For 55 days,

> the nation hunkered down and remained home

to stem the spread of COVID-19.

THE RUSH HOUR COMMUTE ON SINGAPORE'S TRAINS WAS REDUCED TO JUST A HANDFUL OF COMMUTERS AFTER THE CIRCUIT BREAKER CAME INTO FORCE ON 7 APR, 2020.

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THE discussion lasted well into the night. Huddled in a meeting room in the Istana, health experts provided data and science on a possible lockdown, while key politicians and policymakers debated the merits and drawbacks of such a move.

"It's something we were always

prepared to do, but actually activating it was a tough decision," revealed Mr Ng How Yue, Permanent Secretary for Health Development at the Ministry of Health (MOH).

The disruption to lives and livelihoods, as well as the social cost of isolation were the trade-offs to consider. On the other

hand, "the greater evil was if hospitals were overwhelmed", he added, a growing concern as the number of cases climbed. Given the severity of this decision, it required the approval of the country's

top leaders. "We had never put in place such a set of community measures before ever. Even during SARS, we didn't do this.







Before (above): Before the pandemic, Pagoda Street at Chinatown was often packed with tourists and locals.

After (below): Pagoda Street without its usual crowd after circuit breaker measures kicked in on Apr 7, 2020.



Therefore, this was an issue that was brought all the way up to Cabinet," explained Professor Kenneth Mak, Director of Medical Services at MOH.

"Prime Minister Lee Hsien Loong told the team to 'take one day to sleep on it', before deciding whether to proceed," recalled Mr Gan Kim Yong, who was then the Minister for Health and co-chair of the Multi-Ministry Taskforce (MTF).

"At the time, we did not have vaccines, we did not have any tools against infection. So the only thing that we could do was isolation," shared Mr Gan. "But we also need to time that isolation very carefully. If you do it too early, it's not going to have any effect and the isolation period will be very prolonged, because as soon as you

open, the infection will come back."

The green light was eventually given. "The decision was made to not just impose a lockdown but impose it right up front, rather than have a phased implementation," recalled Prof Mak, adding that the discussion then went into how to manage the ensuing public engagement.

On Apr 3, 2020, Prime Minister Lee Hsien Loong made a televised appearance to give an update on the COVID-19 situation. There was now evidence that asymptomatic cases were spreading the virus unknowingly, with new clusters discovered in foreign worker dormitories and one nursing home. There was a need to impose "significantly stricter measures...like a circuit breaker", he said.

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"We had never done it before, what signals were we giving to the public? Would there be a big drop in morale? Would this be a signal that we might be losing the plot?" he observed. "But we felt that open communication was important. And we needed to do this very decisively, because if we didn't do this, we were at risk of losing control of the situation."

This sobering news was delivered by the country's top leader. On April 3, 2020, PM Lee appeared on national TV, and made an announcement that turned Singapore from bustling metropolis to ghost town.

"I am worried that unless we take further steps, things will gradually get worse, or another big cluster may push things over the edge," he explained. "We

AT UNLESS WE TAKE HINGS WILL GRADUALLY OTHER BIG CLUSTER OVER THE EDGE."

should make a decisive move now to pre-empt escalating infections. We will therefore impose significantly stricter measures."

A "circuit breaker" would start in four days, and tentatively last four weeks. Most workplaces were to be closed. Students had to learn from home. People of different households could not gather - not even families. But Singapore's lockdown was unique.

While most countries had imposed stringent measures to control the movement of people that had no end in sight, the city-state's novel circuit breaker, as its name suggests, was an assurance that it would not last indefinitely. It was a pause, a reset.

WHEN A CUP **DIVERTED ATTENTION**

IT HAS BEEN MADE into merchandise. featured on countless memes, and even become a Singapore icon.

But hardly anyone paid attention to the blue porcelain cup when it was first glimpsed on screen on April 3, 2020, next to Prime Minister Lee Hsien Loong who was addressing the nation. Until he took a sip from it and began speaking in fluent Malay. Another sip, and effortless Mandarin followed.

The online space exploded. "I'd like to have whatever he's drinking", "what magic cup is this?", "the legendary language-changing cup". For a brief moment, a ceramic cup had made Singapore forget about COVID-19.

