

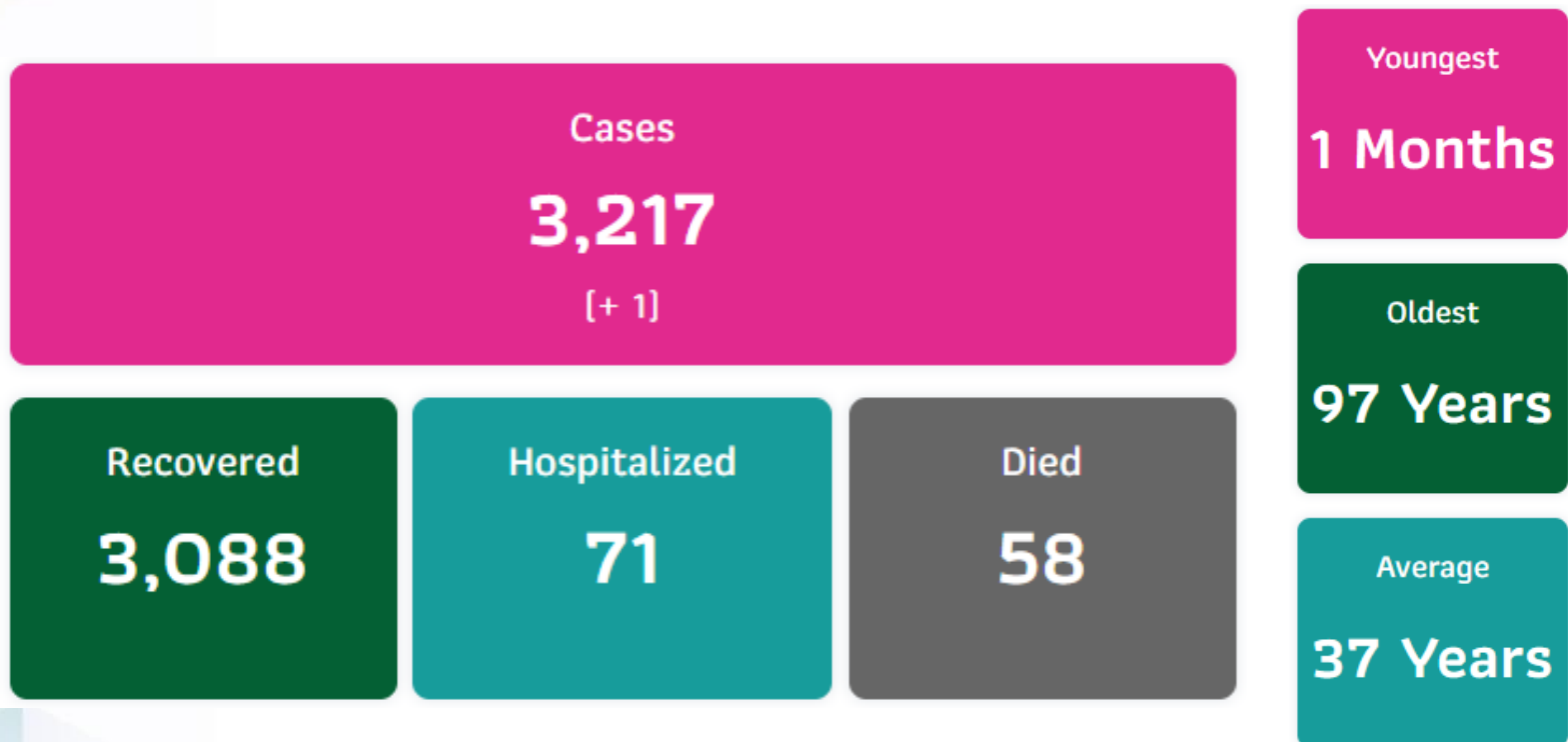
“The use of technology and innovation to combat COVID-19 in Thailand.”

Pramon Viwattanakulvanid , Ph.D.
College of Public Health Sciences,
Chulalongkorn University
July 24th, 2020

OUTLINES

- Thailand Covid-19 situation Overview
- Chula fighting against Covid-19
- Chula innovation against Covid-19 (8 Innovations)
- Thailand management against Covid-19

