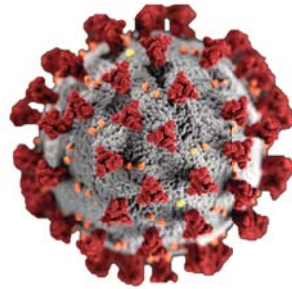




การประชุมวิชาการประจำปีสมาคมโรคติดเชื้อแห่งประเทศไทย ครั้งที่ 46
Emerging and Re-emerging Infectious Diseases: A Continuous Challenge

COVID-19

Up to date

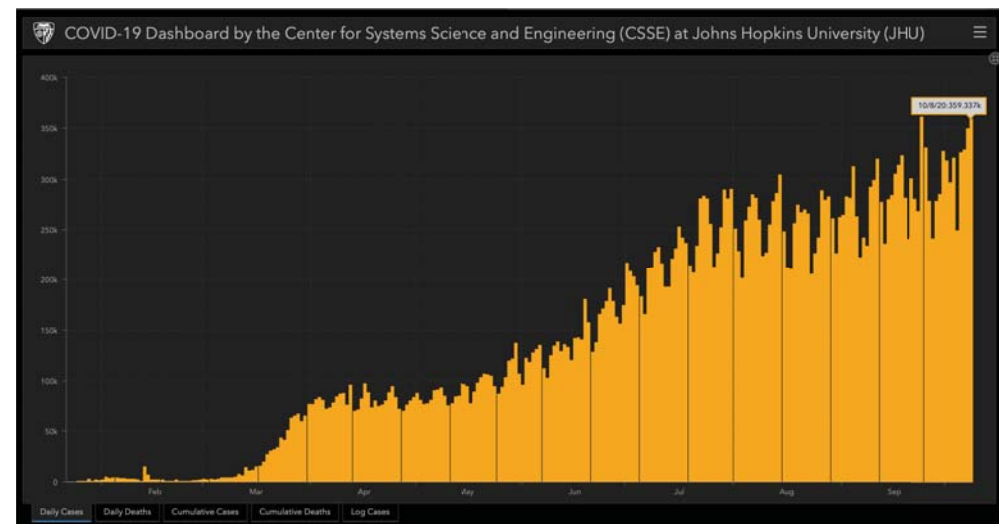
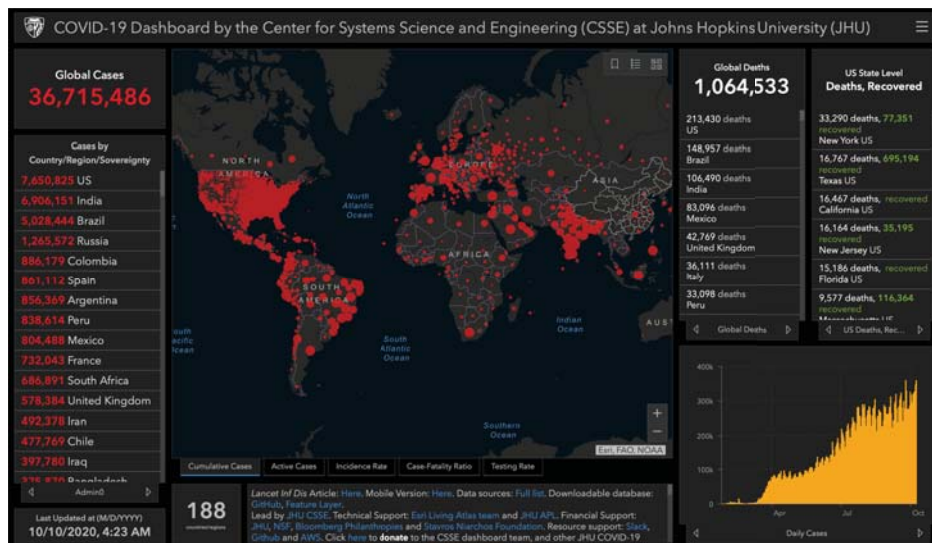
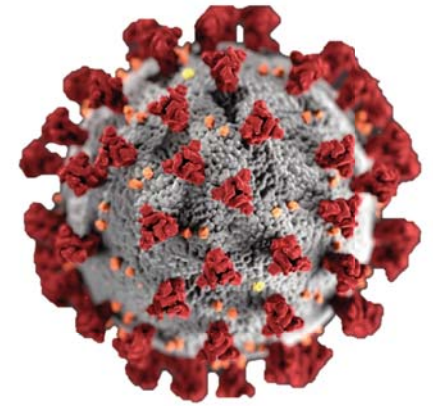


