

August 1<sup>st</sup>, 2005

Dear Colleagues,

I would like to provide you with an update on the “Canadian Clinical Practice Guidelines for Nutrition Support in Mechanically Ventilated, Critically Ill Adult Patients” published in the October 2003 issue of JPEN.

Every six months or so, we conduct comprehensive searches of the world’s literature looking for published randomized trials on topics related to our CPGs. We want to inform you that, as a committee, we have met again, and have incorporated the results of all recent randomized trials on nutrition support/nutrition supplementation in critically ill patients that have reported on clinical outcomes and as a result, many sections of our guidelines have been revised (see Table 1). We feel that there is value to adopting these guidelines. We have recently completed an observational study in which we demonstrated that ICUs that were more compliant with the Canadian CPGs were more likely to successfully feed patients EN (1). We also just completed a 59 hospital cluster randomized trial of different guideline dissemination strategies. The results of this study will be available shortly and will provide useful insight into effective methods for disseminating guidelines. We are grateful for the contributions of dietitians across Canada who have supported this huge effort. We believe that the adoption of the Canadian CPGs should lead to improved nutrition support practice in ICU’s. This may translate into better outcomes for critically ill patients receiving nutrition support.

We invite you to visit our website, [www.criticalcarenutrition.com](http://www.criticalcarenutrition.com) to check out the latest version of the guidelines and the tools necessary to translate these guidelines into practice.

Sincerely,  
Daren Heyland MD  
For the Canadian Critical Care Guidelines Committee

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(1) Heyland DK, Dhaliwal R, Day A, Jain M, Keefe L, Drover J. Validation of Canadian clinical practice guidelines for nutrition support of mechanically ventilated, critically ill patients: Results of a prospective observational study. *Nutrition in Clinical Practice* 2004;19(1):68.

**Table 1. Updated Recommendations from the Canadian Clinical Practice Guidelines for Nutrition Support**

Topic	Original RR and CI	2003/2004 Recommendation	New studies	Revised RR and CI	2005 Recommendation
Early vs. Delayed Nutrient Intake	<b>Infections</b> RR = 0.62 CI 0.41-0.93, p= 0.02 <b>Mortality</b> RR = 0.52 CI 0.25-1.07, p= 0.08	Based on 8 level 2 studies, we <b>recommend</b> early enteral nutrition (within 24-48 hours following admission to ICU) in critically ill patients.	Malhotra 2004 Peck 2004	<b>Infections</b> RR = 0.78 CI 0.60, 1.01, p = 0.06 <b>Mortality</b> RR = 0.65 CI 0.41, 1.02, p = 0.06	Based on 10 level 2 studies, we <b>recommend</b> early enteral nutrition (within 24-48 hours following admission to ICU) in critically ill patients.
Composition of EN: Immune Enhancing Diets: Diets supplemented with arginine and other select nutrients	<b>Infections</b> RR = 0.96 CI 0.81-1.14, p= 0.62 <b>Mortality</b> RR = 1.05 CI 0.89-1.25, p= 0.55	Based on 4 level 1 studies and 14 level 2 studies, we <b>recommend</b> that diets supplemented with arginine and other select nutrients <b>not be used</b> for critically ill patients.	Kieft 2005 Tsuei 2004 Chuntrasakul 2003	<b>Infections</b> RR = 0.97 CI 0.81-1.15, p = 0.70 <b>Mortality</b> RR = 1.05 CI 0.90-1.23, p = 0.53	Based on 4 level 1 studies and 16 level 2 studies, we <b>recommend</b> that diets supplemented with arginine and other select nutrients <b>not be used</b> for critically ill patients.
Composition of EN: Fibre	<b>Infections</b> Not done* <b>Mortality</b> Not done*	There are <b>insufficient data</b> to support the routine use of fibre in enteral feeding formulas in critically ill patients.	Rushdi 2005	<b>Infections</b> Not done* <b>Mortality</b> Not done*	There are <b>insufficient data</b> to support the routine use of fibre in enteral feeding formulas in critically ill patients.
EN Other: Probiotics	Not done*	There are <b>insufficient data</b> to make a recommendation on the use of probiotics in critically ill patients.	McNaught 2005 Jain 2004	Not done*	There are <b>insufficient data</b> to make a recommendation on the use of probiotics in critically ill patients.
PN: PN vs. standard care	<b>Infections</b> Not done* <b>Mortality</b> RR = 1.16 CI 0.60-2.24, p= 0.7	Based on a meta-analysis, in critically ill patients with an intact gastrointestinal tract, we <b>recommend</b> that parenteral nutrition <b>not be used</b> routinely.	Xian-Li 2005	<b>Infections</b> Not done* <b>Mortality</b> RR = 0.82 CI 0.41-1.61, p = 0.56	Based on 5 level 2 studies, in critically ill patients with an intact gastrointestinal tract, we <b>recommend</b> that parenteral nutrition <b>not be used</b> routinely.
Composition of PN: Glutamine	<b>Infections</b> RR = 0.68 CI 0.43-1.07, p= 0.09 <b>Mortality</b> RR = 0.68 CI 0.49-0.94, p= 0.02	Based on 3 level 1 studies and 4 level 2 studies, when parenteral nutrition is prescribed to critically ill patients, parenteral supplementation with glutamine, where available, is <b>recommended</b> . There are <b>insufficient data</b> to generate	Xian-Li 2005 Zeigler 2004 Fuentes-Orozco 2004 Zhou 2004	<b>Infections</b> RR = 0.69 CI 0.46-1.04, p= 0.08 <b>Mortality</b> RR = 0.67 CI 0.48-0.92, p = 0.01	Based on 4 level 1 studies and 5 level 2 studies, when parenteral nutrition is prescribed to critically ill patients, parenteral supplementation with glutamine, where available, is <b>recommended</b> . There are

