EE35

Cost-Benefit Analysis Of 100% Whey Peptide-Based Formulas in US Adults Receiving Home Enteral Nutrition

Douglas L. Nguyen, MD[1], Livia Dainelli, PhD[2], Amarsinh Desai, PhD[3], Yannick Walzer, BSc[4], Sebastian Krenberger, MSc[4], Stefan Walzer, PhD[4].

[1]Loma Linda University Medical Center, Loma Linda, USA, [2]Nestlé Health Science, Vevey, Switzerland, [3]Nestlé Health Science, Bridgewater, NJ, USA, [4]MArS Market Access & Pricing Strategy GmbH, Weil am Rhein, Germany.

Background

Peptide-based formulas are well known to have better tolerability than polymeric enteral nutrition formulas in patients who are at risk of malabsorption or gastrointestinal (GI) intolerance.[1,2]. While standard polymeric formulas (PF) contain intact proteins and complex carbohydrates, and other peptide-based formulas (OF) differ in the type of protein source, the degree of hydrolysis, and the amount of medium chain triglycerides[3,4] — potentially causing GI intolerance — 100% whey peptide-based formulas (100%-WP) offer improved digestibility, absorption, and GI tolerance, with evidence suggesting reduced hospital admissions[2,5]. This analysis assesses the cost-benefit of 100%-WP versus OF and PF in US adults receiving home enteral nutrition (HEN) as sole source of calorie intake.

Methods

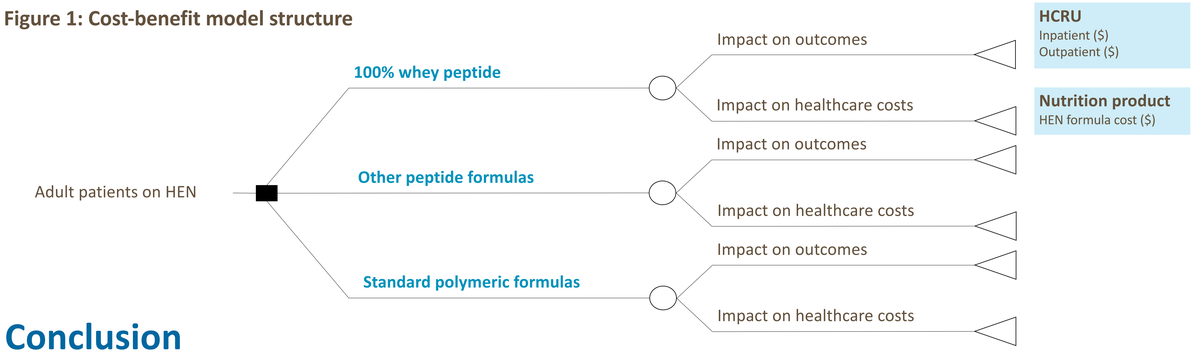
The cost-benefit model structure comparing 100%-WP to OF and PF is presented in **Figure 1**. The population incorporated within the model reflects adult patients receiving HEN in post-acute care settings consistent with the population described by LaVallee et al[2]. Data were normalized to a hypothetical cohort of 1,000 patients to standardize comparisons. Clinical inputs on GI intolerance rates and associated healthcare resource utilization (HCRU) were derived from published real-world evidence[2], with cost parameters sourced from robust, publicly available US databases and peer-reviewed studies, including the Agency for Healthcare Research and Quality (AHRQ) for inpatient costs[6], administrative claims analyses for outpatient and complication-related costs[7, 8, 9], and a large multisite US home health programme[10]. The analysis was conducted from a US healthcare system perspective with a 1-year time horizon. Key model inputs are presented in **Table 1**.

