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and decreases mortality. Data from COVID-19 cohorts mirror these findings.⁵ Tracheostomy is associated with decreased opioid use.⁶ Although we welcome the ongoing accrual of evidence, the preponderance of clinical data, including meta-analyses, documents a rationale for early tracheostomy. Claims that patients with COVID-19 require different standards of critical care have generally not withstood scrutiny. The flawed notion that decades of evidence-based standard of care should be abandoned takes a page from the first wave playbook—a playbook that has not withstood the test of time.

- 4) “[Delaying tracheostomy avoids] logistical challenges with tracheostomy aftercare, discharge planning, and disposition.” The high rates of decannulation reported in studies of patients undergoing COVID-19 tracheostomy attest to feasibility of aftercare for these patients. Multidisciplinary teams minimize adverse events and improve efficiency.⁷ The adage “amateurs talk about strategy, while experts talk about logistics” applies to COVID-19 tracheostomies. Planning includes disposition, equipment, and expedited downsizing and decannulation processes. Training of nursing, respiratory therapy, and speech and language pathology personnel to care for patients with tracheostomy and identify laryngotracheal disease (dry cough, hoarseness, stridor, dysphagia) is essential.

Evidence-based practices improve outcomes, ensure patient-centered care, and promote humanism. Tracheostomies should be performed when clinically indicated, with accountable post-tracheostomy care. Although personal protective equipment and safety protocols must adapt mid-pandemic, procedure timing is business as usual. Sawubona.

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Rebuttal From Drs Pandian, Murgu, and Lamb



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Brenner and colleagues¹ identified several reasons why tracheostomy should be done before 14 days of mechanical ventilation in patients with coronavirus disease 2019 (COVID-19): 1) reduced prevalence of post-ICU syndrome (PICS); 2) earlier participation in rehabilitation; 3) decreased risk of tracheomalacia and tracheal stenosis, ventilator-associated pneumonia, and mortality; 4) lack of high rates of infection in health care workers performing tracheostomy; and 5) increased ICU bed capacity.¹

These reasons for performing early tracheostomy must be viewed with caution. Although prolonged mechanical ventilation is a known risk factor for PICS, no data suggest that tracheostomy reduces this risk.² We expect that PICS will be prevalent in

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COVID-19 ICU patients who survive,³ but whether the timing of tracheostomy affects this risk is not yet known. The data supporting an earlier return to walking, talking, and eating⁴ and the debatable evidence favoring early tracheostomy in terms of ventilator-associated pneumonia and mortality portrayed in Figure 2 come from studies in non-COVID-19 patients.¹

The data to support the claim that tracheostomy decreases the risk of tracheomalacia and tracheal stenosis are lacking. We agree that earlier extubation may lower the risk of these complications, but a higher prevalence of stenosis is reported with tracheostomy than with intubation alone.⁵ In fact, the stomal, suprastomal, cuff- or tracheostomy tube tip-related strictures or granulation tissue are well-documented complications, and no clear evidence indicates that early tracheostomy reduces the prevalence of these complications.⁶ Although we agree that high infection rates in health care workers performing tracheostomy have not been reported,⁷ the existence of asymptomatic carriers should not be ignored, and is not without consequence in the health care environment. To date, no study has reliably performed timely COVID testing of the clinicians involved in the tracheostomy procedure.

Some argue that early tracheostomy may improve ICU bed capacity because of reports of a shorter length of stay (40 vs 49 days)⁷; however, the timing of the tracheostomy has not been shown to decrease the duration of mechanical ventilation or the time to decannulation.⁸ In our opinion, transferring a patient out of the ICU to a long-term assisted care unit days earlier is not necessarily a patient-centered outcome. We also recognize the preexisting limited number of long-term care or subacute rehabilitation facilities (398 in United States) that can accept patients with a tracheostomy.⁹

A systematic review and meta-analysis of 18 studies exploring 3,234 COVID-19 patients showed that only 5.2% of tracheostomies were performed within 7 days (early), and 21.2% were performed between days 8 and 13, whereas most (71.5%) of the tracheostomies were performed 14 days or later post-intubation. The meta-analysis did not reveal the benefit of early tracheostomy in terms of duration of mechanical ventilation or time to decannulation, nor was late tracheostomy associated with increased mortality.^{8,10}

We believe that the existing published data suggest that the historical distinction of early vs late tracheostomy may not be applicable in patients with COVID-19. Pre-COVID-19 studies of tracheostomy were not necessarily related to critical illness after an infectious cause but rather to an exacerbation or progression of a pre-existing condition. Even in New York City during the first few months of the pandemic, the mean time from intubation to tracheostomy was 12.23 days (SD, 6.8), despite a deliberate effort to perform an early tracheostomy.³ These data suggest that despite the potential need to increase ICU bed capacity in the United States epicenter of the COVID-19 pandemic, on average, clinicians proceeded with tracheostomy after day 10, likely because they accounted for the virology of SARS-CoV2 as well as the context of the natural history of the disease.³ The decision to proceed with a tracheostomy should be multifaceted⁷ and multidisciplinary.¹¹ It should account not only for one variable of days since intubation but also for the estimated duration of required mechanical ventilatory support, peak infectivity period, disease severity markers, use of approved anti-COVID therapies, and overall goals of care. We suggest that future algorithms should avoid the traditional dichotomy of early vs late and consider a three-tiered approach of early (<7 days), intermediate (8-13), and late (>14 days) tracheostomy. Such an algorithm could account for these factors and may help clinicians individualize the approach to tracheostomy in COVID-19 patients. We believe that in the past year, we have learned that we do not need to wait for day 21 to perform a tracheostomy in a patient with COVID-19. However, published evidence and understanding of this disease do not justify an early (<7 days) tracheostomy if we consider safety of the health care team and patient-centered outcomes.

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