ECONOMIC ANALYSIS OF AUTOMATION IN THE PREPARATION OF ADULT PARENTERAL NUTRITION

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BACKGOUND AND IMPORTANCE

Manual preparation of PN involves challenges such as human error, variability, and resource consumption. Automation is proposed to improve safety, traceability, and efficiency.

However, there is limited evidence on the economic impact of automating PN preparation.

AIM AND OBJECTIVES

✓ To evaluate the economic impact of automating compounding of adult PN.

✓ To identify strategies to minimize costs while ensuring quality and safety.

MATERIAL AND METHODS

A retrospective study was conducted at a tertiary hospital comparing the direct costs of PN preparation in 2023 (manual) and 2024 (automated).

These costs include macronutrients, micronutrients, three-chamber bags, and disposable materials (e.g. packaging bags). Infrastructure and personnel costs were considered constant across both years. Results were compared and areas for potential cost reduction were identified.

RESULTS

	2023	2024
Elaboreted PN	7068	7322
NP individualized	42%	73%
Three-chamber bag	58%	27%
Direct cost products	229.415 €	190.472 €
Preparation bag cost	10.910 €	40.678 €
Consumables cost		114.907 €
Total cost	240.325 €	345.057 €
Cost per PN	34 €	47 €

✓ The automation resulted in an additional €13,2 per PN, a 39% cost increase.

✓ Proposed cost-reduction strategies included using repackaging bags instead of vacuum bottles, optimizing repackaging volumes, and introducing a multielectrolyte solution with potassium.

CONCLUSION AND RELEVANCE

✓ Automation in PN preparation led to a significant 39% increase in costs.

✓ Implementing corrective strategies could reduce expenses by approximately 8%.