

COVID-19 Summary: What I learned working in NYC.

How we can better fight this disease and save lives.

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-The disease kills by causing severe pneumonia that starts in the lower lobes of the lungs then spreads throughout. Areas of pneumonia are visible (white) on chest x-ray. The lungs are normally completely black.



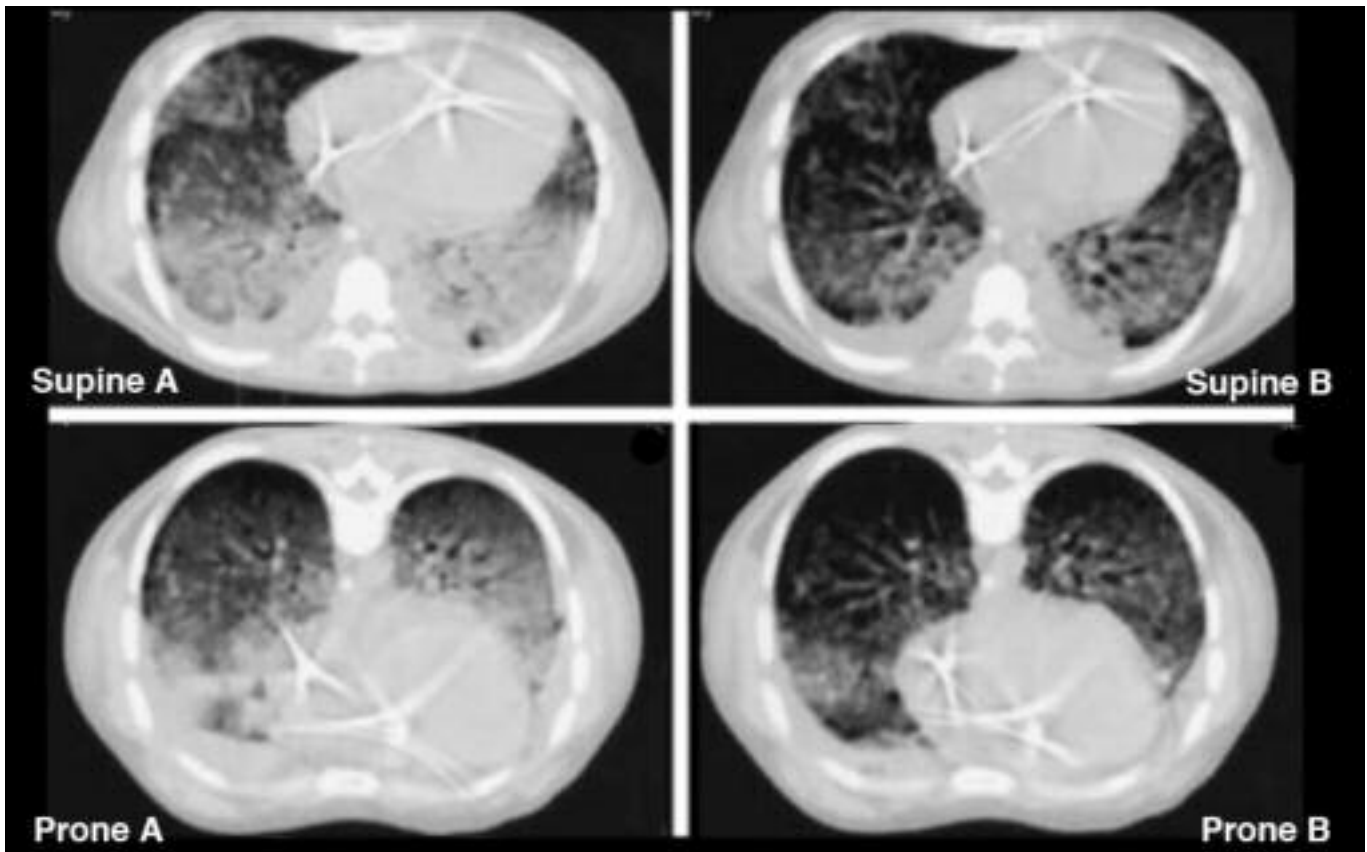
-COVID affects surfactant and causes collapse of the small air sacs in the lungs (alveoli), markedly decreasing the surface area of the lungs available to absorb oxygen.

-Patients often present late in disease process with severely low oxygen saturation. Normal oxygen saturation is 96-100% at sea level in healthy persons. Severe pneumonia with COVID can cause saturations to fall as low as 50%; patients commonly present with oximetry readings in 70's and 80's.

-Severely ill patients often require a ventilator, but the majority of patients with COVID pneumonia can be managed with much less invasive techniques that can rapidly correct oxygenation and reduce the work of breathing.

