COVID-19 Information

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(as of 3/13/2020)

The knowledge base for understanding COVID-19 continues to expand rapidly. Sharing of data and information will allow for the ongoing development of best practices for the proper management and treatment of patients. Maintaining the safety and health of the healthcare staff necessary to provide for increasing care needs is also essential.

The following is provided as a guide to the current understanding of the disease process, suggestions for best practices and as an additional resource for colleagues. Please note that information in continuing to change and frequent updates will be necessary.

**Summary of current understanding of clinical comparison of COVID-19 vs Flu**

**(as of 3/10/20):**

|  |  |  |
| --- | --- | --- |
|  | **COVID-19** | **Flu** |
| Prodrome | Myalgias, malaise, cough, low grade fever leading to severe trouble breathing in 2nd week | Rapid – fatigue, malaise, fever over 1-2 days |
| Symptom Onset | Symptom onset is between 2-9 days post-exposure with median of 5 days (from large Chinese cohort) | Usually 1-4 days post-exposure |
| Onset for more severe symptoms | 7 to 10 days, fever may not be prominent | Rapid / sudden onset fever and myalgias |
| Lab testing | lymphopenia has been noted (with either leukocytosis or leukopenia)  | Usually normal WBC |
| Radiology | Most common in severe disease is bilateral interstitial / ground grass infiltrate | Mostly normal, severe can lead to PNA |
| Co-Infection | < 2 % co-infection rate based on dataset from China and so far very few concurrent or subsequent bacterial infections\*  | Secondary concurrent or subsequent bacterial infections can be common |
| Duration | Uncertain – appears to be 1 to 2 weeks for most cases, longer for more severe cases | Fever and Body Aches usually 3-5 days, Fatigue for 2 or more weeks, more in older, more debilitated population |
| Typical period of contagion | Uncertain – can shed viral RNA up to 1 to 4 weeks after symptom resolution, but uncertain if this relates to being contagious. For now, COVID-19 patients are "cleared" of isolation once they have 2 consecutive negative RNA tests collected >24 hours apart. | 24 hours prior to symptoms and up to 5 to 7 days after becoming sick |

\* Therefore, if the patient has another infection such as Influenza or RSV, they are not likely to have COVID-19. Although not seeing post-viral bacterial infections at this time, diffuse interstitial pattern on Xray suggests post-viral respiratory risk so the patients will need close ongoing monitoring.

Infectious Disease Association of California (IDAC) Northern California Winter Symposium on 3/7/2020

**Testing:**

**CDC** **Human Infection with 2019 Novel Coronavirus Person Under Investigation (PUI) and Case Report Form**

<https://www.cdc.gov/coronavirus/2019-ncov/downloads/pui-form.pdf>

This document provides a screening tool including:

* Demographic, clinical, and epidemiologic characteristics
* Exposure and contact history
* Course of clinical illness and care received
* Diagnostic Testing to rule out other illness presenting with similar symptoms









Clinical specimen Collection (CDC Test Kits)

* Initial diagnostic testing for COVID-19, CDC recommends collecting and testing upper respiratory
	+ Nasopharyngeal **AND** Oropharyngeal swabs
* Lower respiratory (sputum, if possible) for those patients with productive coughs.
	+ Induction of sputum is not recommended.
* Specimens should be collected as soon as possible once a PUI is identified, regardless of the time of symptom onset.
* Store specimens at 2-8°C and ship overnight to CDC on ice pack

Tracking Facility Cases of Respiratory Illness – Use of a Line List

A Line list is an organized, detailed list of each record.

<https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/linelists.pdf>

CDC Template for outbreak of respiratory illness

<https://www.cdc.gov/urdo/downloads/linelisttemplate.pdf>





Resources:

**CDC recommendations for post-acute and long-term care facilities:**

<https://www.cdc.gov/coronavirus/2019-ncov/healthcare-facilities/prevent-spread-in-long-term-care-facilities.html>

* The situation with this outbreak is evolving rapidly with new information being learned daily. The CDC is monitoring the outbreak and working closely with federal, state, and local health departments.
* Healthcare personnel working in post-acute and long-term care (PALTC) settings should refer to the CDC website for the latest updates.