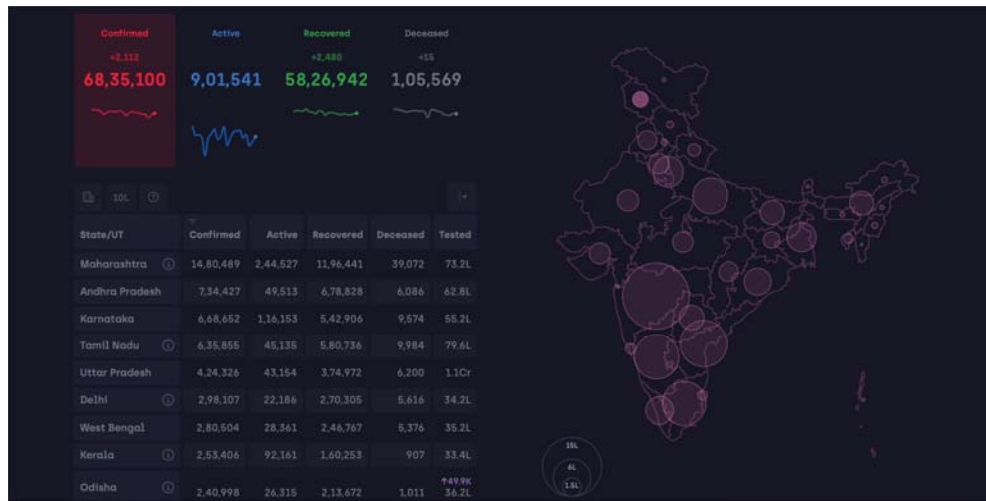
Col. *Dhitiwat Changpradub* M.D.

Chief of division of Infectious Disease, Department of Internal Medicine, Phramongkutkao Hospital

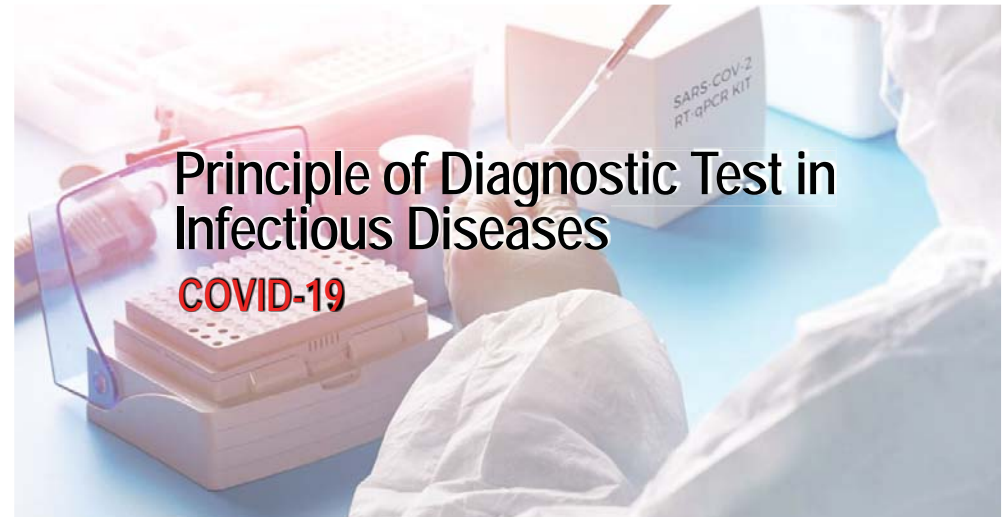
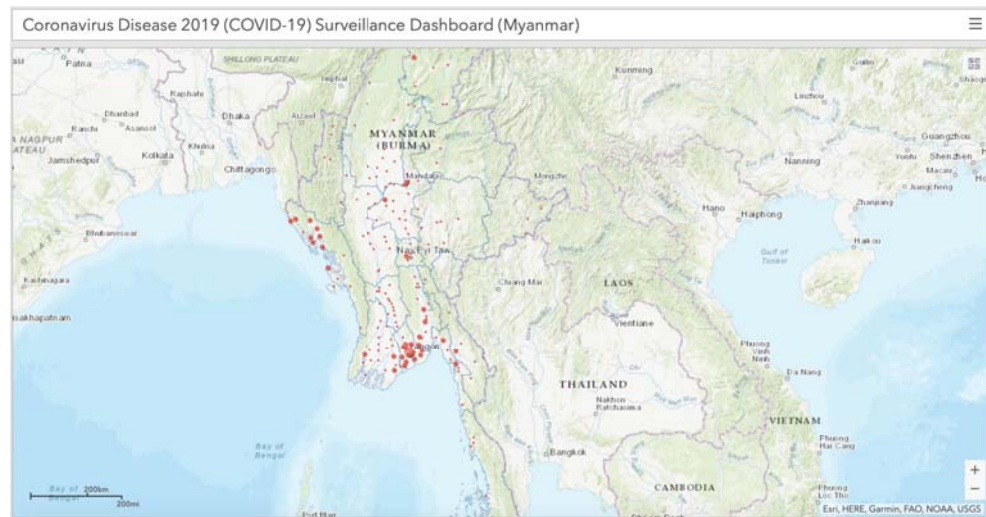
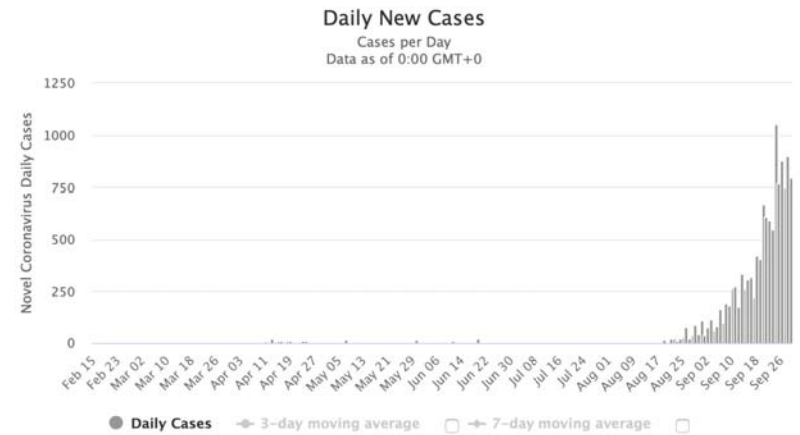
Outline

