limitation and the use of human gastric aspirates is being evaluated. Future work prioritizing the evaluation of potential NTM access through airway damage could provide further support for GER and NTM pulmonary infections.

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To the Editor:

A recent series in the Journal by Ziehr and colleagues (1) details their institutional experience with 66 mechanically ventilated patients with coronavirus disease (COVID-19) in the ICU. Acknowledging differences in outcome definitions and length of follow up, the strikingly low mortality rate of 16.7% reported by these authors still stands in stark contrast to data for such patients from around the world, so much so that this mortality figure resembles survival figures from other sites (2–4). This number is also at odds with personal frontline observations, all of which make it challenging to assimilate the study’s implications: patients with COVID-19 are no different from a typical population with acute respiratory distress syndrome (ARDS), and, if managed with conventionally accepted ARDS ventilator strategies alone, a mortality rate under 17% is within reach. A closer look at certain features of the study invites skepticism:

1. A total of 21/66 (34%) patients were treated with statins prior to hospital presentation, but that number ballooned to 54/66 (82%) during the study course. Though mechanistic plausibility exists (5) and patients newly started on a statin may have been clinical trial participants, one is left wondering about a “standard” approach to ARDS management that includes a therapy shown to have no benefit in two major randomized clinical trials (6, 7).

2. Informative is a juxtaposition of this patient sample with that of the PROSEVA (Proning Severe ARDS Patients) trial (8), results of which have been widely applied to the care of patients with lung disease associated with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) on the assumption of a common pathobiology and therefore response to interventions. Fewer than half (47%) of patients underwent prone positioning in Ziehr and colleagues, and the median time for this intervention was Day 3. Despite this rate and timing of proning, Figure 1 of Reference 1 demonstrates that the initial median PaO2/FiO2 ratio of 182 for the entire cohort on Day 1 was already up to a median of approximately 250 by Day 2, a time by which only the first quartile of the eventually proned patients had even begun proning as indicated by the interquartile range of 2–5. In contrast, after the first day, the proning arm of the PROSEVA trial—all of which was pronounced—exhibited a barely detectable improvement in PaO2/FiO2 ratio measured in the supine position (Table S2 of Reference 8). Such “unARDS-like” clinical behavior casts a shadow over the conclusions of the study by Ziehr and colleagues.

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3. The authors report a tracheostomy rate of 21.2%. This figure far exceeds ARDS tracheostomy rates in a global sample (13%) (9) and in the supine group of the PROSEVA trial (5.2%), study populations that are both characterized by greater ARDS severity than the cohort of Ziehr and colleagues. Tracheostomy has been shown to improve short-term but not long-term survival in patients with ARDS (9).

4. The authors registered an ICU discharge rate of 75.8%, a result that is discordant with other reports (2) and enthusiasm about which warrants caution. A common frontline observation is that patients with COVID-19 are highly susceptible to complicated hospital courses following initial ICU discharge, punctuated by returns to the ICU and a remarkable propensity for sudden death. Data about this aspect of critical illness in COVID-19 are lacking, but the ICU discharge rate reported by Ziehr and colleagues risks conveying a prematurely optimistic message.

The arguments presented herein are a call for care in adopting the results of the study by Ziehr and colleagues as demonstration that SARS-CoV-2 lung disease fully conforms to the ARDS paradigm and as the latest benchmark for ICU outcomes in this condition. Frontline experience suggests that reality lies somewhere between published extremes.

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Reply to Epelbaum

From the Authors:

We thank Dr. Epelbaum for the opportunity to further discuss our data. Dr. Epelbaum raises several important points for discussion.

Massachusetts General Hospital and Beth Israel Deaconess Medical Center are tertiary care hospitals at the epicenter of the coronavirus disease (COVID-19) response in Boston, Massachusetts. As of May 16, 2020, the hospitals have cared for more than 700 critically ill patients with COVID-19. Our motivation to publish our frontline systematic observations stemmed from concern that anecdotal reports, susceptible to cognitive biases (1), were gaining significant attention and impacting practice patterns for respiratory failure (2).

As of May 16, 2020, our cohort of 66 patients had a median follow-up of 53 days (range, 48–67 d) with 14 total deaths (21.2%) (3). Fifty-one patients (75.8%) had left the ICU, and 46 patients (70.0%) were discharged alive from the hospital. Six patients (9.1%) remained hospitalized. Fifteen of 66 patients (21.2%) received a tracheostomy; 8 patients (53%) were decannulated. We agree that further studies are needed about the timing and use of tracheostomy in COVID-19 respiratory failure. Dr. Epelbaum states that reports from New York and Italy are discordant with the mortality in our cohort; however, the mortality rates are in fact quite similar. The cited article from New York has been formally corrected to reflect a mortality of 24.5% among mechanically ventilated patients. In the cited manuscript from Italy, mortality at the time of censoring was 26% for ICU patients (4). All early reports should be interpreted in the context of limited follow-up and absence of risk adjustment. However, our original report described a follow-up period which, to our knowledge, was longer than any published series outside China. We would also emphasize that the 70% hospital discharge rate in our cohort does not support Dr. Epelbaum’s statement of “remarkable propensity for sudden death” following initial ICU discharge.

Dr. Epelbaum reports that the comparison of our cohort to the PROSEVA (Prone Positioning in Severe ARDS) (5) trial reveals “unARDS-like’ clinical behavior.” First, we caution against direct comparison of our entire cohort to PROSEVA. PROSEVA enrolled...