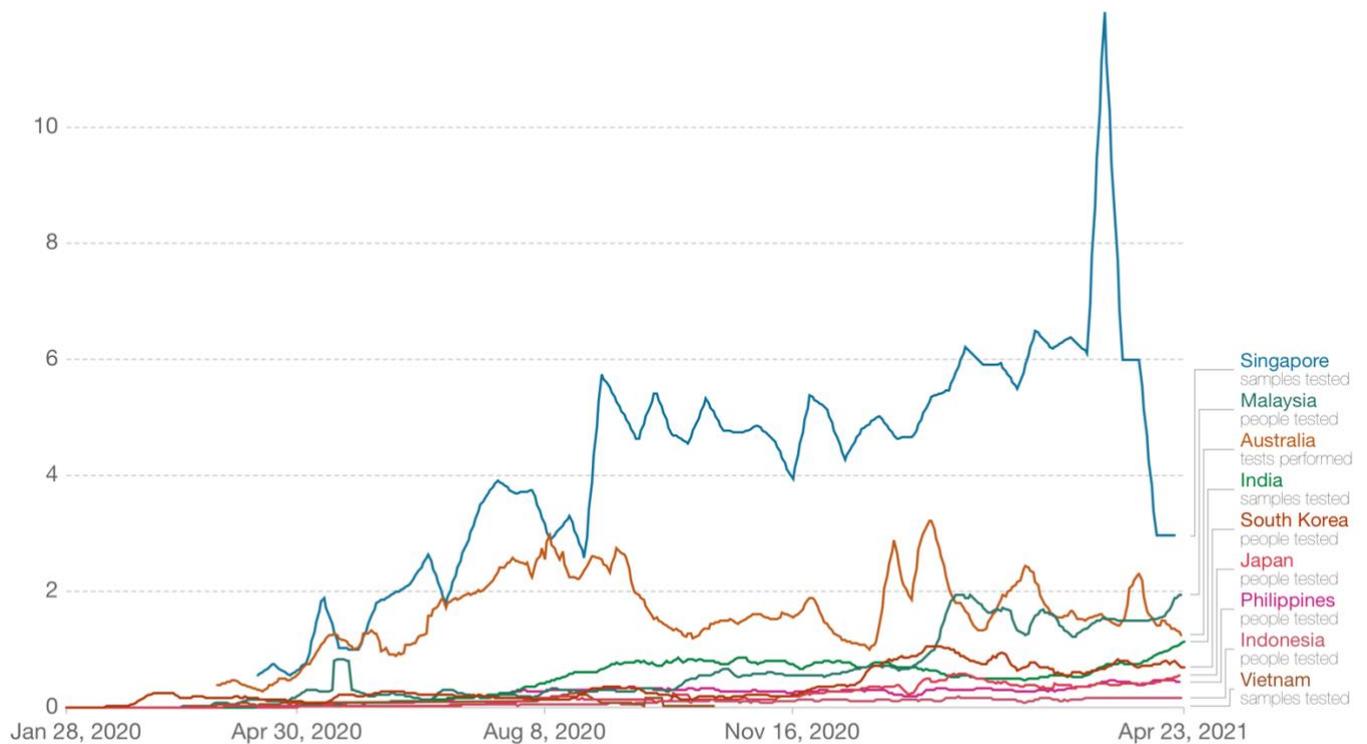
- Reported test data is not the same for all countries. Some countries report the number of people tested, while others report the number of tests (which can be higher if the same person is tested more than once). Some countries report their testing data in a way that is unclear.

Daily testing people thousand people

- Singapore has the highest rate of testing (tests performed) per capita.

Daily COVID-19 tests per thousand people

The figures are given as a rolling 7-day average.



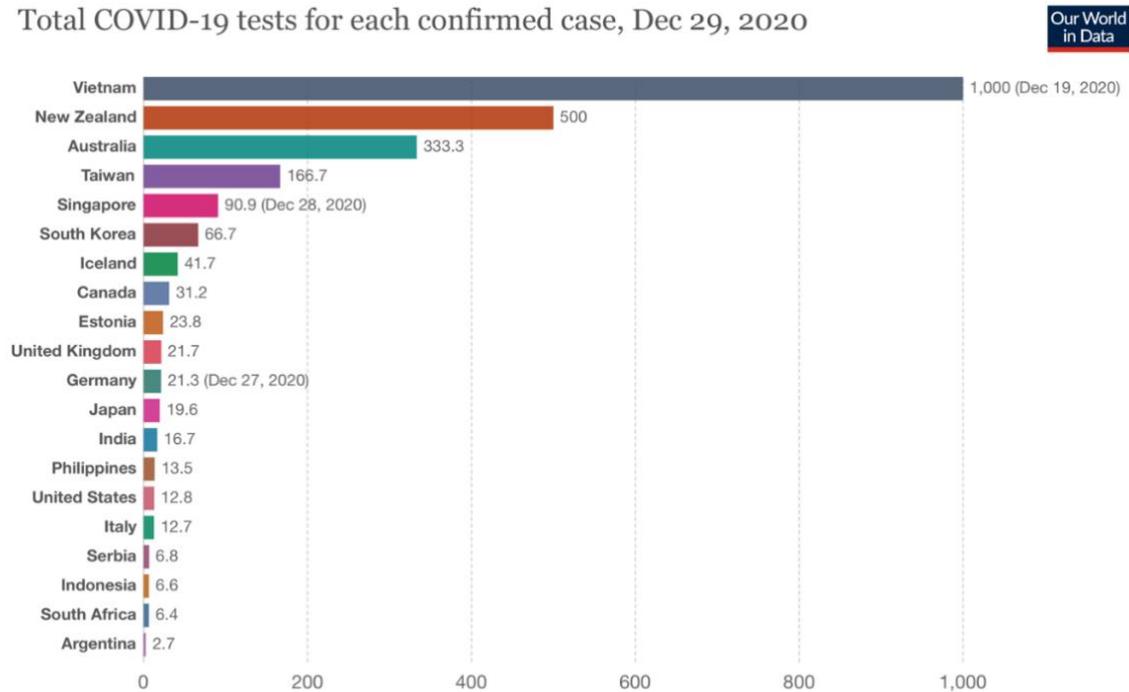
Source: Official data collated by Our World in Data – Last updated 23 April, 09:10 (London time)

OurWorldInData.org/coronavirus • CC BY

Note: Comparisons of testing data across countries are affected by differences in the way the data are reported. Daily data is interpolated for countries not reporting testing data on a daily basis. Details can be found at our Testing Dataset page.

- Vietnam has been notable for its high rate of testing (per confirmed case)

Total COVID-19 tests for each confirmed case, Dec 29, 2020

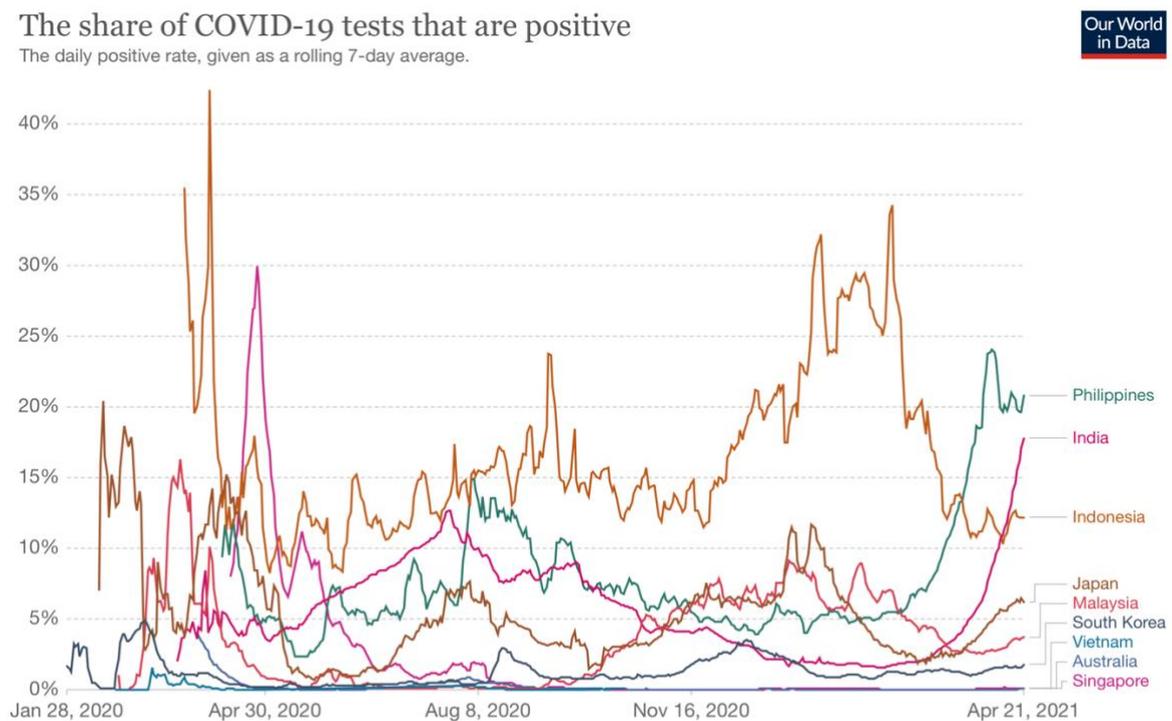


Source: Testing data from official sources collated by Our World in Data, confirmed cases from Johns Hopkins University CSSE
 Note: Comparisons of testing data across countries are affected by differences in the way the data are reported. Details can be found at our Testing Dataset page.
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- According to criteria published by WHO (in May 2020), a positive rate of less than 5% is one indicator of effective epidemic control.
- Australia, Vietnam, Singapore, Malaysia and South Korea are well below this target.

The share of COVID-19 tests that are positive

The daily positive rate, given as a rolling 7-day average.



Source: Official data collated by Our World in Data – Last updated 23 April, 09:10 (London time)
 Note: Comparisons of testing data across countries are affected by differences in the way the data are reported. Daily data is interpolated for countries not reporting testing data on a daily basis. Details can be found at our Testing Dataset page
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VACCINATION

Data Sources:

- [Bloomberg vaccine tracker](#)
- Our World in Data (Johns Hopkins University CSSE COVID-19 Data) [Coronavirus \(COVID-19\) Vaccinations](#)
- Note: different sources report different rates of vaccine rollout which are likely due to differences in timing of reporting.