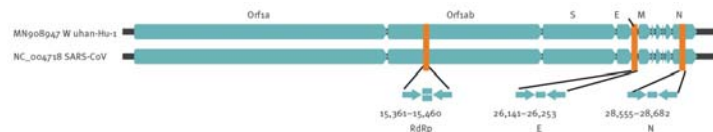
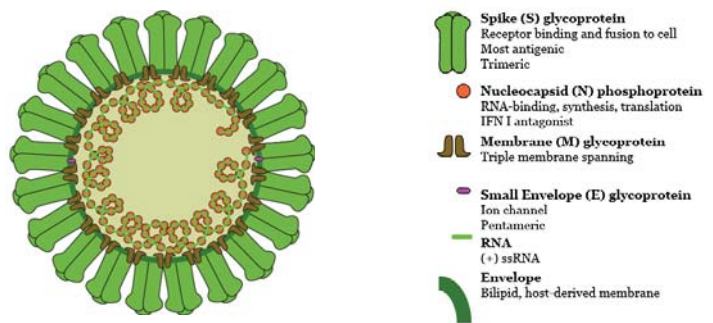
Epidemiology
Diagnosis
Infection control





Daily New Cases in Myanmar





Antigen detection :

RT-PCR, WGS, rapid antigen detection



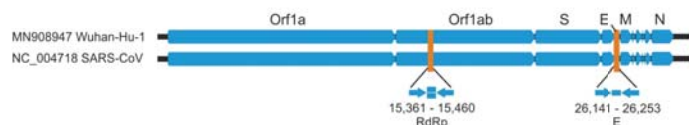
Antibodies detection ?

- IgM, IgA, IgG
- Rapid test (lateral flow assay), ELISA

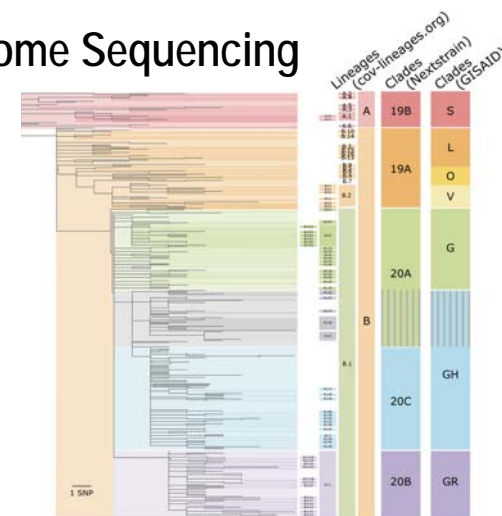
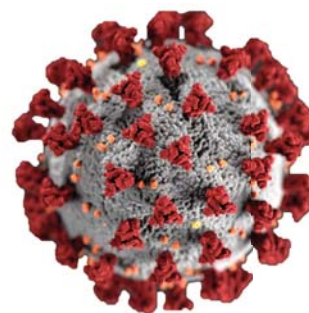


