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TAIWAN'S COVID-19 RESPONSE STRATEGIES:

Guidelines and learnings for replication by Indian states

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Taiwan has been singularly successful in designing and implementing effective COVID-19 policy responses. As the pandemic draws on -- these are early days yet -- observing, analysing and learning from the strategies adopted by the governments that have adapted best will be crucial. This note, therefore, summarises Taiwan's response, drawing upon personal interviews of Taiwanese officials as well as digital news media. Appendix 1 summarises WHO guidelines for community transmission. Other technical guidelines for national authorities can be accessed here.

First recorded case date: 21 January 2020
Number of confirmed cases: 425 (6 deaths as on 21 April 2020)

1. **Lessons from previous outbreaks**: Taiwan's experience with SARS, Avian Flu, H1N1, H7&9, Ebola, MERS etc has led to a high state of alertness, and a public adoption of safe and sanitary behaviour, including masks and personal hygiene.

2. **Media/social media surveillance:** By late December, Taiwanese media surveillance picked up rumours from Weibo chat rooms about unexplained SARS-like pneumonia cases in China that weren't responding to regular drugs. The epidemic intelligence centre started to investigate and made enquiries with the WHO and Chinese CDC. The government quickly decided that Wuhan flights would have an onboard quarantine[1].

3. **Declared the virus as a notifiable disease by law:** Built a surveillance case definition with a listing of the symptoms and types of diagnostic tests that need to be conducted, and the corresponding lab specimens needed[2]. The current case definition is as follows "**Suspected case**: Meets clinical presentation criteria but not laboratory proven, plus history of close contact with symptomatic confirmed case(s) within 14 days prior to symptom onset. **Confirmed case**: Meets laboratory diagnosis criteria, regardless of clinical signs and symptoms."

4. **Continuously expanded case definition:** In order to include anyone who may be infected with the virus. Initially cases were defined based on the geographical origin of the suspected patient. As the number of outbreaks increased, case definition was updated to include additional geographical locations. For example initially the case definition required "exposure to Wuhan", this was expanded to include Guangdong and so on. The expansion was mindful of testing and lab capacity[3]. Current case definition is symptom based along with contact history as described above. Further guidelines can be found here.

5. **Administered and coordinated the response:** Through a series of timely policy actions. In Taiwan this was done through the Central Epidemic Command Center (CECC) representing various ministries. The Commander of the CECC is the Minister of Health and Welfare and the Deputy Commander is the Deputy of Minister of Interior. There are three big divisions, **Surveillance, Frontline and Logistics** and several sub-divisions including **Hospital Response Team, Community Disease Prevention, Health Response Team, Logistics, Informatics, Administration and Communications.** Internal meetings are held twice a week, while expert meetings take place on an ad-hoc basis. It is currently in its highest level of activation and has implemented a number of measures[4] (more detail at this link).

6. **Ensure hospital infection control and preparedness:** During SARS, hospital outbreaks took place when infected patients coming into hospital were not sufficiently isolated.

[1] Source: Interview with CDC, Taiwan
[2] Source: Interview with CDC, Taiwan
[3] Source: Interview with CDC, Taiwan
[4] Source: Interview with CDC, Taiwan

Hence, hospital controls are extremely important. This led to infection control plans in hospitals. Now, hospitals are pre-identified for patients of specific diseases. There are annual exercises for infection control, how to transfer patients, PPE gear, disinfection etc. Other hospitals that are not in the network have to go through infection control audits and demonstrate how patient management will take place.[5]

7. **Develop a hospital transfer mechanism**: Patients still have the liberty of going to whatever hospital they prefer. All hospitals and teaching centres have at least partial capacity to isolate patients. The hospitals can use a negative pressure room or (next order of priority) a single occupancy room. Alternatively, hospitals have a transfer protocol to transfer patients to Covid-specific care centres.[6]

8. **Conduct widespread testing:** Islandwide testing sites were made available. Taiwan started off with partnerships with eight contract laboratories which were then expanded. Currently, Taiwan can conduct up to 3,000 tests a day through about 37 laboratories. National health insurance system ensures that patients pay very little (Administrative fees but not testing fees). Testing cost per patient is approximately USD 100 per person in a private lab for a PCR-based test.[7]