Vaccine rollout

- Over 1 billion doses of COVID-19 vaccines have now been administered world-wide ([25 April 2021](#))
- World leaders in vaccine rollout (at least 1 dose) are: Israel, UAE, UK, US and Bahrain
- Singapore has vaccinated over 23% of its population; Hong Kong has vaccinated over 10%, India has vaccinated 8%. The remaining listed countries (including Australia) have vaccinated less than 5% of their populations to date

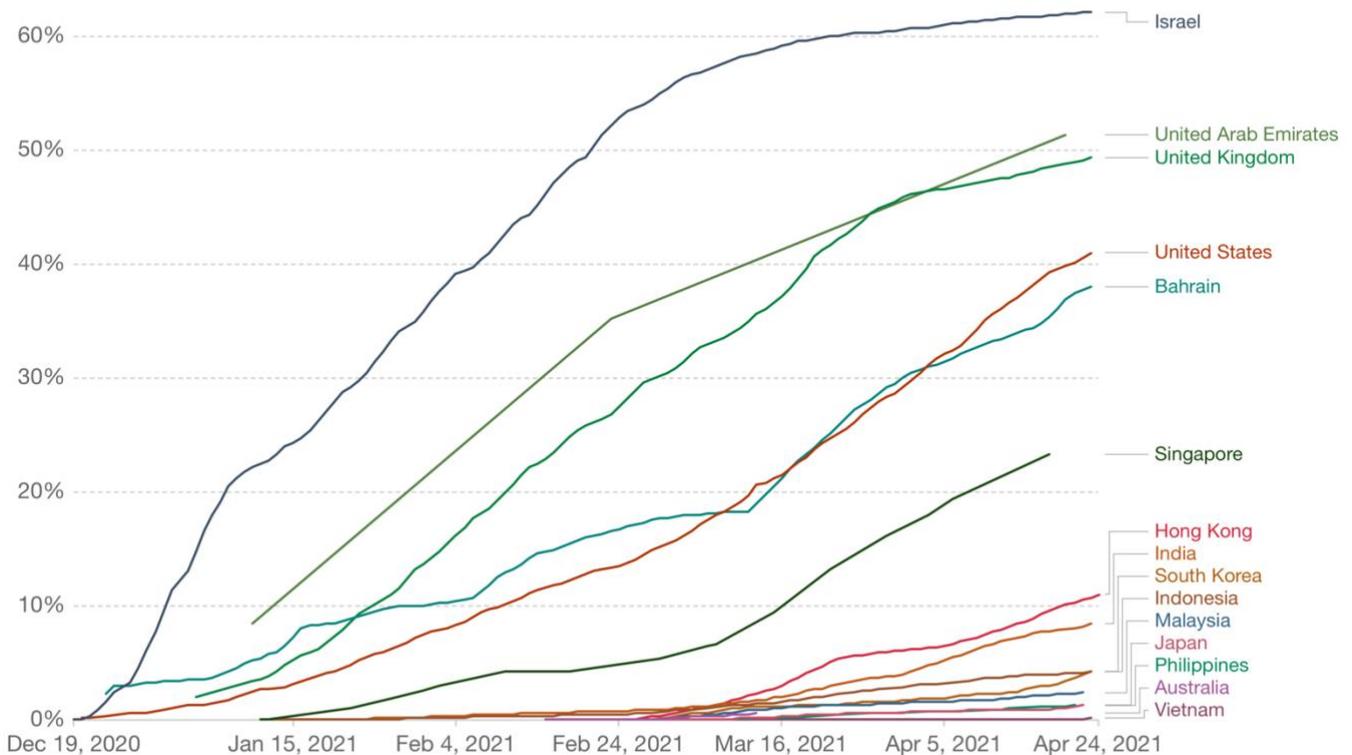
Impact of Vaccines on COVID cases

- Bloomberg reports that COVID-19 rates have flattened or declined in the four jurisdictions where enough vaccines have been given to cover at least 40% of the population ([25 April 2021](#)).

Share of people who received at least one dose of COVID-19 vaccine



Share of the total population that received at least one vaccine dose. This may not equal the share that are fully vaccinated if the vaccine requires two doses.



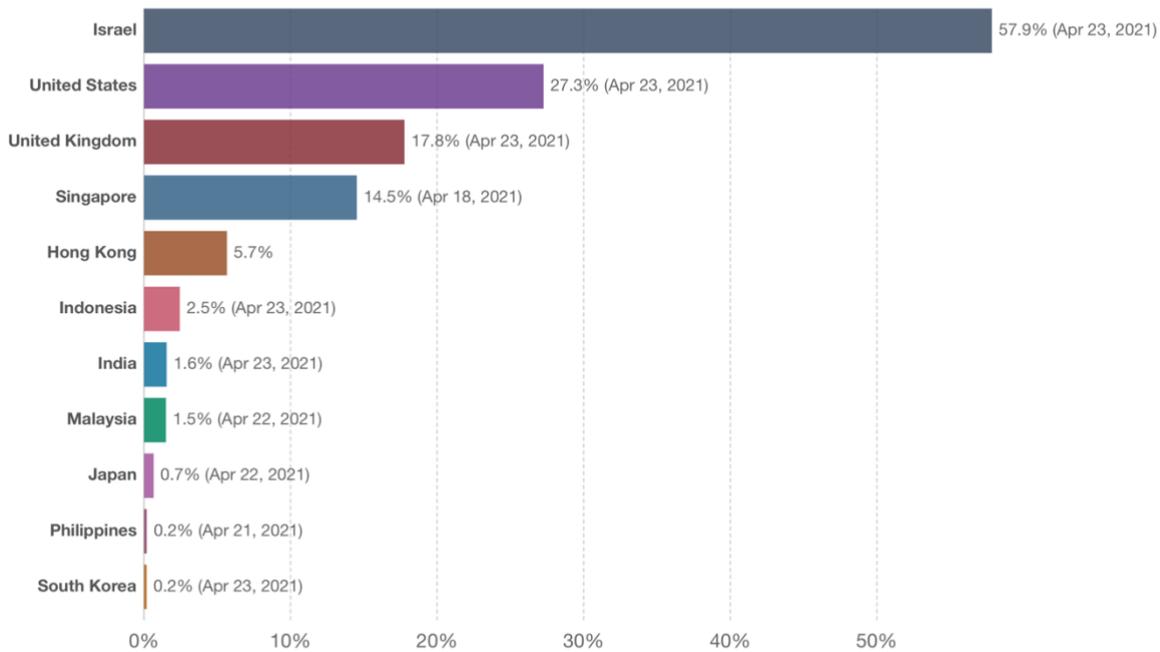
Source: Official data collated by Our World in Data

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Share of the population fully vaccinated against COVID-19, Apr 24, 2021

Our World in Data

Share of the total population that have received all doses prescribed by the vaccination protocol. This data is only available for countries which report the breakdown of doses administered by first and second doses.



Source: Official data collated by Our World in Data – Last updated 24 April, 17:31 (London time)

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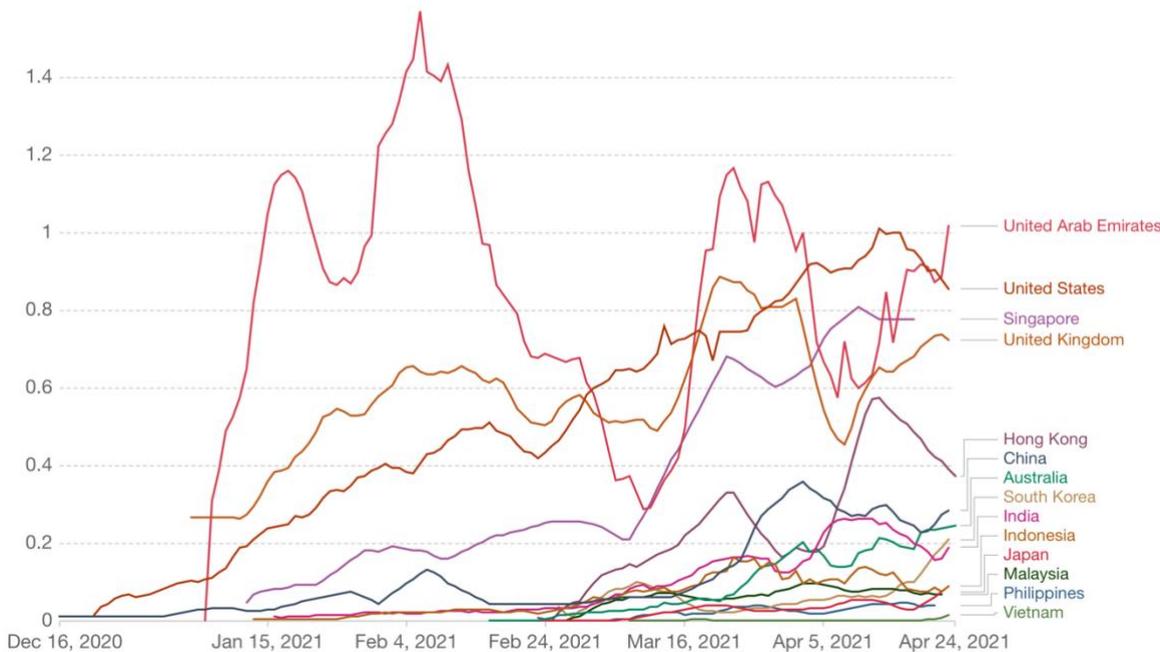
Rate of vaccination

- Singapore has among the fastest pace of vaccine rollout (per capita), followed by Hong Kong and China

Daily COVID-19 vaccine doses administered per 100 people

Our World in Data

Shown is the rolling 7-day average per 100 people in the total population. This is counted as a single dose, and may not equal the total number of people vaccinated, depending on the specific dose regime (e.g. people receive multiple doses).



Source: Official data collated by Our World in Data – Last updated 24 April, 17:31 (London time)

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COUNTRY and JURISDICTION CASE STUDIES

CHINA

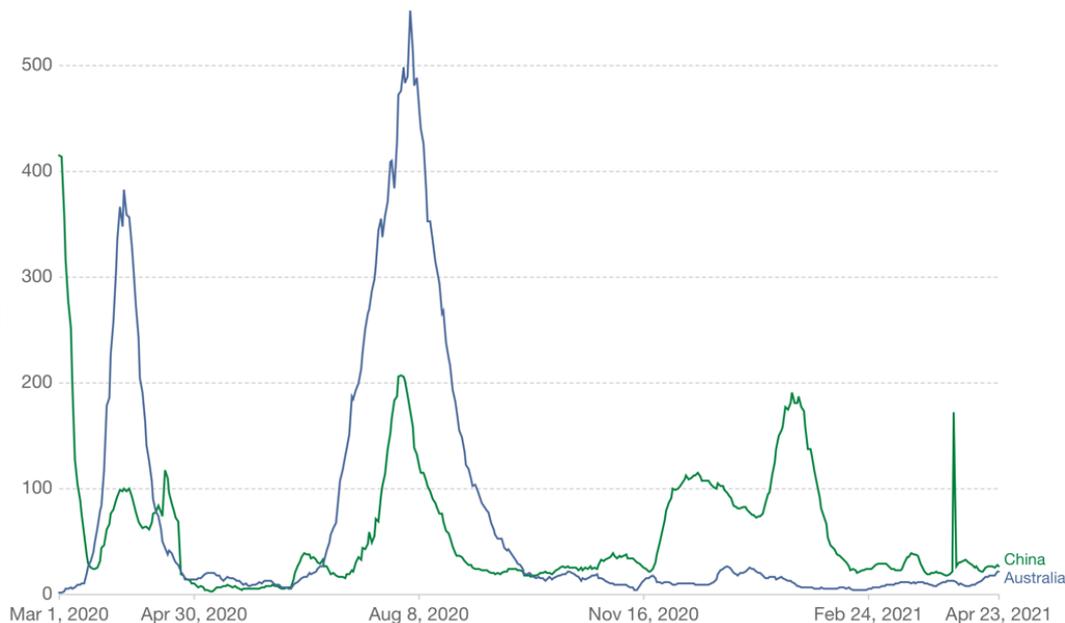
- Population: 1.44 billion
- China is a world leader in effectively controlling COVID-19
 - very few cases
 - very occasional outbreaks, effectively controlled with widespread testing and local lockdowns
- China's success in controlling COVID-19 has allowed residents to live a more normal life during the pandemic than people in most other countries.
- International borders are closed with 14-21 day quarantine for approved international (and some domestic) arrivals
- China has developed and is rolling out its own vaccines in high volume.
- Official data source: National Health Commission of Peoples Republic of China:
 - [Daily briefing on novel coronavirus cases in China](#)
 - Includes separate reporting for Hong Kong, Macau and Taiwan
- Other source:
 - Dezan Shira & Associates (International Business Advisory Service): [China Coronavirus Updates: Latest Developments And Business Advisory](#)

CASES and OUTBREAKS

- China, like, Australia, has a very low daily case rate, virtually all of which are imported. The last small community outbreak was in Yunnan on 31 March and was quickly controlled.
- When adjusted for population size, China has a lower case rate than Australia.

Daily new confirmed COVID-19 cases

Shown is the rolling 7-day average. The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.