Novel Coronavirus (2019-nCoV) technical guidance: Laboratory testing for 2019-nCoV in humans

Summary table of available protocols		
Country	Institute	Gene targets
China	China CDC	ORF1ab and N
Germany	Charité	RdRP, E, N
Hong Kong	HKU	ORF1b-nsp14, N
Japan	National Institute of Infectious Diseases, Department of Virology III	Pancorona and multiple targets, Spike protein
Thailand	National Institute of Health	N
US	US CDC	Three N primers, RdRP



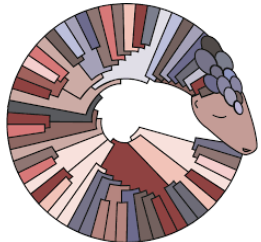
SARS-CoV2 Whole Genome Sequencing



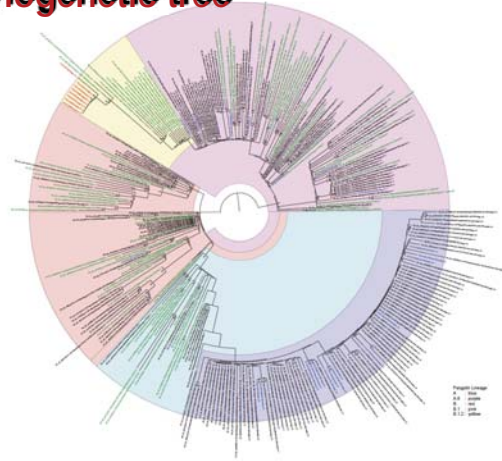
Ahn ERIK, Broberg Evie K, Connor Thomas, Hodcroft Emma B, Komissarov Andrey B, Maurer-Stroh Sebastian, Melidou Angeliki, Nieher Richard A, O'Toole Jine, Poroyanov Dzhelya, The WHO European Region sequencing laboratories and GISAID EpiCoV group. Geographical and temporal distribution of SARS-CoV-2 clades in the WHO European Region, January to June 2020. Euro Surveill. 2020;25(27):pii=2001410. <https://doi.org/10.2807/1560-7917.ES.2020.25.32.2001410>



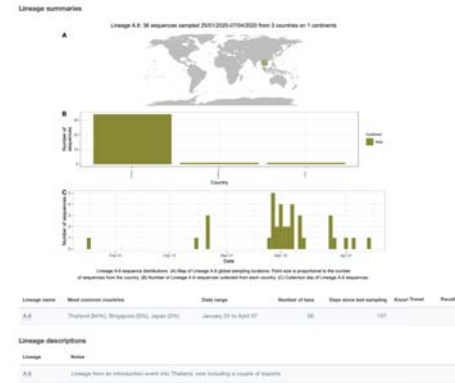
SARS-CoV2 coding sequencing phylogenetic tree



