# Current Literature

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## Patient Nutrition Acuity as a Predictor of the Time Required to Perform Medical Nutrition Therapy

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**ABSTRACT:** *Objective:* To determine if patient nutrition acuity accurately predicts the time required to perform medical nutrition therapy (MNT). *Design:* Data detailing demographic characteristics, patient nutrition acuity, and time spent performing MNT were collected for 12 consecutive days. Random systematic sampling was used to select 25%, or a minimum of 20 patients, from daily admissions to the hospital. Nutrition acuity was categorized using a 27-item patient acuity tool. *Subjects/Setting:* Analysis included data from 92 acute-care hospitals nationwide; the median census was 271 patients. Of the 7,289 patients in the survey, 3,321 were included in this data analysis. All subjects were assigned an acuity rating and received MNT. Mean age (± standard deviation [SD]) was 55 ± 24 years, and the sample was 48% male and 52% female. Time spent delivering MNT ranged from 5 to 285 minutes (mean ± SD = 43.3 ± 34.2 minutes). *Statistical Analyses Performed:* Stepwise multiple regression analysis ($P < .05$), with independent variables of age, gender, and 27 acuity descriptors, determined time required to perform MNT. *Results:* The number of acuity descriptors assigned to patients ranged from zero (53 patients) to 20 (1 patient); the mean (± SD) for all patients was 5.6 ± 3.1. Gender and 21 of the 27 acuity descriptors were statistically significant in predicting the time required to perform MNT. *Applications/Conclusions:* A formula was developed to determine medical nutrition therapy time (MNTT) as minutes per patient sampled. When extrapolated to a facility's patient census, MNTT is the basis for predicting staffing requirements. The MNTT formula is crucial in the present environment of managed care where fiscal accountability challenges staffing rationales. (J Am Diet Assoc 99:1367–1372, 1999)

**COMMENT:** Health care facilities have been under pressure to reduce costs at a time of increasing patient acuity. One measure by which cost reduction has been accomplished is reduction of staff. Documenting the time required for adequate delivery of care is a crucial step in determining appropriate levels of staffing. Quantifying dietitian staffing needs has proved especially difficult. Not every patient needs medical nutrition therapy (MNT), and therefore indirect indicators such as patient census, diet orders, and patient diagnoses do not predict dietitian workloads well. To address this problem, the Clinical Nutrition Management dietetic practice group of The American Dietetic Association developed a Patient Acuity Tool that would predict the amount of MNT needed.

The current study tested this tool and used the data obtained to develop a formula to predict the amount of MNT time (MNTT). MNTT calculated with the predictive formula is supported by previous research. For example, the MNTT analysis indicates that 11.9 minutes is needed for initial patient assessment and classification; similar procedures are reported in the literature to require from 5 to 7 minutes to 10.5 minutes. The MNTT is limited by the fact that it focuses only on patient care and does not include administrative or other responsibilities. However, it provides an objective tool by which clinical nutrition managers can evaluate staffing needs and link this to quality of care.

Genie Moore, RN, RD, PhD

## Randomised Controlled Study of Clinical Outcome Following Trophic Feeding

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**ABSTRACT:** *Aims:* To determine the effect of trophic feeding on clinical outcome in ill preterm infants. *Methods:* A randomised, controlled, prospective study of 100 preterm infants, weighing less than 1750 g at birth and requiring ventilatory support and parenteral nutrition, was performed. Group TF (48 infants) received trophic feeding from day 3 (0.5–1 ml/h) along with parenteral nutrition until ventilatory support finished. Group C (52 infants) received parenteral nutrition alone. "Nutritive" milk feeding was then introduced to both groups. Clinical outcomes measured included total energy intake and growth over the first six postnatal weeks, sepsis incidence, liver function, milk tolerance, duration of respiratory support, duration of hospital stay and complication incidence. *Results:* Groups were well matched for birthweight, gestation and CRIB scores. Infants in group TF had significantly greater energy intake, mean difference 41.4 (95% confidence interval 9, 73.7) kcal/kg, $p = 0.02$; weight gain, 130 (CI 1, 250) g, $p = 0.02$; head circumference gain, mean difference 0.7 (CI 0.1, 1.3) cm, $p = 0.04$; fewer episodes of culture confirmed sepsis, mean difference −0.7 (−1.3, −0.2) episodes, $p = 0.04$; less parenteral nutrition, mean difference −11.5 (CI −20, −3) days, $p = 0.03$; tolerated full milk feeds (165 ml/kg/day) earlier, mean difference −11.2 (CI −19, −3) days, $p = 0.03$; reduced requirement for supplemental oxygen, mean difference −22.4 (CI −41.5, −3.3) days, $p = 0.02$; and were discharged home earlier, mean difference −22.1 (CI −42.1, −2.2) days, $p = 0.04$. There was no significant difference in the relative risk of any complication. *Conclusions:* Trophic feeding improves clinical outcome in ill preterm infants requiring parenteral nutrition. (Arch Dis Child Fetal Neonatal Ed 82:F29–33, 2000)

**COMMENT:** The Cochrane Collaboration is committed to preparing, maintaining, and disseminating systematic reviews of the effects of health care. Their last update on the topic of early enteral feedings in preterm infants from September 15, 1999 found only two good, small, randomized trials. The reviewers felt the current data was unclear and that safety was not established for early feedings in this patient population.

This good-sized (approximately 50 subjects per group),

well-designed study answers some of the questions. The study was not blinded, which would have been logistically difficult. Trophic feedings resulted in significantly earlier tolerance of full feedings and discontinuation of parenteral nutrition. The most significant finding was that premature infants receiving trophic feedings were discharged a mean difference of 22 days sooner. This result was seen with no significant observed safety issues. The concern preventing most caretakers from initiating trophic feedings is a safety issue. The only way to arrest this fear is further studies with large numbers of infants that will confirm the positive effects and confirm the safety of trophic feedings. The strong financial incentive of earlier discharges will then lead to the general practice of trophic feedings in premature infants.