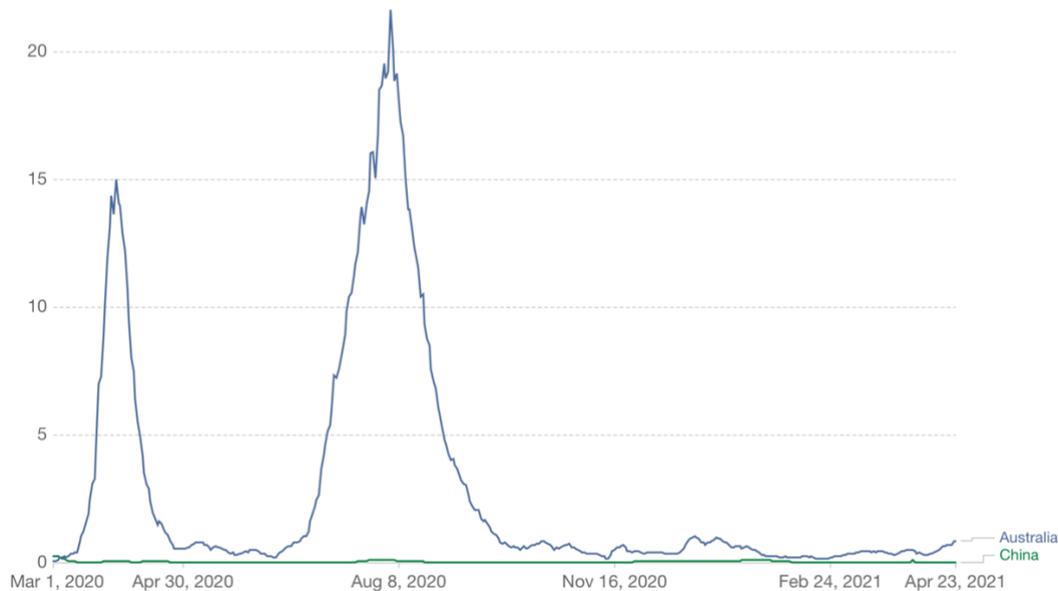


Source: Johns Hopkins University CSSE COVID-19 Data

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Daily new confirmed COVID-19 cases per million people

Shown is the rolling 7-day average. The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.



Source: Johns Hopkins University CSSE COVID-19 Data

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- Daily cases ([reported 23 April 2021](#)):
 - **April 23, 2021** – China [reported](#) 19 newly confirmed cases, all imported from abroad (5 cases in Shanghai, 5 cases in Guangdong, 3 cases in Yunnan, 2 cases in Zhejiang, 2 cases in Chongqing, and 2 cases in Sichuan).
 - There were 24 new cases of asymptomatic infection (all imported cases from abroad). 324 cases of asymptomatic infection were still under medical observation (312 cases imported from abroad).
- Community Cases and Transmission:
 - **Very low to none.**
 - Only reported community cases (1 or 2 cases) in Yunnan province in past 7 days.
- Outbreaks:
 - [Xinhaunet](#) (news service): The city of Ruili in Yunnan Province reported 6 local transmitted cases on March 31 [leading to a total of 15]. The city launched a **city-wide nucleic acid testing**. And according to the city’s epidemic prevention and control headquarters, starting from 8 a.m. [the same day], **all residents** in the urban areas were **quarantined at home for a week**. During the period, all business premises except supermarkets, pharmacies, and farm produce markets were closed.
 - Ruili is on the Burmese border and has been a source of previous outbreaks. Residents of Ruili were being vaccinated.
 - It appears that the cases of local transmission are now all but eliminated.

TESTING

- Compared to other countries and jurisdictions, there is little readily available information available on the tests being used, or the laboratories that process the tests.
- However, testing capacity and reliability in China is likely to be very high.
- China does significant, population-wide testing as part of Covid control, including of people without symptoms.

- In addition to throat and nasal testing regimes, China has been widely reported (e.g. [Reuters](#) and the [China Briefing](#)) for using anal swab tests with international visitors. These are reportedly being used in Chinese cities have been reported for such tests, such as Beijing, Shanghai, Qingdao, and Xi'an.
- [Our World in Data: China: Coronavirus Pandemic Country Profile](#)
 - The National Health Commission of the People's Republic of China has only mentioned the number of nucleic acid tests performed in the entire country on two occasions. We therefore include these data points in our time series, but no data is available since 8 August 2020, and no daily number of tests can be derived.

VACCINATIONS

- China is delivering 4 million doses per day (and peaked at 5m doses per day) ([as at 24 April 2021](#))
- Total vaccine doses administered: 204.191 million (as of [April 21, 2021](#)).
- Percentage of population vaccinated: ~7.7% ([Bloomberg Vaccine Tracker](#))

Vaccines used: Sinopharm and (Coronavac) Sinovac

- Vaccines used in China have less published data on their efficacy than other vaccines.
- **Sinopharm and (Coronavac) Sinovac**
 - Both vaccines use inactivated virus, and require 2 doses
 - Chinese Centers for Disease Control government recently reported that the vaccines '**don't have high protection rates**'
 - BBC (13 April 2021): [Chinese official says local vaccines 'don't have high protection rates'](#)
 - ABC News (11 April 2021) [Chinese health official says effectiveness of local coronavirus vaccines is low](#)
 - "Experts say mixing vaccines, or sequential immunisation, might boost effectiveness rates"
- **Sinopharm/Beijing, Sinopharm/Wuhan,**
 - BBC reporting (14 January): [Covid: What do we know about China's coronavirus vaccines?](#)
 - Sinopharm, is a Chinese state-owned company, is developing two Covid-19 vaccines
 - Sinopharm announced on 30 December that **phase three trials** of the vaccine showed that it was **79% effective**.
 - Separately, the **United Arab Emirates** reported, the vaccine was **86% effective**, according to interim results of its phase three trial.
 - The UAE results are not reported in peer-reviewed journal but reported by the Government, which is regarded as a credible source.
- **Sinovac (CoronaVac)**
 - Sinovac has been approved for emergency use in high-risk groups in China since July.
 - Phase I and II results are published in [Lancet Infectious Diseases](#) [2]
 - The Sinovac trials have yielded different results across different countries.
 - ([BBC 13 Jan 2021](#)): Researchers in Brazil initially said it was 78% effective in their clinical trials, but in January 2021 **revised that figure to 50.4%** after including more data in their calculations.
 - **Turkish** researchers reported the Sinovac vaccine was **91.25%** effective, while **Indonesia**, reported it was 65.3% effective. Both were interim results from late-stage trials.

COVID-19 CONTROLS:

- China implemented very stringent lockdowns in response to the original outbreak of COVID-19.
- Local lockdowns have been used in response to any subsequent outbreaks.
- Surveillance of citizens is high.
- China's success in controlling COVID-19 has allowed residents to live a more normal life during the pandemic than people in most other countries.
- The New York Times labelled China "one of the safest places in the world" amid the pandemic Yuan, Li (4 January 2021). "[In a Topsy-Turvy Pandemic World, China Offers Its Version of Freedom](#)".

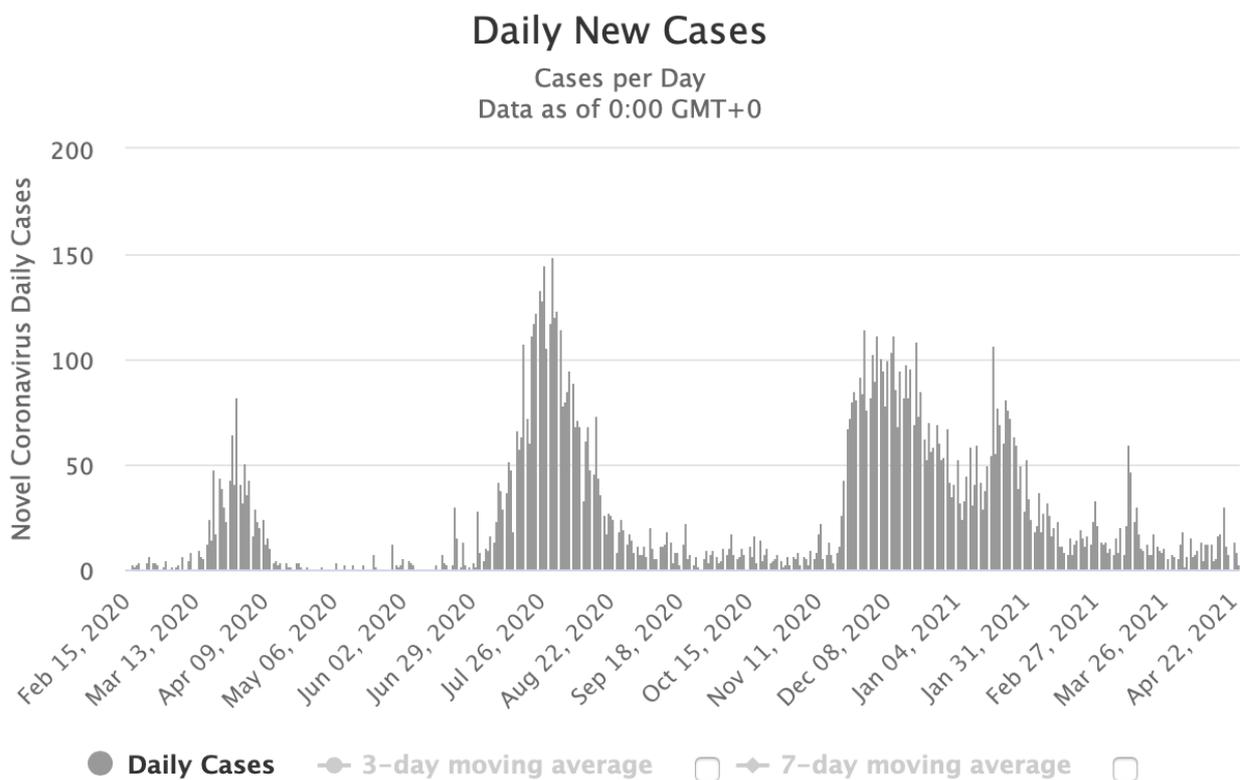
Dezan Shira & Associates [China Briefing](#)

- Strict controls are invoked when outbreaks occur.
 - For example: The city of Ruili in Yunnan Province [reported](#) 6 local transmitted cases on March 31. The city has launched a city-wide nucleic acid testing. And according to the city's epidemic prevention and control headquarters, starting from 8 a.m. Wednesday, all residents in the urban areas will be quarantined at home for a week. During the period, all business premises except supermarkets, pharmacies, and farm produce markets will be closed.
- Travel to China:
 - **Travel to China is tightly controlled and restricted.**
 - Travel to China from **many countries (e.g. the UK) is suspended.**
 - Travel by citizens within China requires a "**Green Health Code**" and similar requirements for international visitors also apply. From 1 Dec 2020, international visitors require a QR HDC (Health Declaration Code) (Source: [US Library of Congress](#)).
 - Australians and citizens from countries flying to China are required to have a PCR test and an IgM test 2 day before departure according to the [Chinese Embassy in Australia](#), and if both tests are negative they can apply for a "Green Health Code".
 - It's also been [reported](#) that starting from March 16, people traveling to Beijing from low-risk areas [presumably in China] will not need a negative nucleic acid test taken within seven days. They will also no longer need to conduct 14 days of health monitoring or take a nucleic acid test upon arrival. A green health code and personal protection measures are still required.
 - It was [reported on 17 March](#) that China was relaxing entry requirements for international visitors inoculated with Chinese vaccines
- It's also been [reported](#) that starting from March 16, people traveling to Beijing from low-risk areas will not need a negative nucleic acid test taken within seven days.
 - Applicants should have been inoculated with COVID-19 vaccines produced in China, either having received two doses of Chinese-made vaccines with the stipulated time gap in between or having received a single-dose of the Chinese-made vaccine at least 14 days prior to the application and obtained the vaccination certificate.
- It is reported that China requires **two-three weeks of quarantine upon arrival** as some regions mandate a longer quarantine period from time to time. Travelling between regions is generally allowed but with minor restrictions.
- **April 21, 2021** – China accepts US Travelers inoculated with American-made vaccines. The Chinese Embassy in the United States issued a [notice](#) on April 21, 2021, allowing US passengers vaccinated with American-made non-inactivated vaccines to depart from Dallas and enter the Chinese mainland. The accepted American-made non-inactivated vaccines include vaccines made by Pfizer, Moderna, and Johnson & Johnson. The Notice required that passengers must get all the required shots before their trip to China. **China-bound passengers are also required to provide positive IgM antibody test results as well as negative nucleic acid test results.** (Source: China Briefing)