The light-hearted comments were completely incongruent with the hard-hitting news that PM Lee had just delivered - Singapore was about to take an unprecedented step in its battle against the virus, with a circuit breaker.

As PM Lee sipped from his cup, the message seeped in: Singapore was entering uncharted territory. It was essentially shutting down for a time.



PM Lee's cup inspired countless memes, and a store in Singapore even created a similar looking cup with a tongue-in-cheek product name: Magic, The Legendary Language-Changing Cup.





ON APRIL 7, 2020, CIRCUIT BREAKER MEASURES KICKED IN,





(Clockwise) VivoCity, Orchard Road, Woodlands Causeway, Jewel, Changi Airport.

From border checkpoints to shopping malls and streets, popular tourist attractions and the world-class Changi Airport, it was hard to find any signs of human activity in once-busy areas across the country when the circuit breaker officially kicked in.

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...A BUSTLING METROPOLIS

TO A GHOST TOWN OVERNIGHT.





The same went for residential areas and other community spaces which became uncharacteristically empty, save for the occasional jogger or delivery rider.

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Gowned up in personal protective equipment (PPE) for the full duration of their long shifts, and with both local and imported cases on the rise, the fear was that healthcare workers and hospitals would buckle under such immense stress. This was one reason that prompted the decision to impose a circuit breaker.



Two, the prevalence of asymptomatic cases also thwarted attempts to trace and flush out positive cases from the community. "In other words, the patient can be infectious even before he or she realised that they have developed symptoms," said Professor Leo Yee Sin, Executive Director of the National Centre for Infectious Diseases (NCID).

Three, alarm bells began ringing in the medical community that the virus was more transmissible than previously thought. So far, aggressive measures such as border closures and suspension of mass events appeared insufficient in preventing the virus from spreading.

"We turned off the tap from the borders, but there were local leaks causing this pool of water that we had to mop up," said Professor Vernon Lee, Senior Director of Communicable Diseases Division at MOH. "We couldn't mop up fast enough using contract tracing."

Four, the virus had reached vulnerable seniors at nursing homes and migrant worker dormitories where thousands lived together in communal settings.



Five, there was little that could be done medically. Vaccines had not been developed yet. Existing medication or therapeutic agents were not good enough.

Six, the defining issue that cemented the decision was the fear that hospitals would buckle under the weight of an exponentially rising number of cases. "That's how some countries suffered high deaths," noted Mr Ng.

Everyone agreed that more drastic measures were needed. It would also buy time, as contact tracers could identify

THE PREVALENCE OF ASYMPTOMATIC CASES ALSO THWARTED 0 ATTEMPTS TO

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TRACE AND FLUSH OUT POSITIVE CASES FROM THE COMMUNITY.

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What tipped the scales in favour of a lockdown was a confluence of six factors One, the steadily rising number of daily cases, from single digits at the start of March to dozens by the month's end.

Several reasons contributed to this rise. Among them was the surge in imported cases which crossed into the community. "We started having a lot of people coming in, not just from China or our part of the world, but from Europe and the US," noted Prof Mak. "And a number of them had been exposed to infection - so the numbers in our community started to rise."

COVID-19 CASES BY MAR 31, 2020 MAR 31 MAR 1 106 926 CASES CASES CLOSE CONTACTS IN QUARANTINE 423 CASES HOSPITALISED **NO** CASES IN CRITICAL **LL** CONDITION **U** DEATHS

remaining undetected cases, hospitals could expand their capacities and labs could increase their testing capabilities.

The lockdown was a forceful measure, akin to French-Spanish engineer Tomas Pueyo's hammer strategy which represented quick and aggressive action to suppress the virus. "When you hammer something, you have to make sure the nail goes all the way in," said Prof Lee. "We had to be decisive, swift. Do it once, do it well."

In fact, Singapore was prepared to take even more extreme measures,

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revealed Mr Chan Yeng Kit, Permanent Secretary for Health. "If COVID was as lethal as SARS and as transmissible as Omicron, we probably would have needed a curfew," he said. "We had planned for that. Thankfully, we never had to put it in place."