Thailand Covid-19 situation



Last update : 12/07/2020

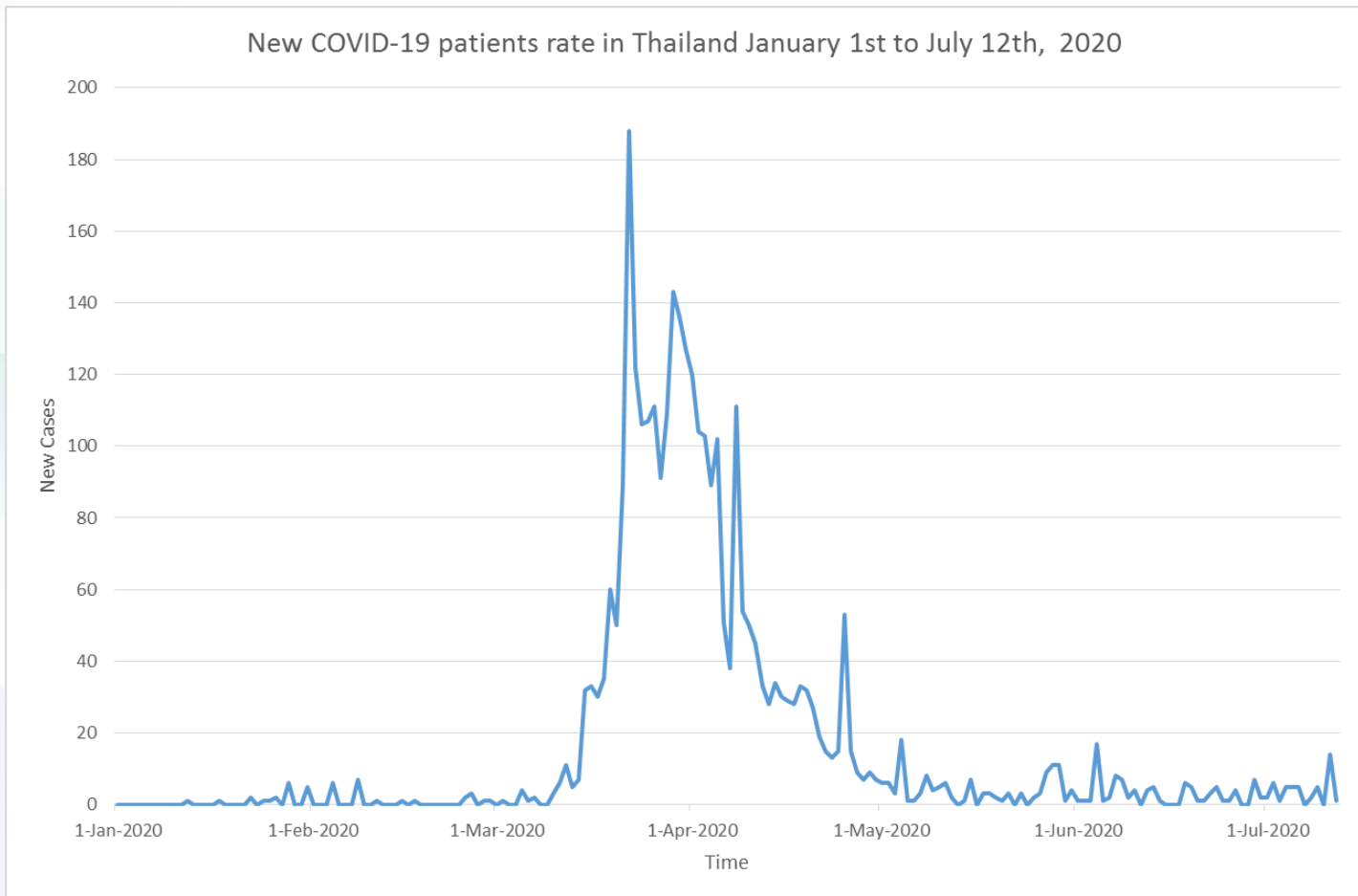


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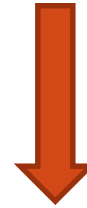
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Thailand Covid-19 situation



Thailand Covid-19 situation

- Emergency Operation Center (EOC) since Jan 4th, 2020



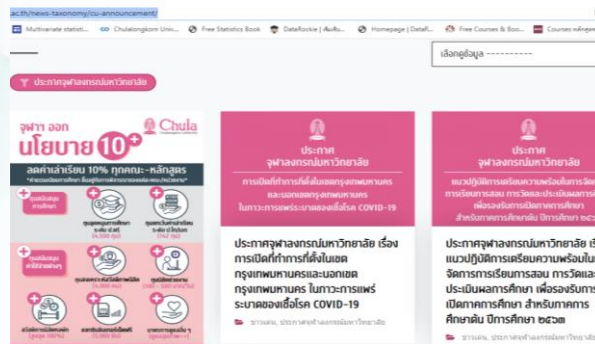
Coordination

- Centre for Covid-19 Situation Administration (CCSA) since Mar 27th, 2020



Fight against Covid-19

During Covid-19 situation, Chulalongkorn has continued communicating guideline and preparation for all staffs, students and public. (e.g. online courses, chula kits, screening...etc.)