HONG KONG (SAR of CHINA)

- Special Administrative Region of the People's Republic of China
- Population: 7.5m
- Official data source: The Government of Hong Kong Special Administrative Region
 - [Coronavirus Disease cases in HK \(includes Reff\)](#)
 - [COVID-19 Thematic website](#)
 - [COVID vaccine website](#)
 - COVID-19 Press Releases
- International borders are closed with 14-21 day quarantine for approved international arrivals, depending on country of origin.
- Mask wearing and COVID-19 app use are widespread

Daily New Cases in China, Hong Kong SAR



CASES and OUTBREAKS

- Daily cases on 24 April 2021: 3 (1 local case)
- Outbreaks ([Press Release: Friday, April 16, 2021](#))
 - **Hong Kong SAR Government** The Centre for Health Protection (CHP) of the Department of Health announced that as of 0.00am, April 16, the CHP was investigating 17 additional confirmed cases of coronavirus disease. Among the newly reported cases announced, 11 were imported cases and six were epidemiologically linked with local cases.
 - The CHP reminded those who had **visited specified venues** under the Prevention and Control of Disease (**Compulsory Testing for Certain Persons**) Regulation (Cap. 599J) to receive COVID-

19 nucleic acid testing according to the compulsory testing notice. The Regulation also requires all **household members of close contacts of confirmed cases** to undergo a COVID-19 nucleic acid test within a specified period according to compulsory testing notices published in the Gazette. The public are also urged to seek medical attention early if symptoms develop and undergo testing as soon as possible.

- The CHP called on members of the public to avoid going out, having social contact and dining out. They should put on a surgical mask and maintain stringent hand hygiene when they need to go out. The CHP strongly urged the elderly to stay home as far as possible and avoid going out. They should consider asking their family and friends to help with everyday tasks such as shopping for basic necessities.
- Update (News report: [24 April 2021](#)):
 - The Government announced that the compulsory testing exercise and enforcement operation for the restricted area in Ap Lei Chau finished today with no confirmed COVID-19 cases found.
 - It exercised the power under the Prevention & Control of Disease (Compulsory Testing for Certain Persons) Regulation on April 23 to make a restriction-testing declaration to require people within the specified restricted area at Block 10, Yee Lai Court, South Horizons to stay in their premises and undergo compulsory testing.
 - The Government also issued a compulsory testing notice to those who had been present at the building for more than two hours from April 10 to 23 to undergo mandatory testing by April 25 even if they were not at the building when the declaration took effect.
 - Around 950 residents were tested.
 - The Government then checked about 260 people's test records during the enforcement operation at the building. Nobody was found to have not undergone compulsory testing.
 - [NOTE: News report is accompanied by image of residents being given **wristband to wear as proof of compulsory testing**]

TESTING

- Hong Kong has compulsory Testing for Certain Persons including:
 - Household members of close contacts of confirmed cases
 - Persons who have visited specified premises
 - High risk groups or high exposure groups (Residential care staff, International Airport staff)
 - As directed by medical practitioners
 - Any person 6 or above arriving on Hong Kong from 1 April 2021 (also placed in mandatory quarantine)
- Testing routes for persons subject to compulsory testing:
 - To visit any of the mobile specimen collection stations (see the list and target groups (if applicable) at www.communitytest.gov.hk/en/station/) for testing;
 - To attend any of the community testing centres (see the list at www.communitytest.gov.hk/en/);
 - To obtain a deep throat saliva specimen collection pack from any of the 121 post offices, vending machines set up at 20 MTR stations or 47 designated general outpatient clinics (GOPCs) of the Hospital Authority and return the specimen to one of the designated specimen collection points (see the distribution points and times, and the specimen collection points and times, at www.coronavirus.gov.hk/eng/early-testing.html);
 - To undergo testing at any of the GOPCs of the Hospital Authority as instructed by a medical professional of the Hospital Authority;
 - To self-arrange testing provided by private laboratories which are recognised by the Department of Health (DH) and can issue SMS notifications in respect of test results (see the list at www.coronavirus.gov.hk/pdf/List_of_recognised_laboratories_RTPCR.pdf); or

- To use a specimen bottle distributed to the relevant specified premises by the Centre for Health Protection (if applicable), and return the specimen bottle with the sample collected as per relevant guidelines.
- List of recognised pathology laboratories recognised by the Government of Hong Kong SAR: www.coronavirus.gov.hk/pdf/List_of_recognised_laboratories_RTPCR.pdf

VACCINATIONS

- Percentage of population vaccinated: ~8% ([Bloomberg](#) Vaccine Tracker)

Vaccine used: Pfizer/Biotech and Sinovac

Pfizer/BioNTech

- Efficacy well established in published phase 3 clinical trials [3]:
 - Published clinical trial data have proven that the vaccine is efficacious in significantly reducing symptomatic disease, severe disease (requiring hospitalisation) and death from COVID-19

Vaccine Real World Effectiveness: Pfizer/Biotech, AstraZeneca and Moderna

- Real world data are emerging from Israel (**Pfizer**) and from the UK (Using: **Pfizer** [4], **Astra Zeneca**, **Moderna**), confirms that the vaccines are very effective at preventing symptomatic and serious COVID-19, and hospitalisations.
 - Results from Israel indicate that vaccine effectiveness is consistent with clinical trials
 - In one study [5], vaccine effectiveness 7+ days after the second dose was 92% for positive PCR test, 94% for symptomatic COVID-19, 87% for hospitalisation, and 92% for severe disease.
 - Infections were still observed following vaccination but they had significantly reduced viral loads compared to matched unvaccinated controls, indicating that viral shedding and contagiousness may be reduced as well as severity of disease.
 - In a study of healthcare UK workers receiving **Pfizer** vaccine [4]: A single dose of BNT162b2 vaccine demonstrated vaccine effectiveness of 72% (95% CI 58-86) 21 days after first dose and 86% (95% CI 76-97) seven days after two doses in the antibody negative cohort. The authors concluded that their study: demonstrates that the BNT162b2 vaccine effectively prevents both symptomatic and asymptomatic infection in working age adults; this cohort was vaccinated when the dominant variant in circulation was B.1.1.7 and demonstrates effectiveness against this variant.
 - Data from Scotland indicates that rollout of the **Pfizer** BioNTech and **Oxford AstraZeneca** vaccines has led to a substantial fall in COVID-19 cases requiring hospital admission 28-34 days post-vaccination, by **85%** and **94%** respectively [6].
 - BMJ News (23 April 2021) reports [7], based on two pre-prints [8, 9]:
 - Presents preliminary results from a large UK surveillance study included data from 1.7 million self-reported swab test results taken from 370 000 UK adults between 1 December 2020 and 3 April 2021.
 - Infections of SARS-CoV-2 fell by 65% after a first dose of the Oxford-AstraZeneca or Pfizer-BioNTech vaccines.
 - Reductions increased to 70% after a second dose of the Pfizer vaccine. Not enough people had yet received two doses of the AstraZeneca vaccine to assess this.
 - The results show that two doses of the Pfizer vaccine offered levels of protection against COVID-19 that were similar to levels from previous SARS-CoV-2 infection.
 - The benefits seem from the vaccines were similar in people over 75 and under 75 and in those with or without long term health conditions

- The researchers also found no evidence that the AstraZeneca and Pfizer vaccines differed in their ability to reduce infection rates ($P > 0.9$), despite them leading to slightly different immune responses
 - The study found that 21 days after a single dose of either the AstraZeneca or the Pfizer vaccine the rates of **all new SARS-CoV-2 infections had fallen by 65%** (95% confidence interval 60% to 70%), **symptomatic infections by 72%** (69% to 74%), and **asymptomatic infections by 57%** (64% to 47%) ($P < 0.001$ for all).
 - Among people who had a **second dose of the Pfizer vaccine**, infections were **70%** (62% to 77%; $P < 0.001$) lower and **symptomatic infections 90%** (82% to 94%; $P < 0.001$) lower, similar to the effects in people who had previously been infected naturally (70% and 87% reductions, respectively).
 - The study found that both vaccines seemed to be highly effective against infections compatible with the Kent **variant (B.1.1.7)**.
- JAMA commentary [10]:
 - “there is rapidly increasing evidence that fully vaccinated people likely pose little risk of transmission to unvaccinated people with the **Pfizer/BioNTech** or **Moderna** vaccines between 86% and 92% effective against symptomatic and asymptomatic SARS-CoV-2 infection”.

COVID-19 CONTROLS

- The Hong Kong Government publishes its effective reproduction number on its [dashboard](#), together with very precise information about cases and locations.
- School of Public Health, The University of Hong Kong
 - **Effective Reproduction number estimate** ([on 25 April 2021](#)): **0.92**

International Arrivals

Hong Kong Government [Restrictions and Compulsory Quarantine on Entering Hong Kong](#) (25 April 2021)

- All persons who have stayed in Brazil, Ireland, South Africa and the United Kingdom for more than two hours on the day of boarding or during the 21 days before that day are not be allowed to board for Hong Kong.
 - (See also Note 1 below)
- Until further notice:
 - All non-Hong Kong residents coming from overseas countries and regions by plane will be denied entry to Hong Kong; and
 - Non-Hong Kong residents coming from the Mainland, Macao and Taiwan will be denied entry to Hong Kong if they have been to any overseas countries and regions in the past 14 days.
 - (See also Note 2 below)
- Health quarantine arrangements on inbound travellers arriving from the Mainland, Macao or Taiwan under the "Compulsory Quarantine of Certain Persons Arriving at Hong Kong Regulation"(Cap. 599C):
 - Compulsory quarantine at designated places (home, hotel or other accommodation) for 14 days
 - For persons who have stayed in places outside China on the day of arrival at Hong Kong or during the 21 days before that day have to undergo compulsory quarantine for 21 / 14 days in designated quarantine hotels.
 - For details on Return2hk Scheme for Hong Kong residents, please refer to this [webpage](#).
 - For arrangement on exempted persons under Cap.599C, please refer to this [webpage](#).
- Health quarantine arrangements on inbound travellers arriving from overseas under the "Compulsory Quarantine of Certain Persons Arriving at Hong Kong from Foreign Places Regulation"(Cap. 599E) and "Prevention and Control of Disease (Regulation of Cross-boundary Conveyances and Travellers) Regulation" (Cap. 599H):

- Compulsory quarantine for 21 / 14 days in designated quarantine hotels. For details, please refer to this [webpage](#).
- Details on the grouping of specified places and their respective boarding and compulsory quarantine requirements can be found at [this webpage](#).
- For arrangement on exempted persons under Cap.599E, please refer to this [webpage](#).
- Note 1: In view of the decline of confirmed cases in the UK, where the majority of the affected Hong Kong residents are situated, as well as the satisfactory vaccination progress there, there is room to gradually lift the relevant boarding restriction. The Government will specify that passengers of designated flights will not be subject to the restriction on boarding for Hong Kong, and arrange for these returnees to undergo the 21-day compulsory quarantine in a specified quarantine facility. The designated flights will be the CX2252 flights departing London in the UK on April 21 and April 28, 2021 at 9:10 am. For details, please refer to the [relevant FAQs](#).
- Note 2: The compulsory quarantine period for persons arriving at Hong Kong on or after April 9, 2021, and who have only stayed in **Australia, New Zealand** or **Singapore** on the day of arrival in Hong Kong or during the 21 days before that day, will be **shortened to 14 days**, while they will be required to **self-monitor for the subsequent seven days** and be subject **compulsory testing on the 19th day** after their arrival at Hong Kong. The relevant persons will still be required to undergo compulsory quarantine in designated quarantine hotels. This arrangement will be applicable to both Hong Kong residents and non-Hong Kong residents.