**Ohio Department of Health:**

<https://coronavirus.ohio.gov/wps/portal/gov/covid-19/>

**Hotline: 1-833-4ASKODH** (427-5634)

AMDA (The Society for Post-Acute and Long-Term Care)

<https://paltc.org/COVID-19>



Transmission:

<https://www.cdc.gov/coronavirus/2019-ncov/about/transmission.html>

COVID-19 is spread from person-to-person by respiratory droplets between people who are in close contact with one another

Fomites:

Aerosol and Surface Stability of HC.V-19

[A study](https://www.medrxiv.org/content/10.1101/2020.03.09.20033217v1.full.pdf) awaiting peer review from scientists at Princeton University, the University of California-Los Angeles and the National Institutes of Health (NIH) posted online 3/11/2020 indicated that the COVID-19 virus could remain viable in the air "up to 3 hours post aerosolization," while remaining alive on plastic and other surfaces for up to three days.

Up to 4 hours on copper, up to 24 hours on cardboard, up to 2-3 days on plastic (median 16 hours) and stainless steel (median 13 hours).

BIPAP, Suctioning and Nebulizers create an aerosol and should not be used in patients infected with SARS-CoV-2:

Recommendations to consider:

Stop using Nebulizers for confirmed cases

Switch to Metered Dose Inhaler (MDI)

Suctioning is an aerosolized procedure – recommend minimize

BIPAP aerosolizes so want to minimize use and staff exposure. Close door if using and when remove

Standard contact/droplet precautions for minimum 1 hour after using aerosol generating procedure

https://www.cmaj.ca/content/re-transmission-corona-virus-nebulizer-serious-underappreciated-riskhttps://doi.org/10.3390/v11100940

*Viruses* **2019**, *11*(10), 940; [**https://doi.org/10.3390/v11100940**](https://doi.org/10.3390/v11100940)

**Nosocomial Transmission of Emerging Viruses via Aerosol-Generating Medical Procedures**

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Abstract

Recent nosocomial transmission events of emerging and re-emerging viruses, including Ebola virus, Middle East respiratory syndrome coronavirus, Nipah virus, and Crimean–Congo hemorrhagic fever orthonairovirus, have highlighted the risk of nosocomial transmission of emerging viruses in health-care settings. In particular, concerns and precautions have increased regarding the use of aerosol-generating medical procedures when treating patients with such viral infections. In spite of increasing associations between aerosol-generating medical procedures and the nosocomial transmission of viruses, we still have a poor understanding of the risks of specific procedures and viruses. In order to identify which aerosol-generating medical procedures and emerging viruses pose a high risk to health-care workers, we explore the mechanisms of aerosol-generating medical procedures, as well as the transmission pathways and characteristics of highly pathogenic viruses associated with nosocomial transmission. We then propose how research, both in clinical and experimental settings, could advance current infection control guidelines.

Risk Factors for Increased Mortality:

Lancet (published 3/9/2020) – Study of Chinese Hospitalized Patients with lab confirmed COVID-19

* 91% had Comorbidity – Hypertension, Diabetes, Coronary Heart Disease
* Average age of survivors was 52 years compared to 69 for those who died
* Higher SOFA score (sepsis-related organ failure assessment score)
* High frequency of respiratory failure, sepsis and secondary infections
* Elevated **D-dimer** indicated increased risk of abnormal clotting including DVT
* Time of initial symptoms to time of hospital discharge was 22 days
* Average time to death from onset was 18.5 days
* Viral shedding persisted for a median duration of 20 days in survivors ranging from 6-37 days
* Antiviral treatment did not curtail viral shedding
* Fever persisted for a median of 12 days among all patients
* Cough persisted for a median of 19 days
* Shortness of breath improved after 13 days in survivors

Radiographic Findings:

https://www.medicaldevice-network.com/news/coronavirus-ct-scans/

* The lesions present on the CT images more likely to have:
	+ peripheral distribution (87%)
	+ bilateral involvement (82%)
	+ lower lung predominant (54%)
	+ multifocal (54%)
* 86% of Covid-19 patients have ground-glass opacities (GGO), while 64% have mixed GGO and consolidation and 71% have vascular enlargement in the lesion.
* **Ground glass opacities** indicate partial filling of air spaces in the lungs by exudate or transudate, as well as interstitial thickening or partial collapse of the lung alveoli.