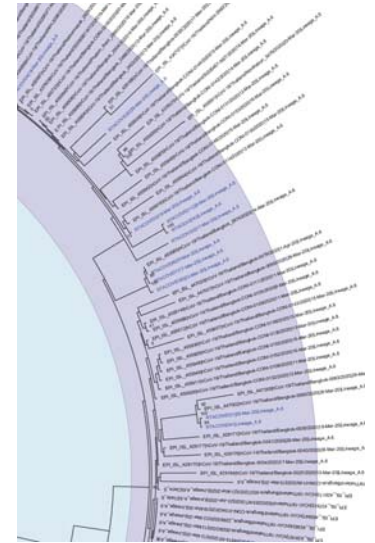
Pagolin chart



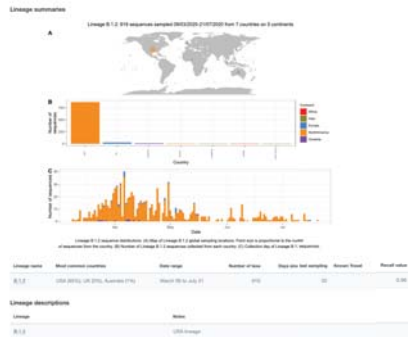
Domestic Cases



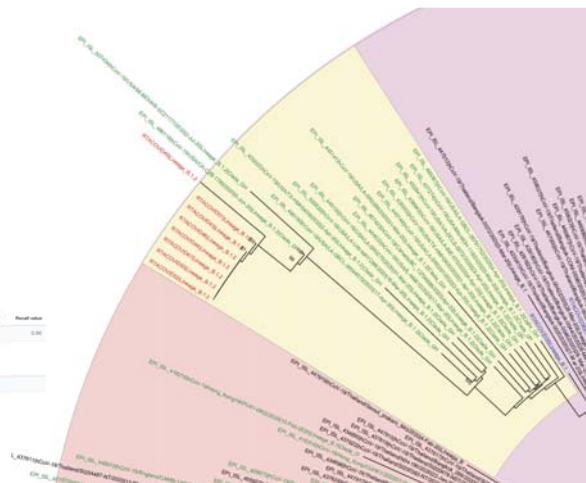
https://cov-lineages.org/lineages/lineage_A.6.html



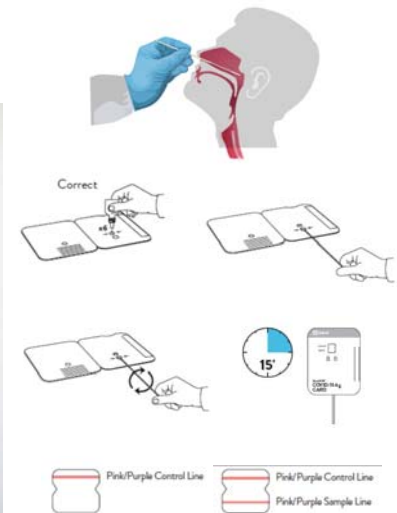
Imported Cases

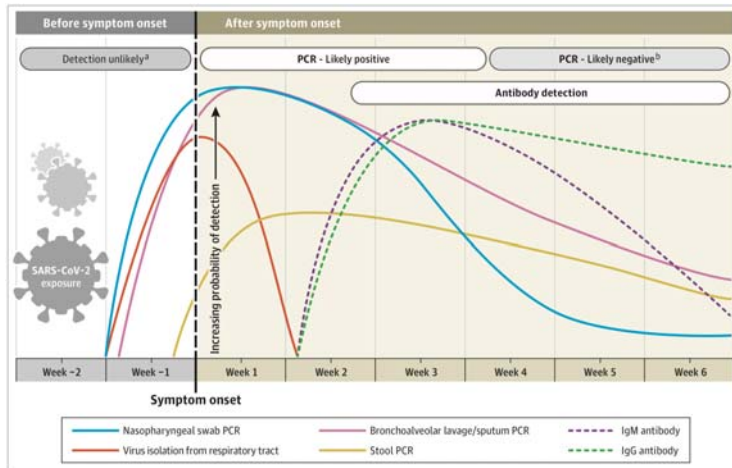


https://cov-lineages.org/lineages/lineage_B.1.1.2.html



Rapid antigen detection





Estimated Variation Over Time in Diagnostic Tests for Detection of SARS-CoV-2 Infection Relative to Symptom Onset

JAMA. Published online May 6, 2020. doi:10.1001/jama.2020.8259



Transmission of SARS-CoV-2: implications for infection prevention precautions

Scientific brief
9 July 2020



CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People™

Coronavirus Disease 2019 (COVID-19)

Modes of transmission



- Contact and droplet transmission
 - Transmission of SARS-CoV-2 can occur through **direct**, **indirect**, or **close contact** with infected people through infected secretions
 - **Respiratory droplet transmission** can occur when a person is in close contact (**within 1 metre**) with an infected person who has respiratory symptoms
 - Indirect contact transmission involving contact of a susceptible host with a contaminated object or surface (fomite transmission) may also be possible



Modes of transmission

- Airborne transmission
 - defined as the spread of an infectious agent caused by the dissemination of droplet nuclei (aerosols) that remain infectious when suspended in air over long distances and time.
 - Airborne transmission of SARS-CoV-2 can occur during **medical procedures that generate aerosols** ("aerosol generating procedures").
 - SARS-CoV-2 **may also spread** through aerosols in the absence of aerosol generating procedures, particularly in **indoor settings with poor ventilation**.
 - Outside of medical facilities, some outbreak reports related to indoor crowded spaces have suggested the possibility of aerosol transmission, combined with droplet transmission, for example, during choir practice, in restaurants or in fitness classes.
 - short-range aerosol transmission



Modes of transmission

- Fomite transmission
 - Respiratory secretions or droplets expelled by infected individuals can contaminate surfaces and objects, creating fomites (contaminated surfaces).
 - **Viable SARS-CoV-2 virus and/or RNA** detected by RT-PCR can be found on those surfaces for periods ranging **from hours to days**.
 - Transmission may also occur indirectly through touching surfaces in the immediate environment or objects contaminated with virus from an infected person followed by touching the mouth, nose, or eyes.