<https://www.chula.ac.th/news-taxonomy/cu-announcement/>

innovation against Covid-19

- **Dedication** for solutions and develop research and innovations against Covid-19
- **Collaboration** with the university departments and external partners
- **Support** for the medical field and the community through various policies, facilitating and coming up with ideas to keep the public and healthcare practitioners safe.
- **Transformation** of research studies into innovations that are practical and responsive to the needs of society.

innovation against Covid-19



1. Covid-19 (CU-RoboCovid)
2. Chula Covid-19 Strip test service
3. Newly Designed Face Shields
4. Shield Protecting spray for Fabric Mask
5. Negative pressure cabinets for specimen Collection
6. VQ20 Spray Dispenser and VQ20-HP35Device
7. "Lung Care" Application
8. "Willing Application"

Covid-19 (CU-RoboCovid)



A robot developed by the **Faculty of Engineering** that provides medical support, decreases the workload of medical staff, and replaces tasks prone to risks of exposure to infection. The robots developed include:



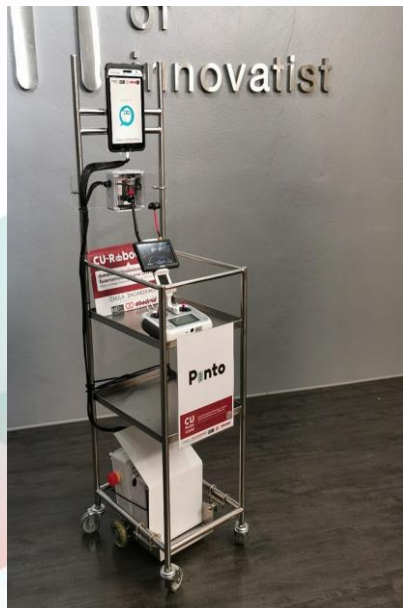
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Covid-19 (CU-RoboCovid)



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Pinto robots



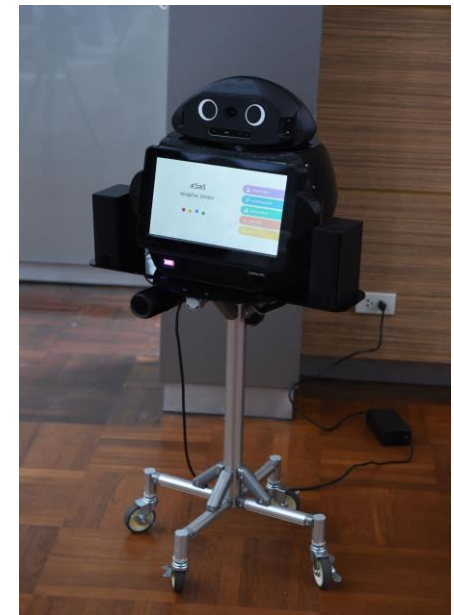
Pinto robots, also known as the [quarantine delivery robots](#), are robots that can carry food and medicine to patients.

Mirror robots,



Mirror robots, equipped with a [telepresence system](#), provide a way for **patients to dial and talk to nurses /doctors** immediately.

Ninja robots



Ninja robots, or the [telepresence robots](#), allow **doctors to communicate with patients** from a distance, and helps record a patient's blood pressure, pulse, and temperature.



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Covid-19 (CU-RoboCovid)

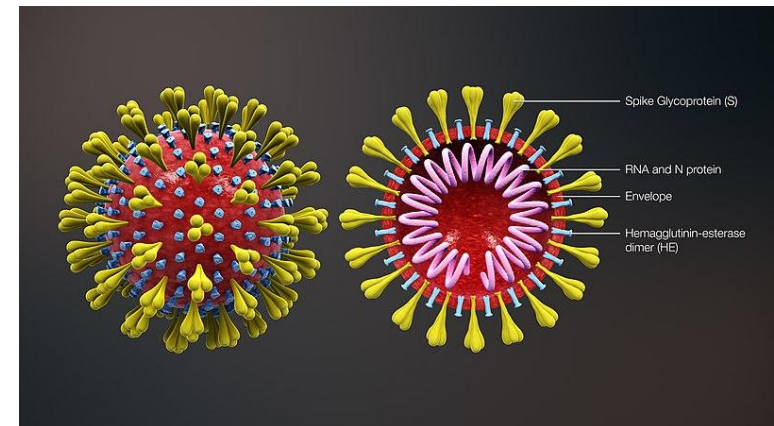


Today, 20 robots are working at Chulalongkorn, Siriraj, and Vachira Phuket hospitals. Chulalongkorn University plans to deliver 103 robots to hospitals across the country.