Sources: [Cathay Pacific](#), [Hong Kong government](#)

- Travellers to Hong Kong should note that even they have conducted a COVID-19 nucleic acid test before returning to Hong Kong, for prudence sake, they will still be mandated to undergo testing for COVID-19 at the DH's Temporary Specimen Collection Centre and wait for their test results at a designated location pursuant to the [Prevention and Control of Disease Ordinance \(Cap. 599\)](#).
- At the testing area, travellers are assigned a booth where they have a combined nasal and throat swab taken by medical professionals.
- The traveller then proceeds to the registration area where health officials will:
 - Collect the COVID-19 test.
 - Check if they are coming from or have transited through Bangladesh, Belgium, Canada, Ecuador, Ethiopia, France, Germany, India, Indonesia, Kazakhstan, Nepal, Pakistan, the Philippines, Romania, Russia, Switzerland, Turkey, Ukraine, the United Arab Emirates or the United States.
 - Confirm they have a hotel reservation at one of the [designated hotels](#) starting on the day of their arrival. (If coming from the Chinese mainland, Macao or Taiwan, can quarantine at home.)
 - Present an official 21-day quarantine order.
 - Last, government officials will confirm their mobile phone number, check that the [StayHomeSafe app](#) is installed, and **attach their wristband**. This is connected to the app and should be activated when the hotel is reached.

Community Controls

- [Leave home safe app](#) – locations including taxis & times, also notification of positive cases
- [Mask wearing in specified public places and public transport](#). Exemptions for outdoor open park areas, outdoor exercise
- [Restrictions on gathering](#) of more than 4 people, with exemptions for weddings religious gatherings – tightly controlled
- [Social distancing](#) using a “suppress and lift” approach [similar to those employed in Australia]

VIETNAM

- Population: 97.3m
- Vietnam remains a **world leader** in effective COVID-19 control, with:
 - very low case numbers and deaths
 - very few outbreaks, which were effectively contained
- Vietnam is noteworthy for its:
 - extensive 3-tier contact tracing system
 - quarantining of secondary close contacts of cases in supervised facilities
 - widespread testing
 - tightly closed international borders with 14-21 day quarantine and testing in supervised facilities
- Vietnam has advanced public health and disease surveillance infrastructure and pandemic preparedness
- Mask wearing and COVID-19 app use are widespread
- Official data source: Vietnamese Ministry of Health <https://ncov.moh.gov.vn/>

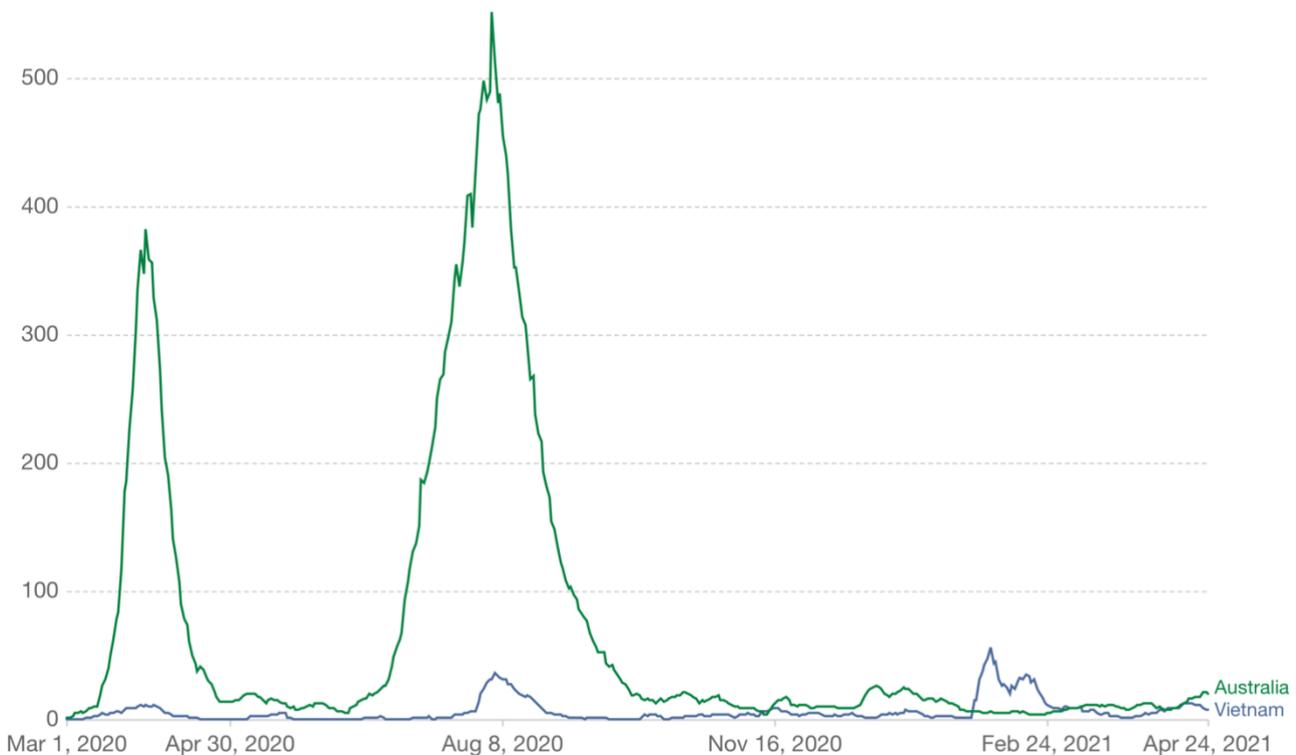
CASES and OUTBREAKS

- Vietnam has very few daily cases and no community transmission since January.
- A small outbreak occurred in January 2021 and was successfully contained.
- Vietnam has one of the lowest rates of cases and deaths in the world.

Daily new confirmed COVID-19 cases



Shown is the rolling 7-day average. The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.



Source: Johns Hopkins University CSSE COVID-19 Data

CC BY

TESTING

- Vietnam is noteworthy as has had the highest rate of testing per positive case in the world

Our World in Data: Coronavirus Testing (Vietnam)

- The Vietnam General Department of Preventive Medicine provided daily COVID-19 bulletins that periodically reported the cumulative number of samples tested to date. The bulletins started on 13 February 2020 and ceased on 15 October 2020.
- The Ministry of Health now sporadically shares testing data on their website.
- It is noted that there are some discrepancies in numbers:”
 - Some bulletins report the cumulative number of people tested alongside the cumulative number of samples tested. Oddly, the cumulative number of people tested is larger than the cumulative number of samples tested. For example, [the 18 September 2020 bulletin](#) reports 1,183,341 samples tested to date using PCR, while at the same time reporting 1,358,575 people tested to date. Further, a 15 March 2021 [press statement](#) reports 2,482,302 RT-PCR tests as well as 3,248,873 people tested. The article also states that “the number of rooms capable of testing for ... SARS-CoV-2 using RT-PCR technique is 157 rooms, the maximum testing capacity is about 62,593 samples / day”, while “the number of rooms that have been allowed for confirmed testing is 101 rooms with a maximum testing capacity of about 50,663 samples per day.” In another [article](#), it is stated that “in case of suspected positive, positive must immediately transfer the sample to the laboratory that has been allowed to test confirm SARS-CoV-2”. As such, one explanation for this discrepancy is that samples are tested multiple times.

VACCINATIONS

- Percentage of population vaccinated: ~0.1% ([Bloomberg](#) Vaccine Tracker)

Vaccine used: Oxford/AstraZeneca

- Oxford/AstraZeneca vaccine efficacy demonstrated in phase 3 clinical trials published in The Lancet [11, 12].

COVID-19 CONTROLS

Denzan Shira & Associates [Latest updates Vietnam Business Operations and the Coronavirus](#) (20 April 2021)

As of April 14, 2021, Vietnam’s Ministry of Health confirmed a total of 2,717 cases of COVID-19. However, 2,445 of the affected patients have recovered and been discharged from hospitals. Vietnam has also recorded 35 deaths due to the pandemic. The **latest cases were all imported and quarantined on arrival**.

April 1

- Flag carrier, Vietnam Airlines is expected to resume some international flights connecting Hanoi and Ho Chi Minh City with South Korea, Japan, and Australia from April 3. Low-cost carrier Vietjet also resumed some international routes to Thailand, South Korea, Japan, and Taiwan. However, **only repatriated approved Vietnamese citizens and approved foreign experts** will be allowed to enter Vietnam.

March 25

- Vietnam plans to diversify its sources for COVID-19 vaccines among reported shortages in procuring the vaccine. The country was supposed to receive 1.1 million doses of the Oxford-AstraZeneca vaccine but is expected to receive 811,200 in mid-April due to production issues.

March 24

- Vietnam has **approved the use of Russia’s Sputnik-V COVID-19 vaccine for emergency use**.

March 23

- Authorities in Hanoi have allowed the reopening of bars, nightclubs, and karaoke parlors from March 23 effectively reopening all businesses and services.

WHO [World Health Organization Viet Nam COVID-19 Situation Report #37](#) (11 April 2021)

- The latest community outbreaks have been brought under control with **no locally acquired cases reported in the past 17 days** (the last cases were reported on 25 Mar from Hai Duong).
- **Hai Duong returned to a new normal from 1 April 2021**; however non-essential services (i.e. **bars, discotheque, massage, gym services, etc.**) **remain suspended at least until 1st May**. Field hospital No. 3 (last one) was disbanded on 7 Apr. During the past week, 62 new cases were reported, all were imported.
- Viet Nam launched COVID-19 vaccination campaign on 8 Mar 2021 focusing on the first priority groups: healthcare workers at healthcare facilities, front-line workers working on outbreak prevention and response in 19 provinces.
- Issue of **Immunity passport**: 7 Apr –
 - the Viet Nam MoH suggested that the country may first accept three groups of people with proof of vaccination against SARS-CoV-2 virus.
 - These include 1) Vietnamese nationals left stranded overseas; 2) Foreign citizens/ experts/ highly skilled workers entering Viet Nam on business; and 3) Foreign travellers.
 - The protocol will only be applicable to certain vaccine types and certificates-issuing countries. The matter is being discussed and further studied and MOH will release a more detailed plan alongside with a guidance on quarantine and health monitoring for ‘vaccine passport’ holders in due course.
 - The Civil Aviation Administration of Viet Nam (CAAV) **plans to implement vaccine passport programme**. Those who hold vaccine passports **confirming they have received COVID-19 vaccinations and tested negative for the coronavirus SARS-CoV-2 using the Real-time PCR technique** will be allowed to enter Viet Nam with a minimum centralized quarantine period required.
- The **Viet Nam’s National Regulatory Authority (NRA)** has been **certified by WHO as a Maturity level 3** for vaccines. The ranking was based on the WHO Global Benchmarking Tool (GBT), which uses different functions and criteria to ensure the quality, safety and effectiveness of vaccines on the market.
- **Hai Duong province remains in Stage 2** – Localized community transmission: no locally acquired cases were reported in past 17 days. There were however previously reported cases with unknown epi links. –
- **Eighteen (18) provinces are in Stage 1** – Imported transmission: of those, 5 provinces are from the latest community outbreaks including Ha Noi, Hai Phong, Quang Ninh, Binh Duong and HCMC as even though there were no locally acquired cases reported during past at least one month, there were imported cases reported from international flights during past weeks. Thirteen (13) other provinces also received imported cases from international/ charter flights including Khanh Hoa, Long An, Dong Nai, Dong Thap, Kien Giang, Tien Giang, Ninh Thuan, Tay Ninh, Bac Ninh, Bac Giang, Ben Tre, Da Nang and Ca Mau during past weeks. (Ba Ria – Vung Tau moved to Stage 0 last week after 4 weeks without imported cases).
- **The remaining 44 provinces are in Stage 0** – No transmission: **no additional cases reported for at least 28 days and no clear signals of community transmission**.
- Other ongoing response includes:
 - Right after receiving a notification from Japan on 25 Jan of the case from Viet Nam –detected upon arrival in Osaka – with the same variant found in the UK, the Government has been taking vigorous actions. All public health measures being implemented this time are one-level higher (i.e. taking no-risk approach).
- Rapid case investigation with fast, thorough contact tracing (up to F3 & F4 of two index cases).