Modes of transmission

- Other modes of transmission
 - SARS-CoV-2 RNA has also been detected in other biological samples, including the urine and feces of some patients.
 - One study found viable SARS-CoV-2 in the urine of one patient.
 - Three studies have cultured SARS-CoV-2 from stool specimens.
 - To date, however, there have been **no published reports of transmission of SARS-CoV-2 through feces or urine**.

COVID-19: Transmission

- The primary transmission of COVID-19 is from person to person through respiratory droplets
 - Droplets are released when someone talks, sneezes, or coughs
 - Infectious droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs
- COVID-19 may also be spread if you touch contaminated objects and surfaces
- Recent data suggest transmission by people who are not showing symptoms



COVID-19: Transmission

- Current data do not support long range aerosol transmission of SARS-CoV-2 such as with measles and tuberculosis
- As with many respiratory pathogens, short-range inhalation aerosols is a possibility for COVID-19 transmission
 - Particularly in crowded medical wards and inadequately ventilated spaces
- Certain procedures in health facilities can generate fine aerosols and should be avoided whenever possible.



See WHO Guidance: [Modes of transmission of virus causing COVID-19: implications for IPC precaution recommendations](#)

To prevent transmission, WHO recommends a comprehensive set of measures including:



- Identify suspect cases as quickly as possible, test, and isolate all cases (infected people) in appropriate facilities;
- Identify and quarantine all close contacts of infected people and test those who develop symptoms so that they can be isolated if they are infected and require care;
- Use fabric [masks](#) in specific situations, for example, in public places where there is community transmission and where other prevention measures, such as physical distancing, are not possible;
- Use of contact and droplet precautions by health workers caring for suspected and confirmed COVID-19 patients, and use of airborne precautions when aerosol generating procedures are performed;
- Continuous use of a medical mask by health workers and caregivers working in all clinical areas, during all routine activities throughout the entire shift;
- At all times, practice frequent hand hygiene, physical distancing from others when possible, and respiratory etiquette; avoid crowded places, close-contact settings and confined and enclosed spaces with poor ventilation; wear fabric masks when in closed, overcrowded spaces to protect others; and ensure good environmental ventilation in all closed settings and appropriate environmental cleaning and disinfection.

Considerations for quarantine of contacts of COVID-19 cases

Interim guidance
19 August 2020



- face-to-face contact with a probable or confirmed case of COVID-19 within 1 meter and for more than 15 minutes;
- direct physical contact with a probable or confirmed case of COVID-19
- direct care for an individual with probable or confirmed COVID-19 without using proper personal protective equipment;¹⁰ or
- other situations, as indicated by local risk assessments.⁵

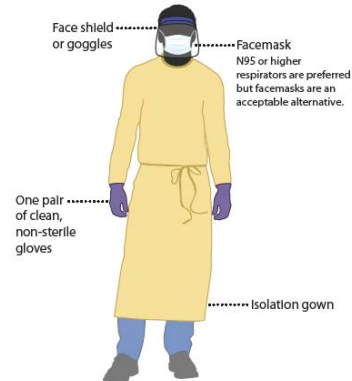


COVID-19 Personal Protective Equipment (PPE) for Healthcare Personnel

Preferred PPE – Use N95 or Higher Respirator



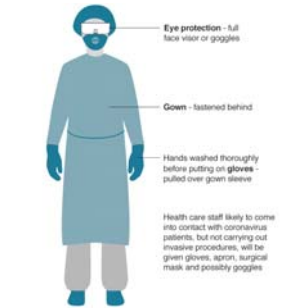
Acceptable Alternative PPE – Use Facemask



ข้อแนะนำการใช้อุปกรณ์ป้องกันร่างกายส่วนบุคคล (PPE)

หมวก Goggles หรือ Face shield Respiratory protection

ถุงมือ Protective gown/ cover all รองเท้าบูท/ Leg cover/ shoe cover



COVID-19

Infection Control