Chula Covid-19 Strip test

A quick screening test kit (**Faculty of Pharmaceutical Sciences**) that provides results in 10 minutes . The 4.0 technology integration helps assess the risks and monitors the patient's symptoms in order to screen patients for risks before ordering for a PCR test.

[\(Support the screening process for Covid-19 risk\)](#)



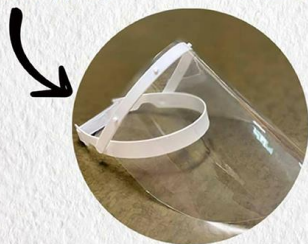
Newly Designed Face Shields

โครงการผลิตหน้ากากป้องกันใบหน้า (Face shield)
จากดีไซน์สู่ผลิตภัณฑ์ใน 7 วัน



คณะวิศวกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย
ร่วมกับกลุ่มบริษัทศิริโกลบอล และบริษัทเมตคูลี่
ซึ่งเป็นบริษัท spin-off ของคณะวิศวกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ร่วมพัฒนา Face Shield

Face Shield โดยเริ่มจากกระบวนการ
Prototyping ด้วย 3D Printing



ตัววัสดุโครงทำจาก PP+TPE วัสดุชนิดนี้เกรดพิเศษที่มีน้ำหนักเบา จึงทำให้สวมใส่
ไม่เจ็บหน้าผาก และยังสามารถใส่ได้นานโดยไม่ต้องถอดออก สามารถนำมาทำ
ความสะอาดด้วยน้ำสบู่อุณหภูมิเย็นได้ แผ่นใสทำจากแผ่น PET เคลือบ Anti-fog
ลดการเกิดฝ้าระหว่างใช้งาน

A new line of face shields developed by the **Faculty of Engineering**, the face shields are designed with 3D printing technology. The shields are made of lightweight PP (Polypropylene)+TPE (Thermoplastic Elastomer) material for ultra-comfort and can be cleaned with soapy water. The transparent sheet is made of anti-fog-coated PET sheets to reduce fogging during use.

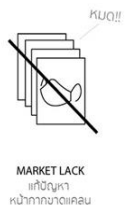
Shield Protecting spray for Fabric Mask

SAVE THAILAND SHIELD+ : PROTECTING SPRAY

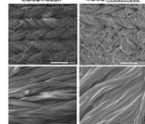
สเปรย์หน้ากากผ้ากรองฝุ่น กันไวรัส



ALTERNATIVE SOLUTION
FOR COVERING FABRIC MASK
นวัตกรรมสเปรย์ทางเลือกสำหรับหน้ากากผ้า



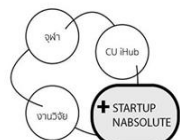
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หน้ากากขาดแคลน



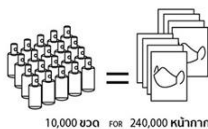
LAB TEST
BETTER FILTER CONTROL
วิจัยทดลอง
✓ กรองดีขึ้น
✓ กันน้ำ



MORE TRUSTABLE +142%*
FABRIC MASK



COOPERATION DEVELOPMENT
ความร่วมมือเพื่อพัฒนาวิจัย นวัตกรรมสเปรย์



10,000 ขวด for 240,000 หน้ากาก
เพื่อสนับสนุนกำลังคน
ในอุตสาหกรรมเครื่องนุ่งห่ม
เพื่อความปลอดภัยในการทำงาน
และหยุดเชื้อไม่ให้เกิดไวรัส

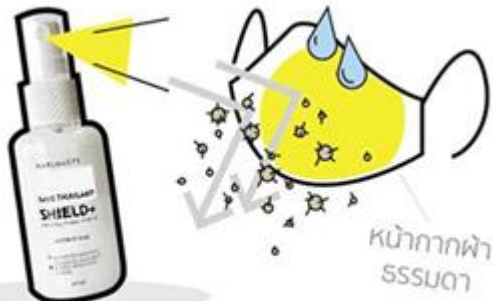
ติดต่อทีมพัฒนา
พ.ร.ด. 081 638 6161
พ.ร.ด. 081 638 8819

*จากผลการทดสอบประสิทธิภาพการกรองเชื้อโรคในอากาศ

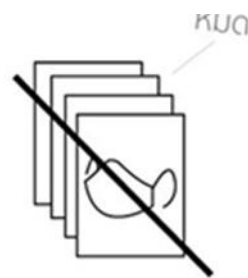


The COVID-19 and PM 2.5
protecting spray from the
Faculty of Pharmaceutical
Sciences can be used on
fabric masks to filter small
particles of up to 0.3 microns,
increasing the protection
efficiency to 83%.