Our World in Data Emerging COVID-19 success story: Vietnam’s commitment to containment

(05 March 2021)

- Published on 05 March 2021. Reporting until 31 Dec 2020.
- As of December 31, 2020, Vietnam had reported **1,465 laboratory confirmed cases** of COVID-19 and **35 deaths**. This success has been attributed to several key factors, including a **well-developed public health system**, a decisive central government, and a proactive containment strategy based on **comprehensive testing, tracing, and quarantining**.

Contain:

- As a result of its detection process, **hundreds of thousands of people**, including **international travelers and those who had close contact with people who tested positive**, were placed in **quarantine centers run by the government**, greatly reducing both household and community transmission.
- **Hot spots** with demonstrated community transmission, including Da Nang during its outbreak in July and August 2020, **were locked down immediately**, and the government communicated frequently with citizens to keep them informed and involved in the public health response.
- One of the reasons Vietnam was able to act so quickly and keep the case count so low is that the country experienced a severe acute respiratory syndrome (SARS) epidemic in 2003 and human cases of avian influenza between 2004 and 2010.
- Vietnam has a **history of successfully managing pandemics**: it was the second country after China to face SARS and, after 63 cases and five deaths, it was **the first country declared SARS-free** by the World Health Organization (WHO).⁵
- In the wake of the SARS epidemic, Vietnam increased **investments in its public health infrastructure**, developing a national public health emergency operations center and a **national public health surveillance system**.
- Vietnam has long maintained robust systems to collect and aggregate public data, and
 - in 2009 it shifted to a nearly real-time, web-based system.
 - Since 2016, hospitals are required to report notifiable diseases within 24 hours to a central database, ensuring that the Ministry of Health can track epidemiological developments across the country.
 - In collaboration with the US Centers for Disease Control and Prevention (CDC), Vietnam implemented an innovative “event-based” surveillance program in 2018.
- On July 25, Vietnam marked 99 days without any community transmission, until an **outbreak occurred in the city of Da Nang**, a city with a population of more than 1 million that receives about 8 million tourists annually. Da Nang was especially crowded in July because people were eager to travel after a tense spring, and the government promoted domestic tourism as a way to compensate for the economic losses from international tourism. What started as nosocomial transmission quickly spilled over into the community, and during the last week of July new incident cases increased by about 30 percent, the fastest growth rate since the beginning of the epidemic.¹⁴
- To bring the outbreak under control, Vietnam turned to the same strategies that had been successful in ending earlier outbreaks: **targeted lockdowns, travel bans, business closures, mass quarantines, and widespread testing**. As of September 10, 61,968 people were being monitored, 998 were quarantined in health care facilities, 15,619 were quarantined in centralized facilities, and 45,351 were self-quarantined at home.

Testing

- In late January 2020, the Ministry of Science and Technology met with virologists to encourage the development of diagnostic tests.
- Starting in early February, publicly funded institutions in Vietnam developed at least four locally made COVID-19 tests that were validated by the Ministry of Defense and the National Institute of Hygiene and Epidemiology.
- Subsequently, **private companies including Viet A and Thai Duong** offered capacity to manufacture the test kits.

- Most confirmation laboratories where these tests are analyzed use **in-house versions of WHO protocol**, allowing tests to be widely administered without long wait times.

Development timelines of diagnostic test kits:

- February 7, 2020: Test kit developed by **Hanoi University of Science and Technology**. Testing method: **RT-LAMP** (reverse transcription loop-mediated isothermal amplification). Cost: US\$15. Testing time: 70 minutes.
- March 3, 2020: Test kit developed by **Vietnam Academy of Science and Technology**. Testing method: real-time RT-PCR (reverse transcription polymerase chain reaction). Cost: less than US\$21. Testing time: **80 minutes from receiving a sample**.
- March 5, 2020: Test kits developed by **Military Medical University**, commercialized by **Viet A**. Cost: US\$19–\$25. Testing method: **RT-PCR** and real-time RT-PCR. **Testing time: over one hour** but has testing capacity four times the number of samples as the CDC kit. **This test, which was responsible for up to 80% of testing in Vietnam** during the global stock-out, was **certified by the European Union** and other authorities, and Viet A has received orders from 20 countries and territories.¹⁸
- April 28, 2020: Production and launch of the RT-LAMP kit and RT-PCR kit¹⁹ commercialized by Thai Duong company.

Vox [Vietnam defied the experts and sealed its border to keep Covid-19 out. It worked.](#) (23 April 2021)

- As the pandemic took hold last year, travel restrictions quickly proliferated.
- But few countries have gone as far as Vietnam, a one-party communist state with a GDP per capita of [\\$2,700](#). The Haiphong checkpoints timed for Tet were the equivalent of closing off Los Angeles to Americans ahead of Thanksgiving — within a country that was already nearly hermetically sealed. Last March, the government **canceled all inbound commercial flights for months on end, making it almost impossible to fly in, even for Vietnamese residents**.
- Today, flights are limited to select groups, like businesspeople or experts, from a few low-risk countries. Everybody who enters needs [special government permission](#) and must complete **up to 21 days of state-monitored quarantine with PCR tests**. (Positive cases are immediately isolated in hospitals, regardless of disease severity.)
- This strict approach to travel, global health experts say, is directly connected to Vietnam’s seeming defeat of Covid-19. Thirty-five people have reportedly died in total, and a little more than 2,700 have been infected with the virus during **three small waves that have all been quickly quashed**. Even on the worst days of the pandemic, the country of [97 million](#) has never recorded more than 110 new cases
- Last year, **Vietnam’s economy even grew 2.9 percent**, defying economists’ predictions and [beating China](#) to become the [top performer in Asia](#).
- In this series, the [Pandemic Playbook](#), Vox is exploring the Covid-19 strategies used by six nations. Vietnam’s travel restrictions — supported by other measures, including **enforced quarantining** and **contact tracing** — help explain the country’s apparent mastery over the virus. And while the political leverage of a single-party government might have helped Vietnam respond faster and more unilaterally than others, “I don’t think this is simply about totalitarianism versus Western democracies,” said Kelley Lee, a Simon Fraser University global health professor who has been studying the [impact of travel restrictions](#).
- That’s why Vietnam is now **among a few countries upending the global health community’s “almost religious belief that travel restrictions are bad,”** said [Lawrence Gostin](#), a Georgetown University global health law professor who helped write the international law governing how countries should deal with outbreaks.
- “I have now realized,” Gostin added, “that our belief about travel restrictions was just that — a belief. It was evidence-free.”
- **Limited air travel has now resumed with other low-risk neighbors** — such as [South Korea](#), [Taiwan](#), and [Japan](#) — but only for Vietnamese people and foreign businesspeople and experts. And while Vietnamese nationals can cross land borders from [Laos](#) or [Cambodia](#), everybody who does get into the country — by air, land, or sea — has to submit to PCR tests and wait out a mandatory **14- to 21-day** quarantine period under state supervision in a **military-run facility or designated hotel**.

Pollack et al. Emerging COVID-19 success story: Vietnam’s commitment to containment. Our World in Data: Exemplars in Global Health (30 June 2020) (9)

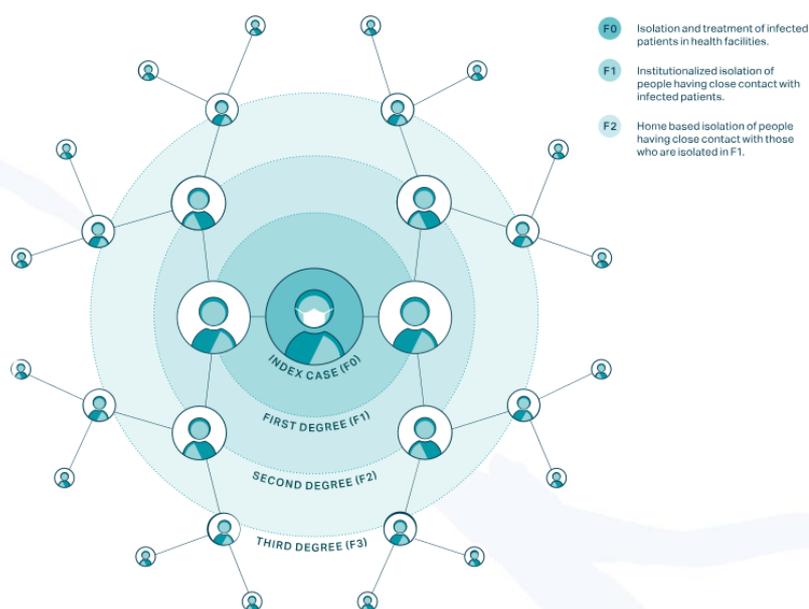
From [International Exemplars COVID-19 Evidence Update \(July 2020\)](#)

Testing:

- **Vietnam has performed more tests per confirmed case than any other country in the world, even though testing per capita remains relatively low.**
- **Very rapid testing time: 70-80 minutes.**

Contact Tracing.

- The process in Vietnam worked as follows:
 - Once a patient with COVID-19 is identified (F0), local public health officials, with support from health professionals, security officers, the military, and other civil servants, work with the patient to identify who they might have been in contact with and infected in the past 14 days.
 - All close contacts (F1), defined as people who have been within approximately 6 feet (2 meters) of or have prolonged contact of 30 or more minutes with a confirmed COVID-19 case, are identified by this process and tested for the virus.
 - **If F1s test positive for the virus, they are placed in isolation at a hospital – all COVID-19 patients are hospitalized at no cost in Vietnam, regardless of symptoms.**
 - If F1s do not test positive, they are **quarantined at a government-run quarantine centre** for 14 days.
 - **Close contacts of the previously identified close contacts (F2s) are required to self-isolate at home for 14 days.**
 - One noteworthy aspect of Vietnam’s approach is that it identified and quarantined suspected cases based on their **epidemiological risk of infection** (if they had contact with a confirmed case or travelled to a COVID-19 affected country), **not whether they exhibited symptoms**. The high proportion of cases that never developed symptoms (43 percent) suggests that this approach may have been a key contributor to limiting community transmission at an early stage.