		recommendations for intravenous glutamine in critically ill patients who are receiving enteral nutrition.			<b>insufficient data</b> to generate recommendations for intravenous glutamine in critically ill patients who are receiving enteral nutrition.
Strategies to optimize benefits and minimize risks of PN: intensive insulin therapy	Not done*	Based on 1 level 2 study, in surgical critically ill patients receiving nutrition support, intensive insulin therapy to tightly control blood sugars between 4.4-6.1 <b>should be considered</b> . There are <b>insufficient data</b> to make a recommendation regarding intensive insulin therapy in other critically ill patients.	Grey 2004	<b>Infections</b> RR = 0.68 CI 0.41-1.11, p = 0.12 <b>Mortality</b> RR = 0.65 CI 0.48, 0.89, p = 0.007	Based on 2 level 2 studies, in surgical critically ill patients receiving nutrition support, intensive insulin therapy to tightly control blood sugars between 4.4-6.1 <b>should be considered</b> . There are <b>insufficient data</b> to make a recommendation regarding intensive insulin therapy in other critically ill patients.
Antioxidant Strategies: Combined Vitamins and Trace Elements	<b>Infections</b> RR = 1.64 CI 0.61-4.40, p = 0.3 <b>Mortality</b> RR = 0.67 CI 0.36-1.25, p = 0.2	There are <b>insufficient data</b> to make a recommendation regarding antioxidant nutrients (single or combined) in critically ill patients.	Crimi 2004 Heyland 2005	<b>Infections</b> RR = 0.90 CI 0.65-1.24, p = 0.51 <b>Mortality</b> RR = 0.65 CI 0.53, 0.80, p < 0.0001	Based on 4 level 1 and 7 level 2 studies, combined vitamins and trace elements <b>should be considered</b> in critically ill patients.
Antioxidant Strategies: Selenium	<b>Infections</b> RR = 0.86 CI 0.36-2.07, p = 0.7 <b>Mortality</b> RR = 0.36 CI 0.16- 0.84, p=0.02	There are <b>insufficient data</b> to make a recommendation regarding IV/PN selenium supplementation alone or in combination with other antioxidants in critically ill patients	Heyland 2005	<b>Infections</b> RR = 0.78 CI 0.49-1.26, p = 0.3 <b>Mortality</b> RR = 0.59 CI 0.32-1.08, p = 0.09	There are <b>insufficient data</b> to make a recommendation regarding IV/PN selenium supplementation alone or in combination with other

\* Meta-analysis not done due to varying interventions, inadequate number of studies reporting on outcomes.

Legend:

RR: Relative Risk

CI: 95% Confidence Intervals