There is significant interest in the integration of mobile health technologies (including accelerometry) as a source of endpoints in PAH. We used a "low-tech," generalizable approach but required a companion, equipment, and guidance from coordinators. Our results may have been subject to selection bias and may be applicable only to stable low-risk patients, given the average 6MWD (1). Although only one subject had a related adverse event, the safety of this approach needs to be confirmed in a larger study. Social facilitation and the Hawthorne effect, which can alter task completion results when subjects are aware of being observed (9), may have contributed to our findings. Although the difference was not significant, we noted some variation by site (remote 6MWD was higher or lower compared with in-clinic distance; Figure 1A); Philadelphia and Providence are in the Northeast, with small differences in terrain, climate, and urban, suburban, and rural communities. Recruitment spanned seasonal changes at both sites (October 2020 to August 2021). Although our results require replication in additional settings, we conclude that remote 6MWTs may be feasible and valid in stable patients with PH. In masked patients with reductions in the in-clinic 6MWD, it may be reasonable to repeat their studies unmasked while taking appropriate infection prevention precautions. ■

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A Physiological Hypothesis to Support the Use of Continuous Positive Airway Pressure at Extubation among Patients with Obesity

To the Editor:

We read with great interest the *post hoc* analysis by Thille and colleagues (1) of a randomized clinical trial investigating the use of high-flow nasal cannula (HFNC) versus noninvasive ventilation (NIV). The authors showed that in patients with obesity, prophylactic use of NIV alternating with HFNC immediately after extubation significantly decreased the risk of reintubation and death compared with the use of HFNC alone. This effect was not observed among patients with normal and underweight body mass index (BMI). This

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study is clinically relevant for two reasons. First, obesity is becoming a common finding in mechanically ventilated patients. Second, despite some data in support of the use of NIV among patients with obesity at high risk of extubation failure, NIV is rarely implemented after extubation (2). Although the current study does not represent a definitive trial, we believe that there are solid physiologic reasons that explain why NIV is beneficial after extubation in obesity.

In a recent ambulatory study (3) of patients with obesity and normal-range BMI, we characterized the effects of NIV on work of breathing. Our study rationale stemmed from prior observations that patients with obesity have elevated pleural pressures when mechanically ventilated and have recruitable lungs if adequate positive end-expiratory pressure (PEEP) is set to match resting pleural pressure after a recruitment maneuver (4). We found that applying noninvasive continuous positive airway pressure (CPAP) set to match pleural pressure as measured through esophageal manometry led to a dramatic reduction in work of breathing in ambulatory patients with obesity but not in patients with normal-range BMI. At baseline before CPAP initiation, patients with obesity demonstrated large inspiratory swings in pleural pressure—both for achieving airways opening as well as for V_{TS}—representing a tremendous work of breathing in this population even outside of acute illness. CPAP matching end-expiratory pleural pressure in subjects with obesity dramatically reduced pleural pressure swings, reduced occlusion to airways opening, improved peripheral oxygen saturation, and led to a more homogeneous distribution of ventilation as observed through electrical impedance tomography.

In an intubated patient with BMI of 43 kg/m^2, we observed failure of spontaneous breathing trial when performed according to the hospital standard of care (i.e., low degrees of PEEP, 5 cm H_2O) (5). At 5 cm H_2O PEEP, esophageal manometry revealed both high amounts of end-expiratory pleural pressure and large swings during the inspiratory phase, which is expected in subjects with obesity. When PEEP was set to counterbalance the high degree of pleural pressure, a threefold reduction in inspiratory work of breathing was observed. Furthermore, the analysis of lung ventilation by electrical impedance tomography showed a more homogeneous distribution of ventilation at higher degrees of PEEP and disappearance of a Pendelluft phenomenon (6).

Taken together, these studies suggest that a titrated degree of PEEP to overcome airway occlusion and excessive work of breathing during weaning from mechanical ventilation and the application of postextubation NIV might lead to improved outcomes. Although the goal of a spontaneous breathing trial is to simulate postextubation conditions (baseline work of breathing and respiratory mechanics), NIV might help this subset of patients with obesity readapt to spontaneous breathing conditions, clear lingering anesthetics, and sit awake in the upright position. On the contrary, extubation to atmospheric pressure might promote lung derecruitment and hemodynamic derangement owing to large transthoracic pressure swings, especially in those patients who are not fully awake and/or sitting fully upright.

Although future studies should test the present hypothesis, Thille and colleagues should be complimented for demonstrating improved outcomes in this vulnerable and understudied population. ■

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Reply to Florio *et al.*

From the Authors:

In a study recently published in the *Journal* and including 623 patients at high risk of extubation failure in ICUs, we showed that prophylactic use of noninvasive ventilation (NIV) immediately after extubation significantly decreased the risk of reintubation and death in obese or overweight patients compared with high-flow nasal oxygen (1). Among obese or overweight

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