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For now, Singapore would enter a partial lockdown without curfews or total restriction of movement, unlike the more draconian measures taken by some other countries. But it would not be called a lockdown.

PREDICTING THE PANDEMIC'S NEXT MOVE

IT WAS 7.45AM and Associate Professor Alex Cook had been called into an urgent meeting with then-Health Minister Mr Gan Kim Yong. Singapore had a problem: despite its rigorous contact tracing system, an unlinked case of COVID-19 had surfaced.

"It was in the very early phase and we thought that we were capturing all the infections, but then there was this case that wasn't connected to any known cases or contacts," said the Vice Dean (Research) of the Saw Swee Hock School of Public Health, National University of Singapore.

The question posed by Mr Gan was: could the total number of unlinked cases be estimated?

He had asked the right person. Assoc Prof Cook is an expert in the field of biostatistics and modelling, where he uses mathematical models and statistical assumptions to predict the trajectory of infectious disease outbreaks. And in 45 minutes, he had an answer.

While he was not expected to respond that quickly all the time, speed was nonetheless crucial for Assoc Prof Cook and his team of around 20 research staff as MOH tried to get ahead of the virus. Judging when to tighten, or loosen, the local economy and social restrictions had become the world's most consequential guessing game.

By using data on the residential population, such as their age and travel distances, and data on the disease, including its transmissibility, the COVID-19 models could also predict the possible outcome of policy decisions before they are implemented. For instance, whether the closure of schools or workplaces would flatten the growth of cases, and by how much.

While Assoc Prof Cook said he could not take credit for any of the successes of MOH's responses, since multiple factors were taken into consideration before a decision was made, he noted that their forecast for the Omicron outbreak in 2022 was spot on. "What I understand is that it was one of the reasons why we didn't relax measures until the end of the wave," he said. In fact, Singapore's COVID-19 model was the first in the world.

Throughout the pandemic, the Saw Swee Hock School of Public Health was one of the key engines powering MOH's science-based and data-driven approach to fighting the virus' spread. COVID-19 modelling aside, the School, which is part of the National University of Singapore, also pored through tons of research papers to come up with comprehensive reports on subjects such as the characteristics of the virus, vaccines and containment strategies.

Week after week, Associate Professor Jason Yap, Vice Dean (Practice) at the School, and his small team of public health interns and undergraduates would receive requests from MOH for reports on new subjects, or for updates on previous ones. "It was a crazy time where it was just report, report and report. And we made sure we changed the colour of the highlights in the reports, which indicated new information," he said. Over six months, from February to July 2020, the team produced 114 versions of 10 reports.

What he found most memorable was the camaraderie he witnessed among his team members. "One member would say 'I can't finish the report, I need to fetch my daughter somewhere' and another would immediately reply 'pass it to me, I'll continue'," he shared.

Though the reports were developed for local use, they were eventually downloaded by scientists and policymakers around the world, even by the United States administration.

While the reports and models will only be useful in another respiratory disease outbreak, the framework developed by the teams will be timeless. The next time a health pandemic comes along, Singapore will be more equipped to predict its next move and hopefully block its path.

> Associate Professors Alex Cook (right) and Jason Yap (far right) from the Saw Swee Hock School of Public Health were involved in powering the Ministry of Health's science- and data-based approach to fighting the spread of COVID-19, through statistical modelling and timely reports.



Hertors: Suk skee Hock school of Public Health.



Established in Oct 2011, the Saw Swee Hock School of Public Health, under the National University of Singapore, specialises in the research, training and practice of epidemiology and public health.

TRIPPING THE POWER

How Singapore's version of a lockdown took on the name of an electrical safety device is uncertain.

Many have been credited for coming up with the term: PM Lee, Mr Gan and the entire MTF. No one really knows who thought of it first, but the MOH leadership said it was not them. "None of us, I think, would have been imaginative enough to come up with this," quipped Prof Mak.

The thinking behind the term was simple. "The concept of the circuit breaker is that if you have a surge in power, you have a circuit breaker that breaks it," said Mr Chan. "Take a pause so that you can get things in order, then you go back to normal."



