



NIBBLE



**Critical Care
Nutrition**

Nutrition Information Byte (NIBBLE)

Brought to you by www.criticalcarenutrition.com and your ICU Dietitian

The Importance of Nutritional Adequacy (or Avoiding Caloric Debt)

Hey, did you hear the news? The World economy is struggling because of burgeoning global debt. But that is not the only debt you need to worry about. There is something called caloric debt. Caloric debt occurs when your patient does not receive the amount of calories they are prescribed (we could tell the same story about protein but for sake of simplicity, we will only refer to caloric debt). This can be considered a cumulative debt as days go by and patients remain undernourished. The problem is that increased caloric debt is associated with worse clinical outcomes (increased complications, increased time on the ventilator, increased mortality). The opposite of this is also true. **Patients who are better fed have better outcomes.** In a large scale observational study, after adjusting for all important confounding variables, we recently demonstrated that for every 1000 kcal/day received, patients have a significant reduction in mortality, more ventilator-free days, and few infectious complications compared to patients receiving less calories^{1,2}. **The bottom line: Efforts to minimize caloric debt are worthwhile!**

“Where performance is measured, performance improves. Where performance is measured and reported on, performance accelerates.”

- T. Monson



What can I do to minimize caloric debt for my patient?



The first and most important strategy is to **start enteral nutrition as early as possible**, for sure within the first 24-48 hours of admission. The most recent, up to date meta-analysis shows that early enteral nutrition is associated with a 32% reduction in mortality and a 24% reduction in infections. You can see [this meta-analysis](#) from our Canadian Guidelines on our website. To get this benefit for your patients, the EN has to start within 48 hours from admission to ICU but the sooner the better!



Stay Tuned!

Future editions of NIBBLES will discuss the following topics:

- ✓ Strategies to deal with GI Intolerance
- ✓ Enteral feeding hemodynamically unstable patients
- ✓ Feeding the surgical patient with an anastomosis

...and much more!

If you have additional topics for NIBBLES please contact us.

In the International Nutrition Survey in 2009, the average time to start EN following admission to the ICU was 41 hours, with the best and worst performing sites initiating EN 9 and 144 hours after admission, respectively.

Secondly, we would encourage you to **keep track of the caloric debt daily and report on it at rounds**. This can easily be done by calculating the volume of enteral formula received by your patient over the volume they were supposed to receive per 24 hour period. Reporting on nutritional adequacy on daily rounds will have a great impact on meeting the nutritional needs of our patients.

In the International Nutrition Survey in 2009, overall nutritional adequacy from enteral nutrition (in patients only receiving EN) was 48%, with the best and worst performing sites providing 88% and 7% of what they were prescribed, respectively. This means that many patients are underfed, and accumulating caloric debt!

References

- 1) Alberda C et al. The relationship between nutritional intake and clinical outcomes in critically ill patients: results of an international multicenter observational study. *Intensive Care Med.* 2009 Oct;35(10):1728-37.
- 2) Heyland DK et al. The effect of increased enteral nutrition on ICU-acquired infections: A multicenter observational study. *Critical Care* 2010 (in press).

For more information go to www.criticalcarenutrition.com or contact Lauren Murch at murchl@kgh.kari.net.

Thanks for nibbling on our NIBBLE.

