

## 4.2 (b) Composition of Enteral Nutrition: (Carbohydrate/fat): Low fat/high CHO

June 28<sup>th</sup>, 2005

### Recommendation:

*There are insufficient data to recommend low fat/high CHO diets for critically ill patients.*

**Discussion:** The committee noted the large treatment effect based on one study (n = 43 patients) in burn patients. However, the committee also noted that existing low fat products were largely elemental or semi-elemental diets and hence the feasibility around the availability of a polymeric, low fat formula (15 % calories from fat) was a concern. Given the safety and cost concerns related to elemental diets, the committee decided not to put forward a recommendation at this time.

Values	definition	Score: 0, +, ++, +++
Effect size	magnitude of the absolute risk reduction attributable to the intervention listed--a higher score indicates a larger effect size	3+
Confidence interval	95% confidence interval around the point estimate of the absolute risk reduction, or the pooled estimate (if more than one trial)--a higher score indicates a smaller confidence interval	2+
Validity	refers to internal validity of the study (or studies) as measured by the presence of concealed randomization, blinded outcome adjudication, an intention to treat analysis, and an explicit definition of outcomes--a higher score indicates presence of more of these features in the trials appraised	2+
Homogeneity	similar direction of findings among trials--a higher score indicates greater similarity of direction of findings among trials	0
Feasible	ease of implementing the intervention listed--a higher score indicates greater ease of implementing the intervention in an average ICU	0
Safe	estimated probability of avoiding any significant harm that may be associated with the intervention listed--a higher score indicates a lower probability of harm	2+
Cost	estimated cost of implementing the intervention listed--a higher score indicates a lower cost to implement the intervention in an average ICU	2+

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**Question:** Does a low fat/high CHO enteral formula affect outcomes in the critically ill adult patient?

**Summary of evidence:** There was only one study that compared the outcomes of a low fat enteral diet, with and without omega 3 fatty acids, to a standard diet.

**Mortality:** There was no difference in the incidence of mortality between the groups receiving the low fat formula or standard (RR = 0.54, 95 % confidence intervals 0.13-2.31).

**Infections:** Low fat formula compared to standard was associated with a significant reduction in the incidence of pneumonia ( $p < 0.05$ ).

**LOS:** Low fat formula was associated with a trend towards a reduction in LOS ( $p = 0.08$ ).

**Ventilator days:** Not reported.

**Other complications:** No differences reported.

### **Conclusion:**

Low fat enteral feeding may be associated with lower incidences of pneumonia and a trend towards a reduction in LOS in burn patients.

*Level 1 study: if all of the following are fulfilled: concealed randomization, blinded outcome adjudication and an intention to treat analysis.*

*Level 2 study: If any one of the above characteristics are unfulfilled*

Table 1. Randomized studies evaluating low fat/high CHO enteral nutrition in critically ill patients

Study	Population	Methods (score)	Intervention	Mortality # (%)†		RR (CI)**	Infections # (%)		RR (CI)**
				(A) + (B)	(C)		(A) + (B)	(C)	
ID # 77 Garrel 1995	Thermal injury patients > 20 % TSBA N = 43	C.Random: yes ITT: no Blinding: double (9)	(A) low fat (15 % fat) (B) low fat + fish oils vs (C) 35 % fat	(A) + (B) 3/24 (12.5)	(C) 3/13 (23)	0.54 (0.13-2.31)	(A) + (B) 3/24 (12.5)	(C) 7/13 (54)	0.23 (0.07-0.75)

Study	LOS days			Ventilator days		Cost		Other
	(A)	(B)	(C)					
ID # 77 Garrel 1995	45 ± 23	46 ± 23	67 ± 28	NA	NA	NA	NA	NA

C.Random: concealed randomization  
ITT: intent to treat  
NA: not available

† presumed ICU mortality unless otherwise specified  
± : mean ± standard deviation  
\*\* RR= relative risk, CI= Confidence intervals

**TOPIC: 4.2 (b) Composition of EN: CHO/Fat: Low fat/High CHO**

*(Reviewers: Voula Christofilos & Rupinder Dhaliwal)*

**Article inclusion log**

Criteria for study selection

Type of study: RCT or Meta-analysis
Population: critically ill, ventilated patients (no elective surgery patients)
Intervention: TPN and /or EN
Outcomes: mortality, LOS, QOL, functional recovery, complications, cost. Exclude studies with only biochemical, metabolic or nutritional outcomes.

ID #	Author	Journal	I	E	why rejected
77.	1. Garrel	JPEN 1995	√		
	2. Tappy	JPEN 1999		√	Not RCT, no significant outcomes
	3. Adams	JPEN 1993		√	Not RCT, no significant outcomes
	4. Diboune	JPEN 1992		√	Not RCT, no significant outcomes
	5. Van den Berg	Clin Nutr 1989		√	Not RCT
	6. Schneeweiss	Metabolism 1992		√	No significant outcomes

I = included, E = excluded