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This relatable term would also facilitate clearer communications on the ground. "It's such an apt way of describing what we wanted to do," said Prof Mak. "Immediately stopping transmission of electricity was the parallel that made it easy for us in the public discourse, conversations and engagements to help people understand why we were doing this."

And compared to a "lockdown", it certainly did not sound as severe. "You can reset the circuit, you can flip a switch and then electricity flows again," added Prof Mak. "And therefore came the promise that

these lockdowns would not be draconian, permanent fixtures - there was the prospect of hope at the end of the tunnel."

But for now, hope had to wait. Almost overnight, Singapore switched off as the measures kicked in on April 7, 2020. The countdown to May 4 – the initial date of the circuit breaker's end – began. But two weeks later, PM Lee made an earlier-than-expected appearance onscreen again, as the number of unlinked cases had not reduced.

"This suggests there is a larger, hidden reservoir of COVID-19 cases in the community, that is the source of

these unlinked cases, which we have not detected," he announced. "We want to bring down the community numbers decisively.

Then came the bombshell: the circuit breaker would be extended by another four weeks to June 1.

There would be closures of more workplaces, with the list of open essential services trimmed even further. Hairdressing and barber shops, confectioneries, and beverage outlets would be closed. Even grass-cutting would be less frequent in public areas.

A food delivery rider at Toast Box, Northpoint City Shopping Mall on May 25, 2020. Services necessary for daily living like food stalls were allowed to continue operating during circuit breaker, even though dining in was not permitted.

NO SNIPS AND SWEET TREATS FOR A TIME



The announcement that bubble tea shops had to close during circuit breaker led to long queues forming outside bubble tea kiosks around the country, with Singaporeans desperate to get their last dose of the sweet drink

UNHAPPINESS BUBBLED OVER once the

announcement was made public.

Ms Marilyn Song recalled the mini uproar that ensued when bubble tea shops had to close their shutters in April 2020, as part of tightening measures which further reduced the number of essential services.

Snaking queues were seen on the last day that they were allowed to operate, as bubble tea lovers made special efforts to get one last cup of their favourite drink. "People had a really big reaction to the bubble tea stores closing," said Ms Song from the Multi-Ministry Taskforce (MTF) secretariat team who was involved in working out the services that could operate during the circuit breaker.

But with the extension of the circuit breaker, the team had to whittle down the list of essential services to stem further spread of the virus. The priority was safety, not sugary drinks or treats.

"What do we allow to remain open? What do we consider as essential services?" said Permanent Secretary for Health Mr Chan Yeng Kit.

The rule of thumb was that services necessary for daily living, such as supermarkets and food stalls, should be allowed to continue operating.

Even then, it was still not totally clear what services were essential. "Cosmetic surgeons for those who need Botox - are they essential?" said Mr Chan, who revealed that such services were the subject of intense debates. "Is TCM (Traditional Chinese Medicine) essential or non-essential?"

"Some areas were quite grey," noted Ms Sona.

Hairdressing services was another area where discussions arose on whether personal grooming was essential. "Some would argue that you could go three months without a haircut, compared to other types of services," explained Ms Song.

Beyond undetected cases, this extension had also stemmed from new medical knowledge collated from countries that had also enacted lockdowns, noted Professor Tan Chorh Chuan, Chief Health Scientist at MOH.

"The lockdowns need to be about two months – or about eight weeks. Because it takes about that amount of time to suppress the numbers to the levels needed," he said.

Another four long weeks lay ahead of them. While the majority would be able to handle the enforced measures, some could not. They would need help.

PROTECTING THE VULNERABLE

At a time when most of the nation stayed at home, Ms Uma Mageswari and her colleagues were out across the island, delivering dry food rations to seniors living alone.

While nurses and doctors were at the frontlines providing medical support to patients, Ms Mageswari was part of <u>an army of social workers and volunteers</u> who kept a close watch on this vulnerable segment of the population. She is a Senior Division Lead at the Silver Generation Office, the outreach arm of the Agency for Integrated Care (AIC). "Our role is to visit the seniors, check in on their well-being and connect them with the programmes available," she explained. "We're a bridge for the seniors in terms of the schemes and support available."