9. **Current Testing Strategy:** Tests can be prescribed to any suspected patient. Acutely symptomatic patients are reported through the disease surveillance system by doctors. These patients are isolated at the hospital. Patients without typical symptoms can also test, without reporting through the surveillance system. They are asked to home isolate until their test results are negative. If they test positive, the patients are recalled to the hospital. Testing is also done for close contacts of confirmed cases, even if these contacts were asymptomatic. Some of these asymptomatic patients may become symptomatic later. Taiwan is currently not doing random testing, nor is it pool-testing. Antibody testing is not yet widely available.[8]

10. **Prevent community transmission:** To suppress 'silent transmission', physical distancing measures, closure of office/school and more serious hygiene measures were imposed. In Taiwan this is done in two phases. The first phase restricts public gathering and enforces public health safety measures. The second phase, prohibits all non-essential activities.

11. **Implement Border controls:** A combination of measures including travel bans and border closures were imposed to stop importing infections. Air passengers flying from infected areas were screened and travel restrictions from mainland China were imposed quickly. Currently only permanent residents and Taiwanese citizens can come in (but have to quarantine for 14 days). Foreigners can leave but cannot enter. Taiwan will eventually ease border controls gradually, depending on the surveillance and analysis of the spread/number of cases seen globally.

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[5] Source: Interview with CDC, Taiwan
[6] Source: Interview with CDC, Taiwan
[7] Source: Interview with CDC, Taiwan
[8] Source: Interview with CDC, Taiwan

12. **Regulate public gatherings**: Taiwan's CECC established a set of guidelines to be followed by organisers. These include plans for risk assessment, collecting information on participants and monitoring them, providing adequate ventilation and hand wash facilities.

13. **Mask wearing and mask production:** By mid-January, demand for masks was at 1.3 million per day. Wearing masks on public transport was made mandatory. The Taiwanese government oversaw a controlled distribution of surgical masks and fixed their price. Domestic mask production was ramped up to create local supply; currently 15 million masks are produced daily. Furthermore, mask wearing and temperature checks are mandated at offices where physical distancing is not possible.

14. **Plan for vigorous contact tracing:** In order to prevent second/third waves of outbreaks. A contact is defined as anyone with face to face contact for 15 mins or more (within 6 ft). Through case investigation, authorities may identify and list additional contacts who meet the definition. It was found that household contacts have the highest incidence of transmission, for instance those who eat/live together.[9]

15. **De-isolation criteria**: The initial criterion was that when a patient has 2 consecutive negative tests, the patient can be de-isolated. However, since then China, Japan and South Korea have reported cases of potential "re-infection" and "chronic carriers", three consecutive negative tests are now required.[10]

16. **Embrace big data**: In Taiwan the national health insurance databases were integrated with immigration and customs information to trace potential cases. Epidemiological modelling conducted by academics in Taiwan are yet to be mainstreamed into policy decisions.[11]

17. **Use mobile phone tracking**: Taiwan's Department of Cyber Security runs the system for monitoring people in home quarantine. In this system, phone signals alert the police if quarantine rules are broken. Local officials react within 15 minutes. Penalties can be as high as $33,000. Authorities call twice a day at random to ensure presence at home.

18. **Use mass-messaging to alert potentially affected areas:** When coronavirus cases were discovered on the Diamond Princess cruise ship after a stop in Taiwan, text messages were sent to mobile phones of all those who had cell signals present at the location and time of tourists' presence. This listing included each restaurant, tourist site and destination that the ship's passengers had visited during their shore leave.

[9] Source: Interview with CDC, Taiwan
[10] Source: Interview with CDC, Taiwan
[11] Source: Interview with CDC, Taiwan

Appendix 1 : WHO Guidelines for Community Transmission

Highest priority

1. Enhance whole-of-society coordination mechanisms to support preparedness and response, including the health, transport, travel, trade, finance, security and other sectors. Involve public health Emergency Operations Centres and other emergency response systems early.
2. Sensitise the public to their active role in the response.
3. Engage with key partners to develop national and sub-national preparedness and response plans. Build on existing plans such as influenza pandemic preparedness plan.
4. Enhance hospital and community preparedness plans; ensure that space, staffing, and supplies are adequate for a surge in patient care needs.

Secondary priority

1. Establish metrics and monitoring evaluation systems to assess effectiveness of measures. Document lessons learned to inform on-going and future preparedness and response activities.
2. Prepare for regulatory approval, market authorization and post-market surveillance of COVID-19 products (e.g. laboratory diagnostics, therapeutics, vaccines), when available.

Read the entire guidelines here.