Table 1: Inpatient, outpatient care and HEN formula costs

Cost category	Parameter	Value	References
Inpatient care	Cost per hospital stay	$8,168.00	MS-DRG 392: US data base from Agency for Healthcare Research and Quality (AHRQ)[6]
Inpatient care	Average length of stay	3.1 days	
Outpatient care	Cost per visit	$681.27	Cost per routine outpatient visit[10] + average cost for a physician office visit per complication (diarrhea[7], constipation[8], nausea and vomiting[9], abdominal pain/cramping[9], gagging and retching[9])
HEN formula cost – 100%-WP	Cost per pack (250 mL)	$9.82	Mean of 100%-WP or OF or PF nutrition product costs obtained from manufacturer websites.
HEN formula cost – OF		$6.63	
HEN formula cost – PF		$2.48	

Differences in clinical outcomes (GI intolerance) and HCRU (outpatient, inpatient and HEN formula cost) between 100%-WP versus OF and PF were applied to cost inputs to calculate net cost savings. A subgroup analysis was also carried out in adults age ≥65 years (calorie intake was derived from Dietary Guidelines for Americans[11]). For adults, the baseline daily calorie intake of 2,000 kcal was used, and for patients aged ≥65, a daily requirement of 1,800 kcal per day, reflecting on lower kcal needs in this population.

Figure 1: Cost-benefit model structure

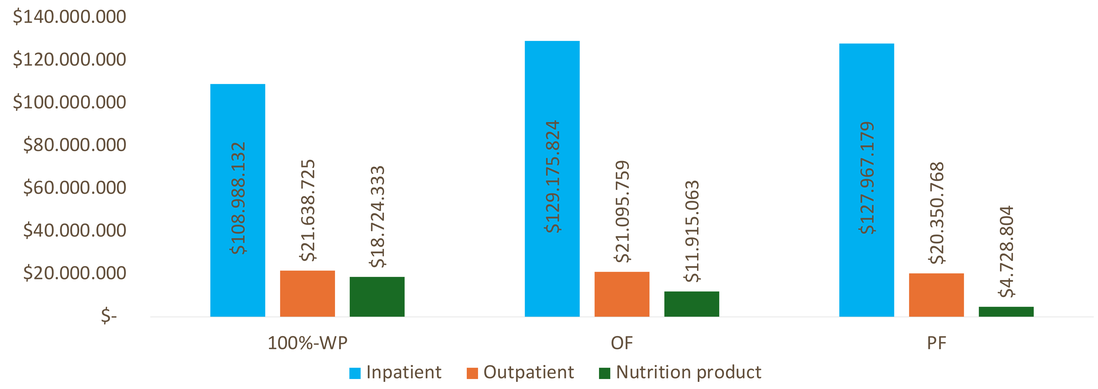


Results

100%-WP demonstrated both clinical and economic benefits versus OF and PF in US adults receiving HEN.

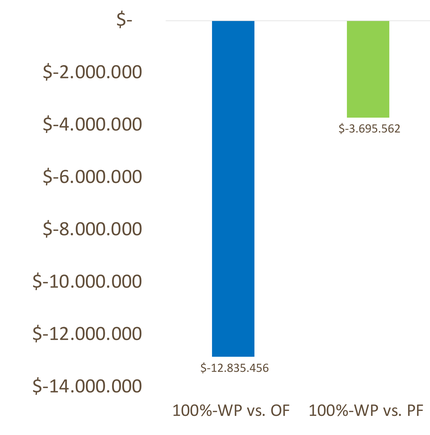
- Overall, patients consuming 100%-WP encountered 279 fewer inpatient visits per 1,000 patients and 7.87 fewer hospital days per patient annually.
- **Figure 2** presents total annual costs per 1,000 patients across inpatient, outpatient, and nutrition product cost for 100%-WP, OF and PF. The total annual cost per 1,000 patients was lowest for 100%-WP ($149,351,000), compared with OF ($162,187,000) and PF ($153,047,000).
- Total inpatient costs were lowest for 100%-WP at $108,988,132 per 1,000 patients per year, compared with $129,175,824 for OF and $127,967,179 for PF.
- Outpatient costs were similar across groups, ranging from $20,350,768 – $21,638,725 per 1,000 patients per year.
- Nutrition costs differed substantially, with 100%-WP incurring $18,724,333, compared with $11,915,063 for OF and $4,728,804 for PF.

Figure 2: Total cost per 1,000 patients per year



- As shown in **Figure 3**, 100%-WP was associated with total cost savings per 1,000 patients per year when compared with alternative peptide formulas.
- Compared with OF, 100%-WP resulted in total annual cost savings of $12.84 million per 1,000 patients. When compared with PF, 100%-WP was associated with savings of $3.7 million per 1,000 patients per year.
- For 100%-WP, reduction in use of healthcare facilities may be attributed to the lower number of GI intolerances, with 17.9% fewer events for 100%-WP use and 179 fewer events per 1,000 patients.

