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Pediatric Medically Necessary, Time-Sensitive Scoring Tool Facilitates Dynamic and Flexible Decision-Making and Triage for Procedures

In Reply to González Villarreal and Colleagues

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We would like to thank Dr González Villarreal and colleagues[1] for their thoughtful response. In their retrospective analysis, they concluded that the Pediatric Medically Necessary, Time-Sensitive (pMeNTS) tool[1] did not "encompass substantial utility in our setting, possibly due to the fact that reasons other than procedure, disease and patient-related factors influenced the deferral of surgery for most patients." It appears that Dr González Villarreal and associates[1] applied the pMeNTS tool in a novel manner beyond its original intent, and that may explain their findings.

The pMeNTS tool was not intended to be applied as a rigid framework such as that described by Dr González Villarreal and colleagues.[1] To that end, it is, in fact, predictable that the thresholds used at UChicago Medicine in April would be different than those in the month of May in Colombia. The pMeNTS system was designed to be a flexible tool, capable of adjustment to local hospital and regional conditions. This adaptive nature of the pMeNTS tool facilitates dynamic decision-making and triage for procedures, and to apply a rigid high and low cut-off value misses our intent. For example, our institution would shift the single cut-off value on a dynamic, near-daily basis. The cut-off might, for example, land at 44 one week and 52 by the following week, as this number was necessarily shifted higher or lower each day. Factors such as the surgical risk to a patient and our personnel were constantly assessed, and balanced against availability and use of scarce hospital resources. The manuscript provides examples of this feature, as does the visual abstract. We have found pMeNTS and the original MENTS scoring to be applicable across specialties and diseases, and it has greatly facilitated equity with regard to case selection. The transparency of this framework has been found to provide reassurance to our nonsurgeon colleagues, trainees, and patients that both their safety and the judicious use of resources are considered systematically.

Had Dr González Villarreal and colleagues used the pMeNTS system as a flexible and dynamic tool with different cut-off values over the course of their study, they could have evaluated those choices within the framework of the pMeNTS scoring tool. We hope that this would have provided the same valuable, real-time feedback on those choices that we experienced in our institution.

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Performing Ultrasound-Guided Percutaneous Tracheostomy in COVID-19 Patients

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We read with great interest the article by Foster and colleagues[1] about tracheostomy in patients with COVID-19. Although the literature on tracheostomy in such patients is scarce and based largely on experience with the severe acute respiratory syndrome epidemic, their recommendations are well supported by the available literature. However, we believe that there is room for discussion about the use of percutaneous tracheostomy specifically.

Our institution is now one of the largest public medical facilities dedicated to patients with COVID-19 in South America. Based on the current evidence about the procedure and contamination precautions, we developed a dedicated tracheostomy team for COVID-19. Our institutional protocol resembles the one described by Foster and colleagues,[1] except for the absence of a negative

pressure room and the use of percutaneous tracheostomy, which is being done using ultrasound.

Ultrasound-guided percutaneous tracheostomy (UGPT) has not yet experienced widespread use. The risk of complications, especially injury to the posterior wall of the trachea, still haunts surgeons. Although severe, this complication is rare and not exclusive to the UGPT technique,[2] and studies have shown that UGPT is as safe as the bronchoscopy-guided percutaneous tracheostomy.[3,4] At a time when contamination risks are highlighted, it seems that the UGPT might preserve the benefits of the percutaneous technique[5,6] without the associated risk of bronchoscopic airway manipulation.

Several potential benefits of the UGPT should be underscored. First, the procedure can be carried out by a single surgeon, keeping the assistant prepared to join only if conversion is needed, minimizing personnel exposure. Second, there is no need for smoke evacuators because no cautery is used. Third, UGPT can be performed easily at the bedside, precluding transport to the operating room and its contamination risks and potential complications. However, unfavorable anatomic conditions, the impossibility of neck extension, and the presence of large vessels on the puncture trajectory might preclude UGPT.

We developed small modifications of the usual dilational technique to reduce the risk of aerosolization during UGPT. Before ultrasound-guided endotracheal tube positioning, ensure the mechanical ventilation has stopped and full expiration has been achieved. Then, deflate the cuff, pull the endotracheal tube proximally, reinflate the cuff, and secure the tube in its new position with ventilation halted. Re-establish ventilation and wait for adequate pre-oxygenation before proceeding. Immediately after tracheal puncture, stop the ventilation. Perform the next steps (ie guidewire passage and surgical tract dilation), protecting the tracheostomy site with a surgical towel. Ventilation is re-established after successful placement of the tracheostomy tube, which is confirmed by lung ultrasound, or capnography when available, avoiding the use of stethoscopes. If oxygenation is necessary before that final step, the surgeon must block the tracheostomy site, reassuming the procedure after adequate oxygenation and another ventilation halt. All staff involved must shower after doffing their personal protective equipment.

We have performed more than 10 UGPTs in patients with COVID-19 using the modification mentioned. Such a technique is feasible with adequate but short training of the team, and the apnea time is short and well tolerated, evidenced by only a mild decrease in oxygen saturation in a few patients during the procedure (unpublished data). In addition, the whole procedure can be carried out with the endotracheal tube cuff inflated proximally to the puncture site, potentially preventing additional viral spreading towards the physician responsible for the airway manipulation.

Surgeons should choose the technique they are most familiar with to perform tracheostomy. We believe that by standardizing the relevant steps of the procedure, surgeons who are more familiar with the percutaneous technique might still use it during the COVID-19 pandemic.

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Thromboelastography Might Be More Applicable to Guide Anticoagulant Therapy than Fibrinolytic Therapy in Critically Ill Patients with COVID-19

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We read with interest the recent report by Wright and colleagues[1] "Fibrinolysis Shutdown Correlation with