Mark R. Corkins, MD

## American Gastroenterological Association Medical Position Statement: Guidelines for the Evaluation and Management of Chronic Diarrhea

American Gastroenterological Association Clinical Practice and Practice Economics Committee
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**ABSTRACT:** This document presents the official recommendations of the AGA for the evaluation and management of patients with chronic diarrhea, and is based on the AGA technical review of chronic diarrhea by Fine and Schiller that immediately follows these guidelines in *Gastroenterology* (Gastroenterology 16:1464–1486, 1999).

**COMMENT:** Chronic diarrhea is a common complaint of patients presenting to internists, nutritionists, and gastroenterologists. The differential diagnosis is extremely complex and the work-up can be expensive and frustrating to both physicians and patients. Within a given population or country, the prevalence of different causes of chronic diarrhea is influenced by the level of subspecialization and the referral base of the physician. Careful history taking often can provide clues to the cause of chronic diarrhea, and the 14 clinical points outlined in these guidelines are extremely helpful in separating organic, functional, and factitious etiologies of chronic diarrhea. Physical examination and routine laboratory tests are often not helpful. Quantitative stool collection and analysis for electrolytes, osmolality, pH, presence of fat, laxatives, and white blood cells are inexpensive and can often yield important objective information about the cause of the diarrhea and its severity. Separation of chronic diarrhea into secretory or osmotic types based on this analysis helps to guide and streamline further work-up. The American Gastroenterological Association (AGA) medical position statement succinctly summarizes the excellent review by Fine and Schiller (Fine KD, Schiller LR. AGA technical review on the evaluation and management of chronic diarrhea. Gastroenterology 116:1464–1486, 1999). In this review, the authors completed an exhaustive search of the English language literature and bring some clarity of the definition of chronic diarrhea, its prevalence and causes, and its economic impact. Most importantly, they provide an unbiased evaluation of all diagnostic tests (including endoscopy, history and physical examination, and specific stool, blood, urine, and physiological testing used in formulating a differential diagnosis). The authors provide more than 200 citations, which makes this review an invaluable reference for those health professionals caring for patients with chronic diarrhea. Several algorithms are provided that help facilitate the work-up of these often complex patients.

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## The Antioxidant Profiles of Patients with Recurrent Acute and Chronic Pancreatitis

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**ABSTRACT:** *Objective:* It has been suggested that patients with chronic pancreatitis have antioxidant deficiencies. It is unclear whether these antioxidant deficiencies also occur in patients with recurrent acute pancreatitis and whether this condition represents an intermediate state between normality and chronic pancreatitis. The aim of this study was to determine the antioxidant profiles of patients with pancreatitis (recurrent acute and chronic) and to compare their profiles with a control population. *Methods:* The antioxidant profiles of patients with chronic pancreatitis (n = 27) and recurrent acute pancreatitis (n = 11) were determined and compared with the antioxidant profiles of control subjects (n = 19). The following parameters were measured in blood: trace elements (selenium, copper, zinc), vitamins A and E, and carotenoids (alpha-carotene, beta-carotene, xanthine, beta-cryptoxanthine, lycopene). *Results:* Patients with chronic pancreatitis had significantly lower plasma concentrations of selenium, vitamin A, vitamin E, beta-carotene, xanthine, beta-cryptoxanthine, and lycopene compared with both control subjects and patients with recurrent acute pancreatitis ($p < 0.05$). There were no significant differences between the antioxidant profiles of patients with chronic pancreatitis due to alcohol excess and patients with idiopathic chronic pancreatitis, or between the antioxidant profiles of patients with recurrent acute pancreatitis and control subjects. *Conclusions:* Patients with chronic pancreatitis had evidence of multiple antioxidant deficiencies. The antioxidant profiles of patients with recurrent acute pancreatitis did not differ from those of control subjects, discounting the hypothesis that recurrent acute pancreatitis represents an intermediate state between normality and chronic pancreatitis. (Am J Gastroenterol 94(8):2135–2140, 1999)

**COMMENT:** Free radicals are reactive oxygen molecules formed through normal cellular processes or due to exogenous stimuli. They are involved in immune and inflammatory responses. Antioxidants such as vitamins E and C, carotenoids, and zinc, quench free radicals and may prevent or minimize oxidative damage. Oxidative stress causes lipid peroxidation of cell membranes resulting in cellular damage. Heightened free radical activity and antioxidant deficiencies have been reported with chronic pancreatitis, suggesting uncontrolled free radical activity possibly causing pancreatic injury.

This prospective study compared plasma antioxidant concentrations in chronic and recurrent acute nongallstone pancreatitis patients, with control surgical subjects without pancreatitis. Plasma antioxidant concentrations in the control group were measured on hospital admission. But in the chronic and recurrent acute pancreatitis groups, plasma was not obtained until 6 weeks after

discharge. Possible changes in plasma antioxidant concentrations in recurrent acute pancreatitis patients may not have been detected because blood samples were collected after the resolution of acute pancreatitis.

Study findings indicate that chronic but not recurrent acute pancreatitis, is associated with low plasma concentrations of some antioxidants. It is difficult to establish a cause-and-effect relation between antioxidant plasma concentrations and pancreatitis. Low plasma antioxidant concentrations may be due to tissue redistribution or increased urinary elimination during the acute phase or inflammation. Measuring tissue antioxidant concentrations could be a more reliable marker of antioxidants body stores.

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