

Back to the Basics: Incentive Spirometry



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Opinion

In light of the COVID-19 pandemic, I have tried to apply the results of my attempts to weed through available electronic information (facts, figures, myths, and rumors) to my inpatients in acute inpatient rehabilitation. Many of my inpatients are require some physical rehabilitation following a significant neurologic event (I mostly care for patients recovering from traumatic brain injuries or ischemic/hemorrhagic strokes). Their acute hospitalization usually required cardiopulmonary resuscitation as well as temporary mechanical ventilation, followed by several days/weeks of confinement to a hospital bed. As a result, their respiratory capacity is very poor. An Incentive Spirometer (IS) is an instrument often recommended to help improve respiratory volume. Variations in the frequency recommended abound [1], with the goal of inspiring to a pre-specified number. Nomagrams exist for gender, age, and height, which stem from a formula published in 1979 [2], but often a goal of 1500-2000 mL forced inspiratory volume is indicated.

Reading the reports of patients suffering from severe COVID-19 complications, reduced lung capacity seems to be a potential complication. A quote from the medical director of Hong Kong's Infectious Disease Centre has appeared on multiple websites, including Hong Kong Health & Environment news, and the

Business Insider. Some patients might have around a drop of 20 to 30% in lung function he is reported to have said. If patients start at lung capacities that are already reduced because of other comorbidities, a further reduction of their lung capacities by 20-30% would likely necessitate further mechanical ventilation, if not become fatal. Therefore for the next several weeks/months, I have been encouraging the nurses and therapists in our acute inpatient rehabilitation unit to improve compliance with incentive spirometry. While there is conflicting evidence, likely due to inconsistent patient adherence [1], perhaps fear of COVID-19 will motivate patients to follow recommendations. If every therapist and rehabilitation nurse, whenever they entered a patient's room, asked the patient to perform 1-2 uses of the IS, patient compliance would likely improve. If we could prevent even just a few of our recently discharged patients from having to functionally regress and be placed back on mechanical ventilation, our efforts would be successful.

References

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2. G Polgar, V Promadhat (1979) The American Review of Respiratory Diseases official journal of the American Thoracic Society. 120(3).



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