

Table 2. Parenteral trace elements*

	Zinc** Mg	Copper† Mg	Manganese† mcg	ChromiumΔ mcg	Selenium Δ mcg
Adult guidelines					
1979 AMA ¹	2.5–4	0.5–1.5	150–800	10–15	—
1984 NY Academy of Medicine, AMA ²	2.5–4	0.3–0.5	400–800	10–20	50–60
1994 M. E. Shils ³	2.5–4	0.3–0.5	60–100	10–15	40–80
1998 A.S.P.E.N ⁴	2.5–5	0.3–0.5	60–100	10–15	—
2004 A.S.P.E.N ⁵	2.5–5	0.3–0.5	60–100	10–15	20–60
Amount received/day by Albany Medical Center patients	3 plus 3–5 mg/L enteric loss	1.4	700	14	85
Available commercial products					
American Regent (1 mL)#					
Multitrace 4	1	0.4	100	4	—
Multitrace 4 concentrate	5	1	500	10	—
Multitrace 5	1	0.4	100	4	20
Multitrace 5 concentrate	5	1	500	10	60
Abbott/Hospira (5 mL)					
4 Trace element	4	1	800	10	—

*Table reprinted from “Autopsy tissue trace elements in 8 long-term parenteral nutrition patients who received the current U.S. Food and Drug Administration formulation,” *Journal of Parenteral and Enteral Nutrition* 31 (2007), 388–96, with permission.

** Increase with abnormal intestinal losses. † Decrease or omit with increasing severity of jaundice.

Δ Decrease or omit with increasing renal dysfunction. # Single-entity trace elements are available.

1. American Medical Association, Department of Foods and Nutrition. Guidelines for essential trace element preparations for parenteral use. *Journal of the American Medical Association* 241 (1979), 2051–54.

2. Shils, M.E., & White, P.L., eds. Working conference on parenteral trace elements: Sponsored by N.Y. Academy of Medicine and AMA. *Bulletin NY Academy of Medicine* 60 (1984), 115–212.

3. Shils, M.E., & Brown, R.O. Parenteral nutrition. In Shils, M.E., Olsen, J.A., & Shike, M., eds., *Modern Nutrition in Health and Disease*, 9th ed. (Philadelphia, PA: Lea & Febiger, 1994).

4. National Advisory Group on Standards and Practice Guidelines for Parenteral Nutrition. Safe practices for parenteral nutrition formulations. *Journal of Parenteral and Enteral Nutrition* 22 (1998), 49–66.

5. Mirtallo, J., Canada, T., Johnson, D., et al.; Task Force for the Revision of Safe Practices for Parenteral Nutrition. Safe practices for parenteral nutrition. *Journal of Parenteral and Enteral Nutrition* 28 (2004), S39–S70. Errata: 30 (2006), 177.