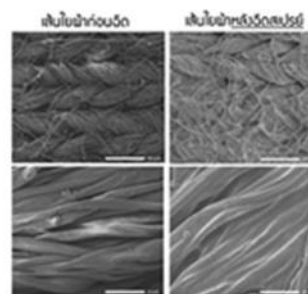
สเปรย์หน้ากากผ้ากรองฝุ่น กันไวรัส



ALTERNATIVE SOLUTION
FOR COVERING FABRIC MASK
นวัตกรรมสเปรย์ทางเลือกสำหรับหน้ากากผ้า



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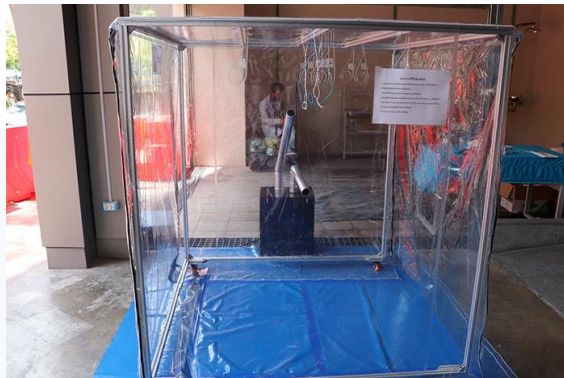
LAB TEST
BETTER FILTER CONTROL
วิจัยทดลอง
✓ กรองดีขึ้น
✓ กันน้ำ

Negative pressure cabinets for specimen Collection



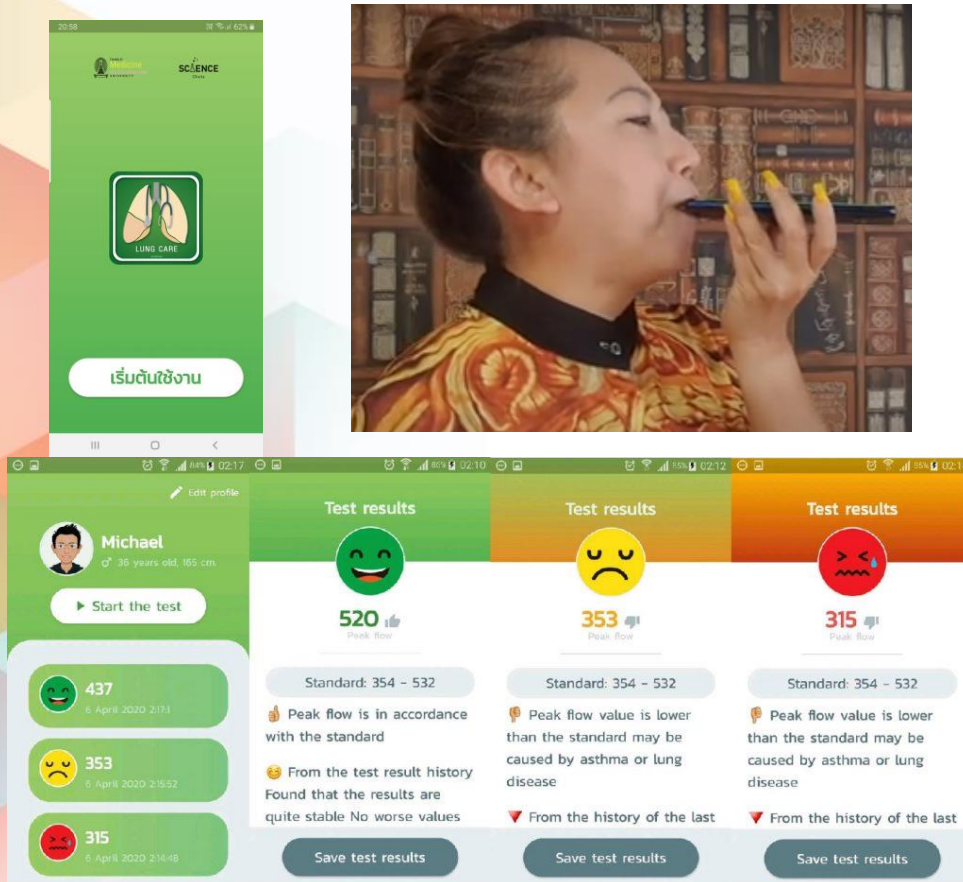
The negative pressure cabinets for specimen collection, developed by the Faculty of Medicine, are made from transparent acrylic and designed to safely collect respiratory secretions from patients. The cabinet has an air cleaner installed with HEPA filter, which can trap 99.995% of small particles. The UV-C light disinfection also hinders the virus from thriving.