Apps:

- Vietnam implemented NCOVI, an app that helps citizens put in place a “**neighborhood watch system**” that complements official contact tracing efforts and may have helped to slow transmission of the disease, although the app has **drawn criticism from some privacy advocates**.
- NCOVI includes a map of detected cases and clusters of infections and allows users to declare their own health status, report suspected cases, and **watch real-time movement of people placed under quarantine**.
- Bluezone, a Bluetooth-enabled mobile app that notifies users if they have been within approximately 6 feet (2 meters) of a confirmed case within 14 days. When users are notified of exposure, they are encouraged to contact public health officials immediately

Lessons from Vietnam:

- Investment in a public health infrastructure (e.g., emergency operations centres and surveillance systems) enables countries to have a head start in managing public health crises effectively. Vietnam **learned lessons from SARS and avian influenza**, and other countries can learn those same lessons from COVID-19.
- **Early action**, ranging from **border closures** to **testing** to **lockdowns**, can curb community spread before it gets out of control.
- **Thorough contact tracing** can help facilitate a targeted containment strategy.
- **Quarantines based on possible exposure**, rather than symptoms only, can reduce asymptomatic and pre-symptomatic transmission.
- Clear, consistent, creative public health messaging - Vietnamese government communicated in clear, strong terms about the dangers of the illness
- A strong whole-of-society approach engages multi-sectoral stakeholders in decision-making process and activate cohesive participation of appropriate measures.
- There is reportedly high trust in government action

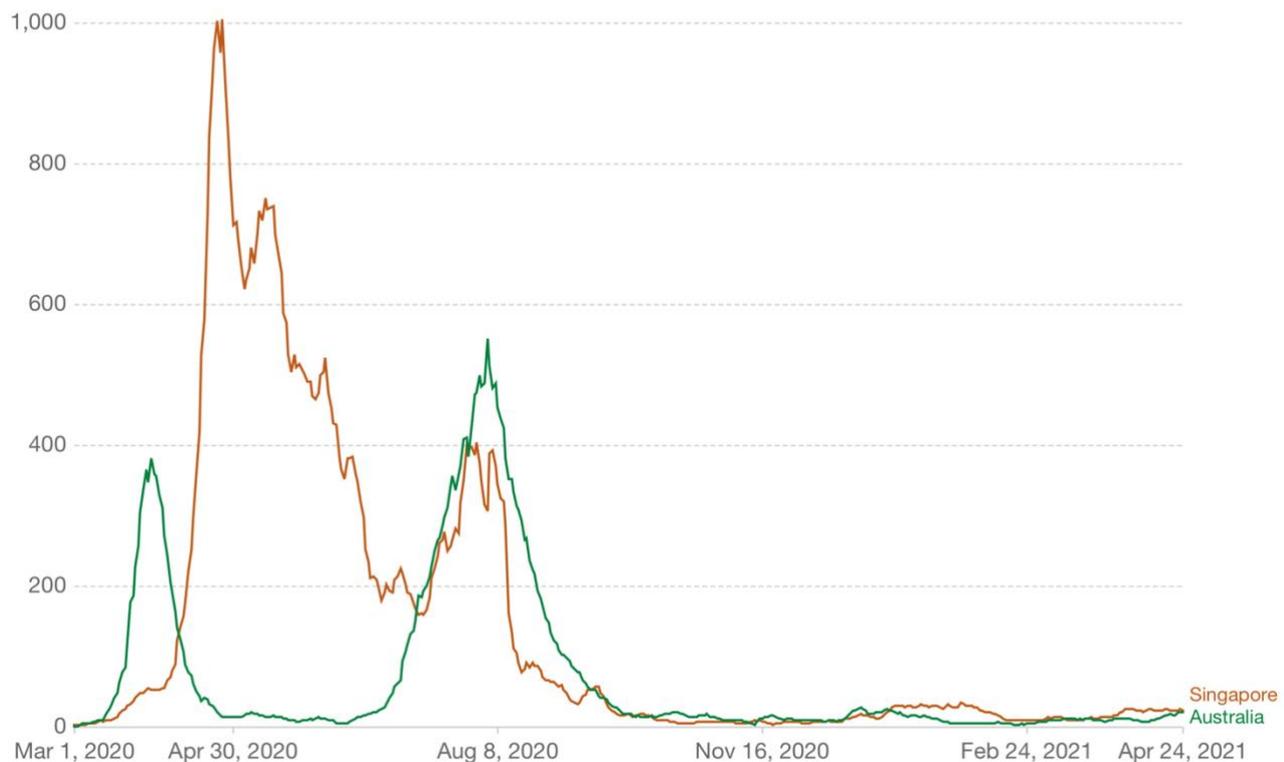
SINGAPORE

- Population: 5.8m
- Singapore is a **world leader** in effective COVID-19 control, with:
 - low case numbers and occasional community cases, while maintaining effective control
 - effective outbreak containment – the vast majority of which occurred in migrant worker dormitories, where routine testing and other controls are now in place.
- Singapore has:
 - Supervised quarantine and home quarantine coupled with sophisticated electronic surveillance
 - Mandatory mask wearing in all settings outside of the home
 - Widespread COVID-19 app usage and wearable contact tracing token
 - Closed international borders with 14-day quarantine for arrivals from selected countries
 - Heavily restricted movement on migrant workers residing in dormitories
 - Higher rates of vaccine roll-out than other countries in Asia and Australia
- Official data source: Singapore Ministry of Health <https://www.moh.gov.sg/covid-19>

Daily new confirmed COVID-19 cases



Shown is the rolling 7-day average. The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.



Source: Johns Hopkins University CSSE COVID-19 Data

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CASES and OUTBREAKS

- **Community transmission (25 April):** 0 new locally transmitted case, 40 imported cases, 314 active cases (all in community facilities or hospital).
- Very comprehensive data on cases are published by the Ministry of Health in Daily Situation Reports. These include:

- Cases numbers, broken down by – imported, community, migrant worker dormitory
- Number of cases isolated before detection and detected through surveillance – by case location type
- Average number of days from symptom onset to isolation
- Symptoms status and serology of imported cases
- Number under stay-at-home orders
- Numbers in supervised quarantine

[Chanel News Asia](https://www.chanelnewsasia.com) using Source: Singapore Ministry of Health <https://www.moh.gov.sg/covid-19>

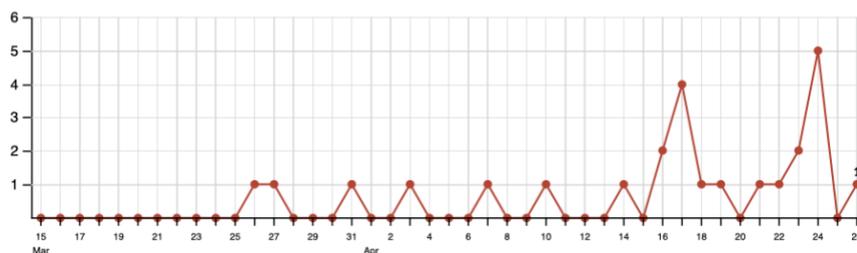
COVID-19 CASES IN SINGAPORE

The outbreak at a glance:

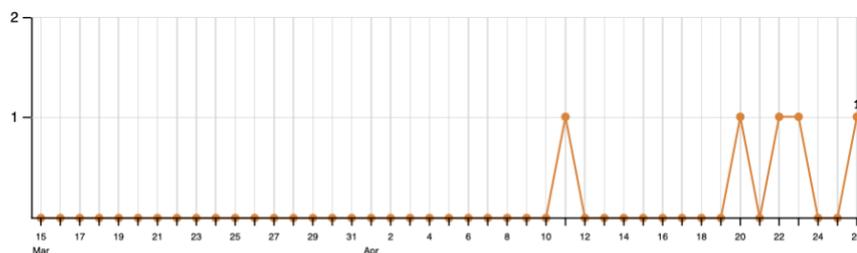
New cases announced on April 26 45	Confirmed cases so far 61,051
Discharged 60,662	Still in hospital 94
In isolation 220	Deaths 30

Last updated: Apr 26, 4.07pm

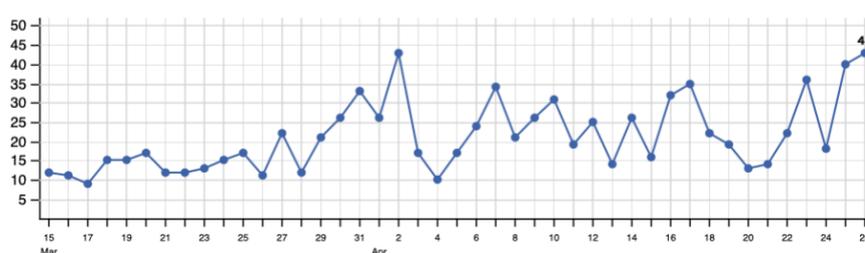
COMMUNITY CASES



DORM RESIDENTS



IMPORTED CASES



TESTING

- At risk workers [migrant dormitory workers] are tested bi-weekly
- The total number of swabs is provided on the Ministry of Health Website

Details of testing providers and laboratories are published by the Ministry of Health:

- <https://www.moh.gov.sg/licensing-and-regulation/regulations-guidelines-and-circulars/details/list-of-covid-19-swab-providers>
- Currently, tests for COVID-19 are administered in PHMCA-licensed HCIs and at approved offsite premises (i.e. not located within the premises of PHMCA-licensed HCIs).
- The list of approved Polymerase Chain Reaction (PCR) test providers can be downloaded [here](#) [.pdf, 1.01MB] | Includes lists of collaborating pathology labs and their testing regimes
- The list of approved Antigen Rapid Test (ART) providers can be downloaded [here](#) [.pdf 672KB]
- The list of clinics approved to conduct PCR Pre-Departure Tests can be downloaded [here](#) [.pdf, 717KB].

VACCINATIONS

Source: <https://www.moh.gov.sg/covid-19/vaccination> (as at 18 April 2021)

- First dose: 1,364,124
- Completed vaccine regimen: 849,764
- Total doses administered: 2,213,888
- Percentage of population vaccinated: ~19.4% ([Bloomberg](#) Vaccine Tracker)

Vaccine used: Moderna, Pfizer/BioNTech

- The Pfizer-BioNTech and Moderna [13] COVID-19 vaccines were shown to be about 95% effective in preventing symptomatic disease.
- Singapore program of vaccination prioritises:
 - a. Sustain healthcare and COVID-19 response systems
 - b. Reduce morbidity and mortality among those at greatest risk
 - c. Protect those at increased risk due to their living or working conditions (e.g. settings with the potential for rapid transmission and large outbreaks)
 - d. Maintain the function of society as a whole with a view to maximise benefits and minimise harms.
- Advice regarding potential prioritisation of vaccination for international students:
 - Singaporeans and PRs [permanent residents] with compelling reasons such as travel for education, employment or compassionate grounds, may now submit appeals for early vaccination. The criteria and application form can be found at <https://www.vaccine.gov.sg/appeal>.

<p>(2) To take up or complete a formal education/vocational programme overseas</p>	<p>Please submit your application <u>only</u> if you are travelling to take up or completing a formal education/vocational programme.</p> <ul style="list-style-type: none"> • Physical presence in the foreign institution is required to start/complete course • Physical presence in the foreign institution is required for course examination. • Physical presence is required to gain entry to the institution
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To provide sufficient lead time for processing and scheduling, you should submit your request at least **8 weeks** before departure from Singapore.

INCURSION CONTROLS

International Borders

- Singapore has a risk-based approach to international arrivals, including Air Travel Passes [testing and quarantine] for low-risk countries including Australia and Reciprocal Green Lanes [“travel bubbles”] with other countries. **All Reciprocal Green Lanes are currently closed.**
- Singapore uses a combination of supervised quarantine and stay home notices (SHN) with electronic surveillance

Ministry of Health FAQ

- Short-term visitors may enter Singapore:
 - (a) via the **Air Travel Pass**, if they are travelling from Australia, Brunei Darussalam, Mainland China, New Zealand and Taiwan;
 - (b) under the Green / Fast Lane arrangements [**all currently suspended**]; or
 - (c) with special prior approval.
 - **All other short-term visitors are not allowed entry into Singapore at the moment**
- “We continually update our border measures, taking into account latest developments in other countries/regions. It is a risk-managed approach. We have also put in place an enhanced SHN surveillance regime (e.g. donning of an electronic monitoring device throughout SHN). Compliance with SHN conditions will continue to be monitored strictly, and strict enforcement action will be taken against those who breach the requirements of the SHN.”