But with the circuit breaker in effect, such daily visits had to be suspended. To adapt, most social services tapped on technology and pivoted to tele-engagements. Through weekly phone calls lasting 15 to 20 minutes, Ms Mageswari and her team would check in on their seniors.

"Are they okay? Do they need assistance with anything? We wanted to ensure that they were safe and doing okay," she said.





Ms Uma Mageswari, a Senior Division Lead at the Agency for Integrated Care's Silver Generation Office, kept in touch with vulnerable elderly folks during the circuit breaker, ensuring that they received the social services and assistance they needed.







For the vulnerable and the elderly, the circuit breaker and safe distancing measures can be hard to deal with. During the pandemic, staff and volunteers with the Agency for Integrated Care's Silver Generation Office fanned out across the island to check in on them, providing them with care and support. This included sending them groceries, providing them with haircutting services, and in some cases, even celebrating their birthdays with a simple cake.





"THEY WERE VERY CONFUSED. THEY WERE ASKING, 'I DON'T USUALLY TALK TO THE TV SO WHY MUST I TALK TO IT NOW?' SO THEY WEREN'T RESPONDING TO VOLUNTEERS ON ZOOM."

- MDM LOW MUI LANG, EXECUTIVE DIRECTOR AT THE PEACEHAVEN NURSING HOME

Seniors and technology, however, sometimes made an unsuitable pairing. During the circuit breaker, Mdm Low Mui Lang, Executive Director at the Peacehaven Nursing Home, witnessed the frustrations that some faced while communicating with their family members and volunteers via Zoom on laptop and TV screens.

"They were very confused. They were asking, 'I don't usually talk to the TV so why must I talk to it now?' So they weren't responding to volunteers on Zoom," she recalled. "Many were also unhappy because there were no physical family visits."

Strict restrictions were placed on visits to nursing homes, which were deemed to be one of the most high-risk settings that health authorities were keeping a close watch on.

PROTECTING NURSING HOME RESIDENTS

It was a COVID nightmare come true. When Lee Ah Mooi Old Age Home became the first to be hit by the virus on March 31, 2020, MOH moved swiftly to protect all nursing home residents islandwide.

Visitors were immediately banned. As the circuit breaker kicked in, bigger nursing homes also had to implement strict, segregated zones that prevented seniors from mingling. "They couldn't even go to the garden for daily exercise," said Mdm Low. "Everyone had to stay in their own living space."

The rapidly changing rules also caused confusion in the early days. "There were many MOH circulars going around daily – fast and furious. It was very tough to keep up and disseminate the information,"



recalled Mr Then Kim Yuan, administrator of Lee Ah Mooi Old Age Home.

Eventually, the home came up with visual guides that helped residents understand the new measures better.

To cushion the blow of stringent restrictions and maintain morale, staff at another nursing home, Peacehaven, also tried to sweeten the mood – literally - through drinks and dessert. "We had to give them something they were looking forward to, and divert their attention from what is happening," said Mdm Low.

While the initial changes took some effort and getting used to, it allowed the homes to learn and adapt to the virus. Procedures and protocols were tweaked and tested, with staff now ready to respond to any outbreaks. "We all know what to do now," said Mr Then.

Having clear communications was also another lesson learnt. "The fear of the unknown can be suffocating for many,"

Many seniors had to pick up digital skills during the pandemic. The role of technology was further underscored during the pandemic, and continues to be part of Singapore's shift towards preventive care, where Singaporeans can actively manage their health through the use of mobile applications.

Lee Ah Mooi Old Aae Home was the first nursing home to be hit by the virus. Its response strategies served as a blueprint to help other nursing homes manage their outbreaks.

he added. "So I was brutally honest about what was happening on the ground."

When COVID-19 first hit Lee Ah Mooi Old Age Home, he posted daily updates on the Home's Facebook page, assuaging the worries of residents' family members. "It's very important for us to be the steady agent," he added.

By May 2020, MOH had also stepped up its defence. A total of 25,000 staff and residents across all 80 nursing homes would be tested in an effort to weed out the virus.