VQ20 Spray Dispenser and VQ20-HP35 Device



The hydrogen peroxide VQ20 spray dispenser and VQ20+HP35 device (From **faculty of Science**) help spray hydrogen peroxide droplets smaller than 5 micrometers in the air. The droplets can float for a prolonged period of time and the water evaporation creates hydrogen peroxide nanoparticles, which disinfect the bacteria and virus in the air and on surfaces. The device makes sterilization of rooms and medical equipment more efficient

“Lung Care” Application



Developed by the Faculty of Science and the Faculty of Medicine, the Lung Care application tests the lungs' performance. By blowing into the microphone of a smartphone, results will show how well the lungs are working.



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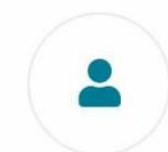
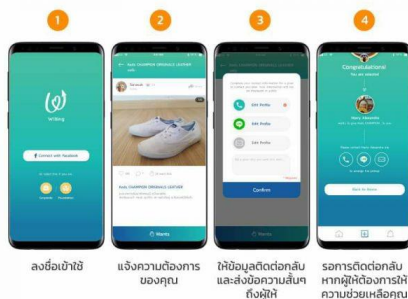
“Willing Application”

หากคุณเป็นผู้ให้
(สิ่งของหรือความช่วยเหลือ)



