

What's the Problem?

The COVID-19 pandemic has led to a proliferation of patients developing ARDS and requiring prolonged supportive care on mechanical ventilation. As a result, patients need elevated levels of sedation, often on multiple agents for a period greater than typically seen in an ICU population. As a result of this high sedation phenomenon, patients are developing higher rates of expected complications including severe constipation, neurocognitive delay, ICU myopathy, poor sedation weaning, and high pain control requirements. These complications lead to an increased rate of mortality in a population that is already very high and decreases the rate of successful extubation and discharge.

Cause Analysis: Root causes of this

problem include:

- Lack of clear understanding of drug-drug interactions and long-term effect of multiple sedative agents
- Lack of protocols for guiding regular sedation holidays and how to perform them adequately in this population
- Lack of staff for adequate daily physical therapy for weaning patients
- Lack of multidisciplinary think-tanks to identify sedating and weaning management.

How Might We? *Best titrate sedation protocols to maximize patient vent synchrony and pain control while minimizing their deleterious effects?*

Protocol: *Individuals who are diagnosed with COVID-19 and require mechanical ventilatory support for a prolonged period (defined as >72hours) will be listed on a special registry shared with respiratory therapy, physical therapy, pharmacy and the prone team. This will trigger a protocol:*

1. *Prone team will attempt supine during day-light and prone during nighttime.*
2. *Patients will be placed on an aggressive bowel regimen to maintain colonic motility.*
3. *Sedating meds will be queried, and a regimen developed to minimize their deleterious effects.*
4. *RASS goals will be relaxed to keep the patient as lightly sedated as possible.*
5. *Antipsychotic meds with the side-effect of somnolence will be added with the goal of enforcing a normal sleep-wake cycle to minimize use of sedatives, melatonin will be added to the patients' daily nocturnal medication list for circadian rhythm maintenance.*
6. *Sedation holidays will be timed to sunrise and the time in minutes will be recorded until patient fails, if the patient is stabilizing during the sedation holiday then solo physical therapy exercises will be played on their TV with prompting by the team when present to have the patient attempt them, and the patient's progress will be tracked in a secure database to identify the effect of different sedating parameters to identify patterns and optimize dosing by a multidisciplinary team.*

As results, patients may experience few complications and wean off the mechanical ventilator sooner, resulting in better patient outcome and morale booster for the medical team.