-The disease process and hospitalization is still a 1-3 week course, even if intubation and mechanical ventilation is avoided.

-Simple things can make a big difference and help avoid progression to severe disease and intubation. Patient movement and positioning can open up alveoli, improve oxygenation and decrease the work of breathing.



-CT scans show the effect of proning—white areas of lungs (where alveoli are collapsed) are decreased by turning the patient onto their stomach. Top images: patient is on back, i.e. supine. Bottom images: when patient is lying on their stomach, i.e., prone. With the heart down on the sternum (prone) the posterior lower lung segments are not compressed the way they are in a supine position. The areas of black (where the alveoli are open) are increased in a prone position.

-Humans facing severe oxygenation challenges always position themselves as prone as possible—whether biking over the Alps, or climbing the highest mountains on the planet.





-The fastest animals on the planet all run prone. Aerobic capacity is optimized, by maximizing lung volume and area for oxygen absorption.

-COVID patients improve their oxygenation with supplemental oxygen, but by turning to a prone position their oxygenation improves significantly. Their work of breathing is also lessened, and their respiratory rates slow down. They report being much more comfortable.

-I have seen patients come in with saturations of 50%, rise to 75-80% with nasal cannula and face mask oxygen, and then go up to 95% when positioned prone (on the same amount of oxygen). Respiratory rates initially in the 40's, slow down to 20's.

-Positioning maneuvers including proning, turn to left side, right side, and sitting upright in a chair-- help open areas of the lungs and improve oxygenation. Patients are now routinely being told to do this in NYC hospitals. Below is the proning instruction sheet for Elmhurst Hospital, Queens NYC.

Instructions for patients with cough or trouble breathing:

Instrucciones para pacientes con tos o dificultad para respirar:

Please try to not speed a lot of time lying flat on your back! Lying on your stomach and in all three positions will help your body to get a new balance of your lung.

(Por favor, trate de no estar mucho tiempo acostado sobre su espalda (sobre la cama). Acostarse sobre su estómago (de cara abajo), por diferentes posiciones, le ayudará a respirar más fácilmente y mejor. Así podrá descansar mejor.

Your health care team recommends lying to change your position every 30 minutes to 2 hours and even sitting up to better than lying on your back. **If you are able to, please try this:**

El equipo de salud le recomienda estar de cambio de posición sobre cada 30 minutos y 2 horas, y aun permanecer sentado o en una silla o en posición de estar de pie. **Si puede, por favor, intente esto:**

1. 50 minutes – 2 hours: lying on your belly
30 minutes – 2 hours: avoidable when you are tired
2. 30 minutes – 2 hours: lying on your right side
30 minutes – 2 hours: avoidable when you are tired
3. 30 minutes – 2 hours: sitting up
30 minutes – 2 hours: avoidable
4. 30 minutes – 2 hours: lying on your left side; then back to avoidable.
30 minutes – 2 hours: avoidable when you are tired; y luego vuelva a la posición 1 y 2

PHOTOS BELOW TO DEMONSTRATE THIS:

LAS FOTOS DEBAJO DEMUESTRAN ESTO:

1. 50 minutes – 2 hours: lying on your belly
30 minutes – 2 hours: avoidable when you are tired
(de cara abajo)



2. 30 minutes – 2 hours: lying on your right side
30 minutes – 2 hours: avoidable when you are tired
(de lado)



3. 30 minutes – 2 hours: sitting up
30 minutes – 2 hours: avoidable



4. 30 minutes – 2 hours: lying on your left side
30 minutes – 2 hours: avoidable when you are tired



Then back to Position 1, lying on your belly!
Luego, vuelva a la posición 1, acostado sobre su estómago
(de cara abajo!)



-Proning is relatively easy for thinner patients, although it is not comfortable on a standard stretcher mattress.

-Many larger patients cannot tolerate proning, due to difficulty breathing (from their belly impinging on their chest excursion) or from back discomfort.

-This is the first time in medical history that awake proning and patient positioning maneuvers are an integral part of treatment for an enormous number of patients.

-A proning mattress (originally designed as a massage mattress for pregnant women) makes proning much more comfortable and achievable--even in obesity or pregnancy. It has allowed patients to prone that could otherwise not tolerate doing so. This has helped them avoid intubation and having to be put on a ventilator.

-The mattress is lightweight, easily fits on a hospital stretcher, and can be wiped down and cleaned using standard hospital disinfecting wipes.



Top left: Author holding the proning mattress, made by Earthlite, 760-599-1112. Email at: dealerorder@earthlite.com.

Above: Patient with COVID pneumonia in NYC emergency department using proning mattress.

Left: Mattress demonstration on a hospital emergency department stretcher.



***Register at Prone2Help.Org for free sample of the proning mattress.
or email: robert@prone2help.org***