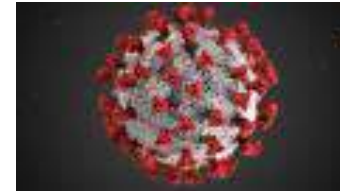


COVID-19

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Outline



EPIDEMIOLOGY



CLINICAL
MANIFESTATIONS



TESTING FOR
COVID-19



PREPARING YOUR
CLINIC



FREQUENT
QUESTIONS

Epidemiology

(Lauer et al, Ann Intern Med, 2020)

Transmission

- Droplet is predominant mode of spread
- Contact is secondary
- Airborne ?

Risk of transmission

- One individual transmits it to 0.45% of close contacts^{1,2}
- One individual transmits it to 2.7 individuals

Incubation Period

- 5.1 days from infection to symptoms [2-14 day range]
- 97.5% acquire their symptoms within 11.5 days
- 1% will develop symptoms after 14 days of

1. Burke RM et al. MMWR Morb Mortal Wkly Rep. 2020:69

2. Close contact: a) being within approximately 6 feet (2 meters) of a COVID-19 case for a prolonged period of time; close contact can occur while caring for, living with, visiting, or sharing a healthcare waiting area or room with a COVID-19 case OR b) having direct contact with infectious secretions of a COVID-19 case (e.g., being coughed on)

Clinical Manifestations

Fever
(>37.3 C) 94%

Cough 79%

Sputum 23%

Fatigue 23%

Myalgia 15%

Diarrhea 4%

Clinical Manifestations

Lab findings

Frequency

- | | |
|--------------------|-----|
| • Leukopenia | 17% |
| • Leukocytosis | 21% |
| • Lymphopenia | 40% |
| • Thrombocytopenia | 7% |
| • ALT > 40 | 31% |

Radiology

- | | |
|------------------------------|-----|
| • Ground glass opacity on CT | 71% |
| • Consolidation | 59% |
| • Bilateral Infiltrates | 75% |

Clinical Manifestations

Complications

- | | |
|-----------------------|-----|
| • Sepsis | 59% |
| • Respiratory failure | 54% |
| • ARDS | 31% |
| • Heart Failure | 23% |
| • AKI | 15% |

ARDS Predictors

- Age >65
- Elevated LDH
- Elevated D-dimer
- Neutrophilia

Wu et al., JAMA Int Med 3/13/2020

ARDS: Acute Respiratory Distress Syndrome

AKI: Acute Kidney Injury

Clinical Manifestations



Predictors of Mortality on admission:

Older Age: Odds Ratio of 1.1 per year increase

High SOFA Score:

- 1 in survivors
- 4.5 in non survivors (OR of 5.65)
- D Dimer: > 1 mcg/L



Time Course:

Illness onset to discharge 22 days

Illness onset to death 18.5 days

Illness onset to intubation 14.5 days

Viral Shedding 22 days (8-37 days range)

Age Distribution and Case Fatality Rates Among more than 44,000 confirmed cases of COVID-19 in China

Most patients aged 30–69 years (77.8%), and approximately 19% were severely or critically ill.

Case-fatality proportion among cases aged ≥ 60 years was:

- 60-69 years: 3.6%
- 70-79 years: 8%
- ≥ 80 years: 14.8%.

Overall case fatality rate among patients who reported no underlying medical conditions was 0.9%,

Case fatality among patients with comorbidities:

- Cardiovascular disease 10.5%
- Diabetes 7%
- Chronic respiratory disease, hypertension, and cancer 6%

Case fatality for patients who developed respiratory failure, septic shock, or multiple organ dysfunction was 49%.

Who to Test for COVID-19

01

Hospitalized patients who have fever or respiratory symptoms

02

Older adults and individuals with chronic medical conditions: Diabetes, heart disease, receiving immunosuppressive medications, chronic lung disease, chronic kidney disease

03

Any persons including healthcare personnel, who within 14 days of symptom onset had close contact with a suspect or laboratory-confirmed COVID-19 patient, or who have a history of travel from affected geographic areas within 14 days of their symptom onset.