หากคุณเป็นผู้รับ

หากคุณเป็นผู้ที่ต้องการความช่วยเหลือ
หรือรู้จักผู้ที่ต้องการความช่วยเหลือ



บุคคลธรรมดา

ให้คุณเป็นผู้ให้และผู้รับ



องค์กร

ให้หรือขอรับความช่วยเหลือ
และประชาสัมพันธ์โครงการ
ช่วยเหลือสังคม



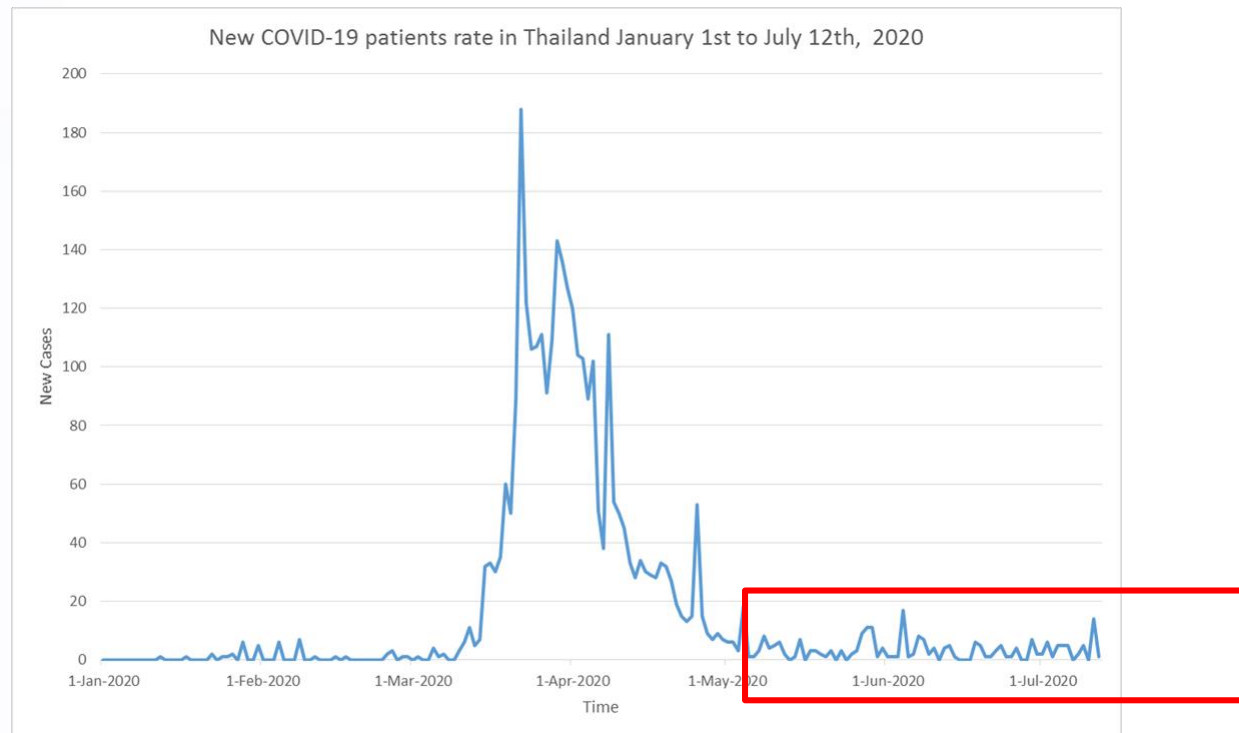
มูลนิธิหรือ
โรงพยาบาล

ประกาศขอรับ
ความช่วยเหลือ

- The Willing application is developed to facilitate the spirit of sharing and receiving. Developed by the **Faculty of Commerce and Accountancy**, the application is a platform that matches a donor to a recipient.

Thailand management against Covid-19

The possible reasons of the success of
Thailand against COVID-19



1. Soft Policy

- State of emergency and a curfew during the night (22.00 p.m. to 4 a.m.)
- Essential health and living services were allowed to continue functioning.
- After the cases started declining along with the careful monitor, Thai government also relaxed the lock down steps by steps
- Phase I, II, III, IV, V (now)



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1. Soft Policy



2. Village Health Volunteers (VHV) and Strong medical team

- Foundation of primary health care for the sustainability of the health care system in Thailand.
- Selections of village health volunteers based on their willingness for the sake of common good, generosity, kind assistance and sufficient health care knowledge.
- VHVs have a strong relationship and bond with health care work and some also have close connection with community leaders
- Thailand has approximately 1.4 million public health volunteers working along with the health promoting hospitals.
- The project of village health volunteers was established since 1977 with the beginning centers in 20 provinces.

2. Village Health Volunteers (VHV) and Strong medical team

- These volunteers performed many tasks such as health survey, data collection, disease prevention campaigns,
- During Covid-19 pandemic, health volunteers cooperate with Thai government policy and work hard to prevent the spread of Covid-19. They take care of community member's health and improve their daily hygiene.
- MoPH also provided guidelines for volunteers about Covid-19 and taught them how to make their own protective masks and hand sanitizers. Then, health volunteers will pass on this knowledge to their families and community members.
- The village health volunteers work efficiently knocking on at least 12 million doors and kept an eye on the sensitive group (young children and the elderly) and at risk of contracting Covid-19



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2. Village Health Volunteers (VHV) and Strong medical team



3. Integration of Technology in Healthcare system



- “**Aor Sor Mor Online**” This application provides the services for learning, receiving news, messaging, reporting volunteer works, reporting infectious disease occurrences and making appointments
- Main users are public health center staff and health volunteers who closely work collaboration for the sustainability of health care system in Thailand.
- Users can share any type of information such as image, audio, video, text, and location.

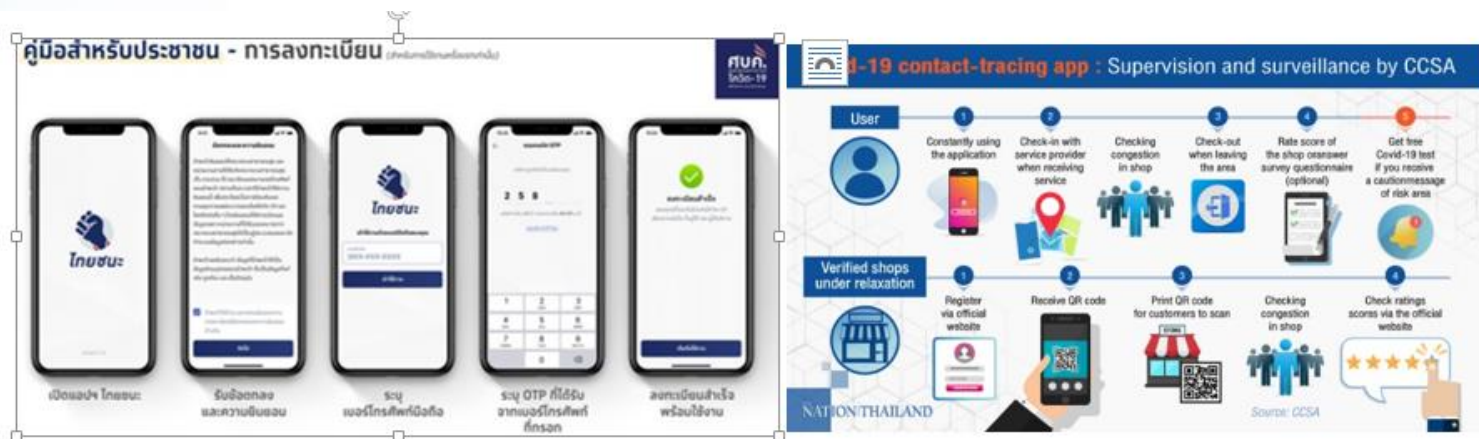
3. Integration of Technology in Healthcare system