**CT scans provide new insight that could lead to quicker diagnosis- Mount Saini Study**

American Journal of Roentgenology: 1-5. 10.2214/AJR.20.22969

* CT Scan can confirm or rule out COVID-19 based on CT images
* 0-2 days after reporting symptoms, more than half showed no evidence of lung disease—an important finding suggesting that CT scans cannot reliably rule out COVID-19 early in the disease course.
* 3-5 days after symptoms, radiologists note patterns of “ground glass opacities” (hazy findings in the lungs), and the abnormalities became more round in shape and more dense.
* 6-12 days after symptoms, the scans analysis showed fully involved lung disease.





**Family Communication:**

Sample Letter from AMDA <https://paltc.org/COVID-19>

*Insert Facility Name/Logo*

*Insert Date*

Dear Resident & Family,

*Insert Facility Name* is concerned for the ongoing welfare, safety, and health of our residents. The Centers for Disease Control and Prevention (CDC) is monitoring the outbreak of a new virus, COVID-19. The people most likely to become severely ill from COVID-19 are older adults and those with underlying medical conditions.

COVID-19 is now spreading within our community. To the best of our knowledge, none of our residents or staff members have COVID-19.

To minimize the risk of our residents becoming sick with COVID-19, we are suspending all visits to *Insert Facility Name.* This decision is being made in accordance with recommendations from the Centers for Medicare & Medicaid Services (CMS).

We understand that connecting with family members is important. Other ways to connect include telephone, email, text, or through Skype or Facebook.

The CDC has made several recommendations to reduce the potential for the virus to enter our building. Our center is following those recommendations. These include strict handwashing procedures, and in many circumstances, wearing facemasks, gowns, and gloves when interacting with residents who are sick.

We also are staying up-to-date with the CDC recommendations. In addition, *Insert Facility Name* is following guidance from our local and state health departments. For the most up-to-date information on this topic, please visit the CDC website at <http://www.cdc.gov/covid19>.

We will notify you if any residents or staff are diagnosed with COVID-19. Thank you for your patience and understanding.

Sincerely,

Administrator

**Further Considerations:** (Dr.John Lynch, Head of COVID-19 response team UW

Dr. James Lewis from WA State Department of Health)

Who should be admitted to hospital?

Difficult to triage - Monitor

 Monitor pulse ox (clean between patients);

Monitor frequent vital signs

Predictors of declining condition-

Mental status change seems to be the best predictor

Cough increasing a significant indicator of progression

Hard to predict based on labs and history alone; learning more

Only 44% of patients have temperature but very high temp poor predictor;

Testing – using regular lab soon vs CDC

In order to do nasal swab – recommend wear N95 or regular mask/ gown/gloves

Recommend a testing Plan in each facility including what lab to use

Do Flu, RSV and Covid at the same time

Protections – droplet and contact precautions for those known or under suspicion

Close all doors

Clean high touch surfaces at least 2-3 times per day;

include fronts of pumps, anything with buttons, touch screens, etc

Clean patient rooms daily

Patients remain in rooms and wear mask when leave the room

 “Gel In – Gel Out”

Review how Staff perfoming handwashing, etc.

 Monitor staff movements for cross contamination

 Laundry and staff uniforms can be cleaned in regular laundry

Plan for patient transfers

 Work with local hospitals for proper transfer protocols

Psychological aspects of isolation

 Patients and families experience issues related to isolation

 Develop a checklist for communications with families regularly

 Provide availability to talk to families. Put in more land lines.

Activities Staff, Social workers, Administrator and DON

Make Alternative Arrangements - Use Facebook/ Skype/ Facetime

Masks

N95 mask supply limited; must undergo Fit Testing

Use of masks better than no barrier; can reuse mask; avoid face contact with hands

Need new gown and gloves between patients; Do not reuse gowns

**Additional Resource:**

It appears you don’t need a subscription to see the UpToDate material on COVID.

<https://www.uptodate.com/contents/coronavirus-disease-2019-covid-19?utm_source=Newsletter&utm_medium=Email&utm_campaign=UpToDate_Connection_March_2020&mkt_tok=eyJpIjoiT1RobU5XSTRaVGN3WVRkaCIsInQiOiJWSUVpaUxIRUZ0T2FkOWtBeE1XeG5pM1c4NFhcL2Z3d1JlZHlVZHRGQnlQeW5naTliTG14OUxIZ1VUeVl2MlFVSFFMWWZaUzluQ3BNaW1GOHhwall4WUEyVm1BYnR4NDR0Z1lsZ1ArZ3RJWlBzUnNXNExiMUNYMURNZ3FKTHZDSm0ifQ%3D%3D>