04

Anyone with subjective or objective fever OR respiratory symptoms (cough or shortness of breath)

Testing for COVID-19

- Use only synthetic fiber swabs with plastic shafts. DO NOT use calcium alginate swabs or swabs with wooden shafts¹.
 - Nasopharyngeal swab preferred but may also test oropharynx and sputum
- Insert swab into the nostril PARALLEL to the palate until resistance is met by contact with the nasopharynx²
- Leave swab in place for 2-3 seconds then rotate completely around for 10-15 seconds.
- Remove swab and repeat the same process in the other nostril with the same swab

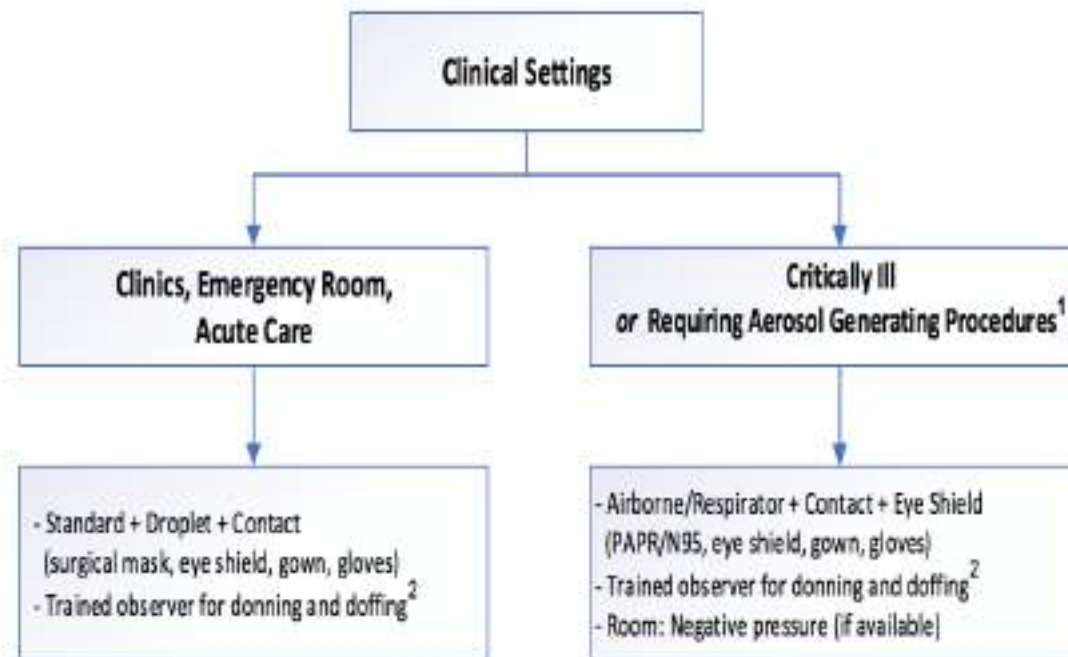


YouTube · The Joint Commission

1. CDC.gov Accessed 3/18/2020
2. UW Medicine, COVID-19 Website

Running out
of PPE?

Personal Protective Equipment (PPE) for Patients with Suspected or Confirmed COVID-19



¹ **Aerosol Generating Procedures:** Examples include intubation, non-invasive ventilation, CPR, bronchoscopy, open suction, nasotracheal suction, nebs.

² **Trained Observer:** Since some patient room doors do not have a window, observation of doffing may not always be possible.

PPE for Specimen Collection: Nasopharyngeal swabs often generate a strong cough reflex. Standard/Contact/Droplet precautions are recommended.