- “During Covid-19 situation, VHVs use Aorsormor Online to update the situation in their responsible areas, record the data from people who came back from risky countries, educate the community and follow-up the quarantine.
- Aorsormor Online also got support the update information *and knowledge from* department of disease control, Ministry of Public Health,



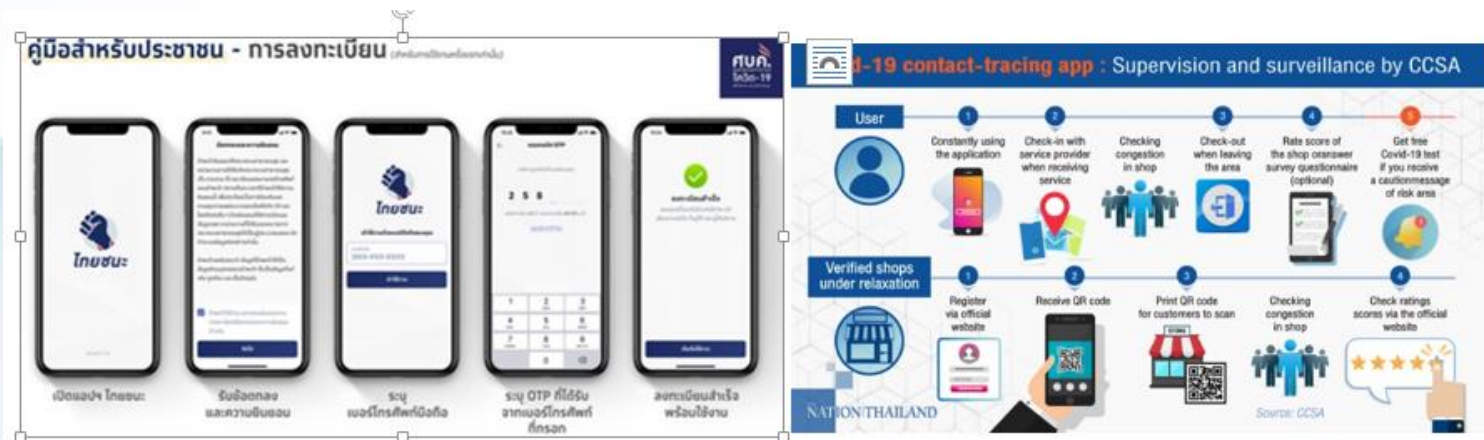
3. Integration of Technology in Healthcare system

- **Thai Chana Application**” along with 24 call center at 1119: for **contact tracing and informing the public of risks.** Developed by the Ministry of Digital Economy and Society
- As of May 17th, 2020, 2,002,897 million people used the Thai Chana platform with individuals scanning QR codes when entering the outlets **2.66 million check-ins** at registered shops and **1.85 million check-outs.**
- The results showed good cooperation from business establishments and the public.




3. Integration of Technology in Healthcare system

- The Centre for COVID-19 Situation Administration (CCSA) encouraged the public to use and download the ‘Thai Chana’ application. The CCSA reiterated that data and information from this platform will *be used by the Department of Disease Control and MoPH for a limited period and for the purposes of contact tracing and treatment only.*
- **Data will not be shared with others.**



4. Fact-based communication and centralized structure

- Although Thailand set up the Emergency Operation Centre (EOC) since January 4th, 2020, the agencies within EOC still lack of coordination.
 - Emergency Operation Center (EOC) since Jan 4th, 2020
- 
- Centre for Covid-19 Situation Administration (CCSA) since Mar 27th, 2020

4. Fact-based communication and centralized structure

- “Centre for Covid-19 Situation Administration (CCSA) led by the Prime Minister, which centralized the structure of the organization appropriate for the performance and tasks in order to remedy the emergency situation in an appropriate and effective manner.
- CCSA appointed a spokesperson, Dr. Taweetilp Visanuyothin, the whole dynamic of discourse on the pandemic situation changed dramatically. His official but raw data has generated acute awareness of what must be done to prevent the spread of the virus and public trust in his daily briefing.

4. Fact-based communication and centralized structure



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- 6) <https://www.chula.ac.th/covid-19/>

THANK YOU

Hand in Hand we stand
All across the land
We can make this world
A better place in which to live