Figure 3: Total cost savings per 1,000 patients and per year



Subgroup analysis (Age ≥65)

In a subgroup analysis restricted to patients aged ≥65 years, 100%-WP remained cost saving relative to both comparators. Total cost savings for 100%-WP observed was $13,635,439 against OF and $5,409,534 against PF per 1,000 patients and year.

Sensitivity analysis confirms the results of the base-case and subgroup analyses.

Conclusion

This cost-benefit analysis shows important economic advantages of 100%-WP over OF and PF in US HEN patients, supporting value-based care and readmission reduction initiatives. The observed cost savings demonstrate that 100%-WP is a cost-saving strategy relative to both OF and PF. The magnitude of savings is driven primarily by reductions in hospital-related costs, which more than offsets differences in outpatient and nutrition expenditures. These findings indicate that 100%-WP may contribute to meaningful reductions in overall healthcare costs by lowering high-cost inpatient resource utilization.

[1]Mundi MS, Velapati S, Kuchkuntla AR, Hurt RT. Reduction in Healthcare Utilization With Transition to Peptide-Based Diets in Intolerant Home Enteral Nutrition Patients. Nutr Clin Pract. 2020;35(3):487-94.; [2]LaVallee C, Seelam P, Balakrishnan S, Lowen C, Henrikson A, Kesting B, et al. Real-World Evidence of Treatment, Tolerance, Healthcare Utilization, and Costs Among Postacute Care Adult Patients Receiving Enteral Peptide-Based Diets in the United States. JPEN J Parenter Enteral Nutr. 2021;45(8):1729-35.; [3]Alexander DD, Bylsma LC, Elkayam L, Nguyen DL. Nutritional and health benefits of semi-elemental diets: A comprehensive summary of the literature. World J Gastrointest Pharmacol Ther. 2016;7(2):306-19.; [4]Gramlich L, Hurt RT, Jin J, Mundi MS. Home Enteral Nutrition: Towards a Standard of Care. Nutrients. 2018;10(8).; [5]Nguyen DL, Schott LL, Lowen CC, Desai AM, Baumer DL, Miranowski MK, et al. Characteristics and feeding intolerance in critically ill adult patients receiving peptide-based enteral nutrition: A retrospective cross-sectional study. Clin Nutr ESPEN. 2024;59:270-8.; [6]Agency for Healthcare Research and Quality (AHRQ). Healthcare Cost and Utilization Project (HCUPnet). HCUPnet Data Tools 2026 [Available from: https://datatools.ahrq.gov/hcupnet/].; [7]Bruno JL, Mathur K, Averitt AJ, Andrae DA. Economic burden of inadequate symptom control among US commercially insured patients with irritable bowel syndrome with diarrhea. J Med Econ. 2017;20(4):353-62.; [8]Huang H, Taylor DC, Carson RT, Sarocco P, Friedman M, Munsell M, et al. Economic evaluation of linaclotide for the treatment of adult patients with irritable bowel syndrome with constipation in the United States. J Med Econ. 2015;18(4):283-94.; [9]Peery AF, Crockett SD, Murphy CC, Jensen ET, Kim HP, Egberg MD, et al. Burden and Cost of Gastrointestinal, Liver, and Pancreatic Diseases in the United States: Update 2021. Gastroenterology. 2022;162(2):621-44.; [10]Riley K, Sulo S, Dabbous F, Partridge J, Kozmic S, Landow W, et al. Reducing Hospitalizations and Costs: A Home Health Nutrition-Focused Quality Improvement Program. JPEN J Parenter Enteral Nutr. 2020;44(1):58-68.; [11]U.S. Department of Agriculture (USDA). Dietary Guidelines for Americans, 2020–2025 2025 [Available from: https://www.dietaryguidelines.gov/sites/default/files/2020-12/Dietary_Guidelines_for_Americans_2020-2025.pdf].

This study was funded by Société des Produits Nestlé S.A., Vevey, Switzerland.

Presented at International Society for Pharmacoeconomics and Outcomes Research (ISPOR) Conference, May 17-20, 2026, Philadelphia, PA, USA.