Ministry of Health <https://www.moh.gov.sg/covid-19/accreditation-bodies-for-covid-19-testing>

- We do not accept (i) self-administered PCR tests, and (ii) antigen rapid tests as pre-departure testing options for entry into Singapore

Immigration and Checkpoints Authority <https://safetravel.ica.gov.sg/health>

Entering Singapore:

- Singapore is reopening its borders in a controlled and safe manner to maintain its status as an international hub.
- Travellers approved for entry should refer to the specific requirements and process for the respective [Safe Travel lanes](#) they are entering Singapore on. These health control requirements would also be stated as conditions of entry approval where relevant.
- To minimise the public health risks associated with the border reopening, travellers arriving in Singapore may be required to observe the relevant health control measures, below:
- **COVID-19 Tests**
 - [COVID-19 Polymerase Chain Reaction Test \(“PCR Test”\)](#)
 - [Serology Test](#)
 - [Pre-departure test](#)
- **Self-Isolation and Segregation Measures**
 - [Stay-Home Notice \(SHN\)](#)
 - [SHN in Dedicated Facilities \(SDF\)](#)
 - [SHN Electronic Monitoring Devices](#)

Additional Safe Travel Lanes for Short Term Visits to Singapore

- Singapore has arranged additional Safe Travel Lanes with the following countries/regions to facilitate shorter term entry into Singapore. <https://safetravel.ica.gov.sg/>
Note **Green lanes with Japan, Indonesia, Germany, Malaysia, South Korea are currently suspended**

Country/Region of Departure	Short Term Visitors		Singapore or Malaysia Work Pass Holders
	Any Purpose of Travel (Including Business & Official Travel)	Business & Official Travel	Periodic Commuting Between Malaysia and Singapore
All countries/regions		Connect@SG	
Australia	Air Travel Pass	Air Travel Pass	
Brunei Darussalam	Air Travel Pass	Reciprocal Green Lane Air Travel Pass	
Germany		Reciprocal Green Lane	
Hong Kong	Air Travel Bubble launch deferred. Click here for more details.		
Indonesia		Reciprocal Green Lane	
Japan		Reciprocal Green Lane	
Mainland China	Air Travel Pass	Reciprocal Green Lane ² Air Travel Pass	
Malaysia		Reciprocal Green Lane	Periodic Commuting Arrangement
New Zealand	Air Travel Pass	Air Travel Pass	
Taiwan	Air Travel Pass	Air Travel Pass	
Republic of Korea		Reciprocal Green Lane	
Vietnam	Air Travel Pass suspended. Click here for more details.	Air Travel Pass suspended. Click here for more details.	

²Applies only to travellers from Chongqing, Guangdong, Jiangsu, Shanghai, Tianjin and Zhejiang

Travel pass includes requirement to:

- Book an accommodation in Singapore to serve out their isolation period for 1–2 days while waiting for their on-arrival COVID-19 Polymerase Chain Reaction (PCR) test result (the accommodation must be **non-residential and an individual room with an attached toilet**);
- Note: Visitors may refer to the Singapore Hotel Association (SHA) [website](#) for a list of hotels currently accepting visitors travelling to Singapore under the Air Travel Pass. The list is non-exhaustive and visitors may book other available accommodations as long as these are non-residential and individual rooms with an attached toilet.
- Downloaded **TraceTogether app** prior to check-in at country of departure

- Check that their mobile device is compatible¹ with the TraceTogether app, [download](#) it on their mobile device, and register their mobile number and profile on the app. Visitors must register their profile on the app with the **same identification number, nationality and date of birth** as those shown in the passport that they are using to enter Singapore. A TraceTogether App setup guide for travellers can be found [here](#).

Mask wearing, safe distancing and contact tracing

Channel News Asia: [COVID-19: Compulsory to wear mask when leaving the house, says Lawrence Wong](#) (14 April 2020)

- Individuals who are caught refusing to wear a mask will be fined S\$300 on their first offence, while those who flout the rule a second time will be fined S\$1,000. Egregious cases will be prosecuted in court, he added.
- Foreign residents caught breaching these rules might have their work passes or permanent resident status revoked.
- Children below the age of two will not need to wear a mask based on medical experts' recommendations on child safety, he said.
- As for adults, only those who are engaging in strenuous exercises like running and jogging do not have to wear a mask, but they will have to put it on once they stop exercising.

Ministry of Health

- It is mandatory for all persons who are 6 years old and above to wear a mask when leaving their homes. Everyone must wear a mask when outside of their homes.
- This applies on public transport, taxis, private hire cars, walking to or at markets, and also for permitted enterprise workers at all workplace premises, whether they are frontline staff (such as food handlers, cashiers and bus drivers) or performing back office functions (such as data entry personnel and payroll executives).
- Individuals may remove their mask while engaging in outdoor or strenuous exercise (e.g. running/jogging/cycling, contact sports/games, static exercises and drills including taichi and qigong, brisk walking or walking up hilly terrain), but they must put it back on after completing exercise. Those walking at a normal pace would be required to wear a mask.
- Masks are required to be worn when outside one's own home. Household visitors are strongly encouraged to observe safe management principles when visiting other peoples' homes. This includes wearing a mask, keeping a safe distance of at least one metre from others, minimising physical contact and washing our hands regularly.

Ministry of Health: [MOVING INTO PHASE THREE OF OPENING](#) (14 December 2020)

As we have made good progress on the key enablers supporting further resumption of activities, the Multi-Ministry Taskforce will start Phase Three of re-opening from 28 December 2020. Even as we cross this milestone, we must continue to remain vigilant in the coming months and avoid an uncontrolled resurgence of cases which could slow or even reverse our progress.

UPDATE ON ENABLERS FOR MOVING TO STAGE THREE

2. The Multi-Ministry Taskforce had outlined three pre-conditions for moving into Phase Three, which each of us has contributed to in the past few months:

[a\) Adherence to safe management measures](#). Most businesses and members of the public have been cooperating with safe management measures, and these efforts have helped keep community transmission low.

b) Sufficient testing capabilities for early detection and public health action. We have ramped up Polymerase Chain Reaction (PCR) test capacity significantly to be able to run over 50,000 tests a day. We have also introduced antigen rapid tests for larger and higher-risk events.

c) High adoption of TraceTogether for quick and effective contact tracing. As at 13 December, around 65% of Singapore residents are on the TraceTogether Programme, and we are on track to reaching the target of around 70% by the end of the year.

FURTHER RE-OPENING IN THE COMMUNITY

3. Having assessed that these pre-conditions and enablers are in place, the Multi-Ministry Taskforce will allow for the following further re-opening of activities in the community from 28 December 2020:

a. Social gatherings will be allowed to comprise up to **8 persons**, an increase from 5 persons today. Households may also receive up to **8 visitors** at any point in time. To reduce the likelihood of spread, we should continue to limit our social circle to a small group of regular contacts.

b. We will gradually increase the capacity limits of premises. For malls and large standalone stores, **we will increase the capacity limit from 10 square metres per person to 8 square metres per person; attractions may also start applying to the Singapore Tourism Board (STB) to increase their operating capacity from 50% to up to 65%**. Measures must continue to be put in place to prevent crowding in popular areas.

c. Religious Organisations (ROs) have been piloting increases in congregational and other worship services to up to 250 persons and allowance of live music for congregational and other worship services since 3 October 2020. The pilot has shown that the ROs were able to enforce safe management measures such as ensuring clear segregation between zones and minimising intermingling between groups of up to five persons. Hence, we will allow all ROs to increase their capacity for congregational and other worship services to up to 250 persons (in zones of up to 50 persons each for congregational services). Congregational and other worship services as well as religious rites/ prayers conducted at places of worship may involve live performance elements (e.g. with a limited number of singers, wind and other instruments) with the necessary safe management measures in place.

d. For marriage solemnisations held in the home, currently, a total of **10 persons** (including members of the hosting household, excluding the solemniser and vendors) are allowed. In Phase Three, the hosting household will be able to invite up to **8 visitors**(excluding members of the hosting household, the solemniser and vendors), even if this exceeds the existing cap of 10 persons.

e. Marriage solemnisations (in indoor venues only), funerals and funerary-related activities will also be allowed to have live instrumental music (except for wind instruments) with the necessary safe management measures in place.

f. Live performances in the Arts and Culture sector have been allowed to resume since 1 November 2020. Some venues have been piloting larger-scale performances of up to 250 persons and outdoor performances of up to 100 persons. Going forward, we will allow indoor live performances to have up to 250 persons in zones of up to 50 persons each. We will also be expanding outdoor live performance pilots to 250 persons in zones of up to 50 persons each, to ensure that venues are still able to safely manage larger outdoor performances and mitigate the gathering of peripheral crowds.

4. We will continue to conduct pilots in some higher-risk activities and settings such as busking and live performances in outdoor venues, karaoke, nightlife, which will allow us to assess how these activities can take place and scale up safely.

5. If the local COVID situation remains stable and we are able to deploy more of our enablers to allow more activities to resume safely, the Multi-Ministry Taskforce will consider allowing further resumption of activities, over the course of Phase Three.

6. TraceTogether-only SafeEntry, where the **TraceTogether App** or **Token** is required for SafeEntry check-ins, will only be implemented[1] early next year, after everyone who wants a Token has had a

chance to collect one at a Community Club or Centre in their constituency. Until we implement TraceTogether-only SafeEntry, visitors can still perform SafeEntry check-in via the TraceTogether App, SingPass Mobile, or QR reader apps, or use their identity cards with barcodes such as NRIC, Pioneer or Merdeka Generation cards, and so on.

KEEPING OUR MIGRANT WORKERS SAFE

7. As we move into Phase Three of our re-opening, we are also taking stock of our efforts to prevent any new COVID-19 outbreak in our migrant worker dormitories, and reviewing how we can continue to keep our migrant workers safe – both physically and mentally. Our migrant workers' contributions to Singapore are immense, and it is our responsibility to ensure that they are well and can return home safely to their families.

8. Over the past few months, the government has been working closely with multiple stakeholders to care for our migrant workers. Through a whole-of-society effort, and with a comprehensive testing and isolation strategy, we have brought the outbreak in our migrant worker dormitories under control. The morbidity and mortality rate among our migrant workers living in dormitories were kept very low, although there were unfortunately two deaths due to COVID-19 amongst this group.

9. By August 2020, all migrant workers living in dormitories had undergone at least one test for COVID-19, and almost all have been cleared to return to work safely. Among other measures to detect and contain new infections, we will continue to carry out **Rostered Routine Testing (RRT)** of every worker who is still susceptible to infection.

10. We will also start a **pilot scheme in 1Q 2021 with some dormitories to allow migrant workers to access the community once a month, subject to compliance with RRT, wearing of contact tracing tokens** and safe living measures.

World Health Organization [Singapore: Coronavirus Disease 2019 \(COVID-19\) Situation Report](#) (4 April 2021)

- **National transmission stage assessment:**

- **Stage 1 – imported cases (moderate confidence)** Week 13 (29 March – 4 April 2021)

- There has been an increase (71.2%) in the number of reported cases in Singapore for the week ending 4 April 2021, with 178 cases reported in the last seven days compared to 104 cases reported the previous week. Of the 178 newly reported cases, most cases (98.9%) were imported. Two unlinked cases were detected in the community, and no cases were detected among foreign workers residing in dormitories. No new deaths were reported. One case was admitted to the ICU. As of 4 April 2021, no new or active clusters have been reported in the past two weeks.
 - Effective 5 April 2021, congregants at religious halls are permitted to sing during worship services for up to 30 minutes. **Congregants must wear a face mask** at all times and **maintain a 3-metre distance** from others.
 - The number of employees permitted to work in an office has been increased to **75% of the workforce** capacity. **Restrictions that require employees to work from home for at least half the working time have likewise been lifted.** Split team arrangements, that is, alternating groups of employees in the office, will no longer be mandatory.
 - Between 2 and 16 April, Singapore Airlines (SIA) passenger flights departing from Singapore will be temporarily suspended from landing in Hong Kong SAR (China). This follows the detection of a COVID-19 case infection in a traveller from Singapore into Hong Kong SAR (China) on 31 March. The passenger was tested upon arrival. Authorities assured that this would not affect ongoing discussions regarding a travel bubble between the two cities

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