Accommodation would also be provided for as many resident-facing staff as possible, either at hotels or on-site facilities. This would reduce the risk of them spreading the virus to the community, if they had caught it.

The stringent approach quashed any fears that the nursing homes would see significant fatalities. By October 2020, there had been four COVID-related

deaths among nursing home residents making up 14 per cent of the deaths in Singapore.

In comparison, data from the United States showed that by June 2021, nearly one third of deaths in the country had been linked to nursing homes. The World Health Organization in Europe had also reported that half of COVID-related deaths in the region had been in long-term care facilities.

"The entire notion of separating people, preventing certain interactions, putting additional measures in place ... it was all because we recognised that these were particularly vulnerable people at risk of having severe infection and death that we needed to protect," said Prof Mak.

But these residents were not the only group that MOH had to keep an eye on. There was another battle raging across the island involving tens of thousands of patients that would stretch the Ministry's resources to the limit.

FROM CHAOS TO CALM: How Covid-19 was managed At Nursing Homes

AFTER AN 86-YEAR-OLD woman became Singapore's first nursing home resident to contract the virus, it almost left the rest of the seniors at Lee Ah Mooi Old Age Home devoid of any care staff in April 2020.

"It was a unique situation," said Mr Then Kim Yuan, administrator of the Home. "We had never planned for a total stand-down of the workforce."

Yet, that was exactly what happened, due to the Home's communal living and caring arrangement. "There were no split zones prior to the pandemic – everyone mingled," explained Ms Tay Shu Ying, a member of the Agency for Integrated Care's (AIC) COVID-19 Incident Response Team (CIRT) that was set up to support partners such as Lee Ah Mooi Old Age Home in managing COVID-19 patients.

It led to the entire workforce being "wiped out" when all of the care staff were being served quarantine orders, as Ms Tay described it.

The rapid response force was on standby 24/7 in the event of an outbreak. Together with three other AIC colleagues on the

ground who were supporting off-site management, the team quickly assembled a separate temporary care team for the Home – made up of staff from other nursing homes.

"The temporary care team went the extra mile to support the Home, even though they weren't familiar with the care needs of the residents and were thrown into a new and unfamiliar environment," she said. Public health experts from MOH, National Public Health Laboratory and Tan Tock Seng Hospital also provided support and guidance on what to do, such as recommending swabbing schedules, conducting medical reviews of residents and giving advice on infection prevention and control measures.

For two weeks, the AIC team was stationed at Lee Ah Mooi Old Age Home daily for more than 12 hours, and performed multiple roles, from administrators, to welfare providers, to contact tracers. "We wanted to do everything that we could to support the Home through this difficult period," Ms Tay said. A key task was to mitigate further spread of COVID-19 among residents in the Home. "We tried to space out the residents in the ward, but there wasn't enough space to ensure safe distancing for all," shared Mr Daniel Wong, who was part of the larger AIC team supporting the Home.

"As such, we worked with MOH to source for another possible nursing home to decant some residents to free up some space."

With MOH's help and the ready support from another nursing home operator, around 11 residents were safely decanted for the remainder of the enhanced surveillance period.

While containing the outbreak was not easy, the episode provided a blueprint for AIC to manage subsequent outbreaks in other nursing homes.

"We learnt a lot through this experience, which helped shape the processes and protocols that were put in place to help nursing homes safely manage COVID-19 cases," said Mr Wong.





WHILE CONTAINING THE OUTBREAK WAS NOT EASY, THE EPISODE PROVIDED A BLUEPRINT FOR THE AGENCY FOR INTEGRATED CARE TO MANAGE SUBSEQUENT OUTBREAKS IN OTHER NURSING HOMES.





When an elderly resident in the Lee Ah Mooi Old Age Home was found to have COVID-19, staff members who had been in contact with her had to be guarantined, leaving the Home bereft of manpower. The COVID-19 Incidence Response Team from the Agency for Integrated Care (AIC) quickly sprung into action to assemble a care team made up of staff members from other nursing homes, hospitals and agency nurses, coordinated by Ms Tay Shu Ying and her team at AIC.