More Information: For testing criteria and detailed information about PPE recommendations for suspected or confirmed COVID-19 cases, please visit our [UW Medicine COVID-19 Website](#)

Recommendations for Discontinuing Home Isolation of Symptomatic COVID-19 Positive Patients

Individuals with laboratory-confirmed COVID-19 who have symptoms

- **Non-test-based strategy (time-since-illness-onset and time-since-recovery strategy):**
 - At least 3 days (72 hours) have passed *since recovery* defined as resolution of fever without the use of fever-reducing medications **and**
 - Improvement in respiratory symptoms (e.g., cough, shortness of breath); **and**
 - At least 7 days have passed *since symptoms first appeared*.
- **Test-based strategy**
 - Resolution of fever without the use of fever-reducing medications **and**
 - Improvement in respiratory symptoms (e.g., cough, shortness of breath) **and**
 - Negative results of an FDA Emergency Use Authorized molecular assay for COVID-19 from at least two consecutive nasopharyngeal swab specimens collected ≥ 24 hours apart (total of two negative specimens).

Individuals with laboratory-confirmed COVID-19 who have not had any symptoms may discontinue home isolation when at least 7 days have passed since the date of their first positive COVID-19 diagnostic test and have had no subsequent illness

Planning at the Clinic Level

Limit the number of entrances

- Screen for fever/cough at entrance
- Have a protocol ready

Triage patients with respiratory symptoms to a designated area

- Have a dedicated team

Process to track patients and results

- Employee Health Nurse/Public Health Nurse/Case manage

Keep your healthcare workforce healthy

- Send home those who can work from home or who have risk factors

Patients should be managed at home if possible

- Prepare for working from home, telemedicine/phone
- Plan for medication refills and delivery



Employee Health

Travelers – 4 Categories

- Return to Work
- Return to Work with Restrictions
 - Mask
- Get tested
 - Quarantine until results available, then re-evaluate
- Quarantine x 14 days
 - Self monitoring at home with daily reporting to employee health nurse

Non-Travelers – 2 Categories

- Symptomatic
 - Get tested (flu > film array > COVID-19), quarantine until results available, then re-evaluate
- Asymptomatic
 - Contacts are symptomatic or concern for potential exposure
 - Mask
 - Contact has COVID-19
 - Quarantine

Personal Protective Equipment

PPE must include

- Gown
- Nonsterile gloves
- N95
- Eye protection (Face shield or goggles)

HCP must receive training on and demonstrate an understanding of:

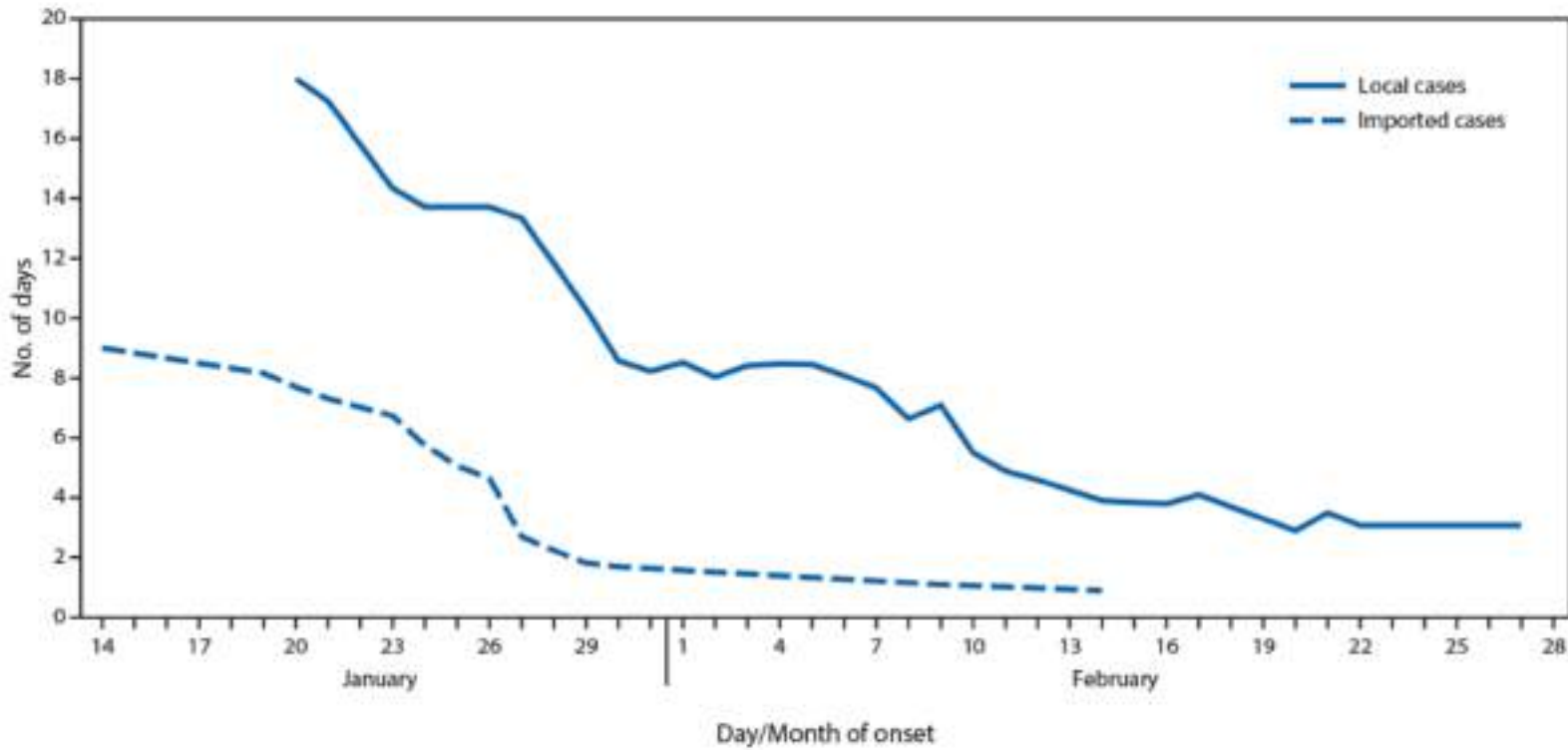
- when to use PPE
- what PPE is necessary
- how to properly don, use, and doff PPE in a manner to prevent self-contamination
- how to properly dispose of or disinfect and maintain PPE
- the limitations of PPE.

Contact Tracing around confirmed cases in Singapore

- **Contacts with symptoms were transferred directly to a hospital**
 - Close contacts were defined as having close (within 6.6 ft [2 m]) and prolonged (generally ≥ 30 minutes) contact with the COVID-19 patient and were placed under compulsory quarantine for 14 days
 - Contacts at lower risk were persons who had some interactions with the COVID-19 patient for shorter periods of time and placed under active monitoring.
 - All contacts were assessed by telephone for fever or respiratory thrice daily for close contacts and once daily for contacts at lower risk
- **Enhanced surveillance by testing the following groups for COVID-19:**
 - All patients with pneumonia hospitalized and in primary care
 - ICU patients with possible infectious causes as determined by the physician
 - Patients with influenza-like illness at sentinel government and private primary care
 - Deaths from possible infectious causes.
 - In addition, medical practitioners could choose to test patients if there was clinical or epidemiologic suspicion.
- **The effectiveness of the surveillance** and containment efforts was assessed by calculating the 7-day moving average of the interval from symptom onset to isolation in hospital or quarantine. This measure provides an indication of the time spent within the community when a person with COVID-19 is potentially infectious.

Contact Tracing around confirmed cases in Singapore

FIGURE 2. Interval from symptom onset to isolation or hospitalization (7-day moving average), of coronavirus disease 2019 (COVID-19 cases) (N = 100), by importation status — Singapore, January 14–February 28, 2020



Ng Y, Li Z, Chua YX, et al. Evaluation of the Effectiveness of Surveillance and Containment Measures for the First 100 Patients with COVID-19 in Singapore — January 2–February 29, 2020. MMWR Morb Mortal Wkly Rep. ePub: 13 March 2020

Thank you

Questions?