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## Assessing Nutrition Delivery in ICUs – A Difficult Problem to Digest

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We read with interest the study by Compher *et al*<sup>1</sup> assessing energy and protein intake in high risk critically ill patients. As the majority of older patients admitted to ICUs are malnourished<sup>2</sup>, assessment of nutritional risk using tools such as the NUTRIC score may be valuable to determine which patients would derive the greatest survival benefit from improved energy and protein intakes. This study highlights the value of greater nutritional intake in high risk patients, as lower mortality and shorter time to discharge was observed with greater protein and energy intakes.

It is interesting that patients received on average 60% of goal energy and protein intake, despite ASPEN guidelines recommendations of >80% of estimated goal energy and protein. Data from our ongoing pilot study providing protein supplementation to older, critically ill patients demonstrate control subjects received 56% of recommended energy and 39% of recommended protein<sup>3</sup>. Of note, energy and protein delivery is based on recordings by nursing. To examine this documentation and delivery discrepancy further, we conducted a feeding pump audit of patients in a chronic ventilator unit, and found that the pumps delivered 96% of the prescribed volume regardless of nursing documentation. This poses the question of whether we could extrapolate that study patients on enteral feeds receive more of

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their prescribed energy than recorded. Thus, their caloric deficit might be less than perceived if we were to utilize data from feeding pumps.

In the ICU, enteral feeding is frequently paused for procedures, imaging studies, and other patient care interventions, so it is understandable that there may be discrepancies between documentation and delivery. We are curious as to whether the authors encountered a similar discrepancy between recorded and actual delivery. It would be ideal for feeding pumps to “communicate” with the electronic medical record via electronic data transfer, to ensure that appropriate intake is recorded consistently. It is even more difficult to accurately assess oral intake. Nutritional supplements are not consistently recorded with medication administration, and dietary intake is recorded as percentage tolerated. Furthermore, the authors state that each site used its own protocol to establish energy and protein needs. Given the known limitations of predictive equations to estimate energy intake in older hospitalized adults<sup>4</sup>, we wonder how methods to determine energy needs varied across hospitals, potentially resulting in over- or under-estimation of energy needs.

Due to the complexities noted above, we advocate an interdisciplinary approach for improvement of nutritional management in ICU settings. It is concerning that we are still a long way away from reaching the target energy and protein intake for critically ill patients. While achieving >80% recommended intake is ideal, it may not be feasible in many ICU settings, as even multicenter trials report a delivery of approximately 60% of goal intake. Given the inconsistencies in reporting enteral feeds, variability in ICU protocols to determine energy needs, and difficulty in assessing oral dietary intake, a collaborative effort between nurses, physicians and dietitians may be the solution in achieving optimal nutritional intake among critically ill patients.

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