ECONOMIC CONSEQUENCES OF DISEASE-RELATED MALNUTRITION IN POLAND AND THE POTENTIAL COST SAVINGS FROM NUTRITIONAL INTERVENTIONS: A TWO-STEP MODELLING STUDY

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OBJECTIVES

Disease-related malnutrition (DRM) is a major health concern in Poland, especially among patients with chronic conditions. The study aimed to show its financial burden on the public payer and healthcare providers using a two-step economic model. The first step estimated the costs of untreated DRM and its impact on healthcare resources and patient outcomes, while the second assessed potential costs if nutritional treatment were provided to all diagnosed patients.

METHODS

The economic model focuses on assessing costs across three areas of the healthcare system, differing in both service type and level of care: 1) inpatient care, 2) outpatient care / primary healthcare, and 3) long-term care (Figure 1).

The model methodology is based on the publication by *Nuijten 2024*[1].

A one-year time horizon and 2023 cost data were used, with estimations initially made in Polish złoty (PLN) and then converted to Euro using the 2023 exchange rate (€1 = PLN 4.54)

The average additional costs (Step 1) were estimated based on unit costs and resource use in the analysed areas (Table 1). The cost estimations considered hospitalisation costs, cost per inpatient day, outpatient and general practitioner (GP) visits, antibiotic therapy, and pressure ulcer treatment to capture the full range of resource use associated with malnutrition and related complications[2,3].

Nutritional treatment costs (Step 2) were estimated separately for hospitalized patients, outpatient patients, and those in long-term care, considering differences in resource use and funding. The use of reimbursed interventions was based on the ratio of treated patients to malnourished individuals, with treatment selection following the decision-making algorithm in Polish guidelines[4]. The costs of nutritional treatment were estimated as the costs of enteral and parenteral nutrition (from the public payer's perspective) and the costs of oral nutritional supplements (ONS) in hospital care (from the healthcare provider's perspective).

RESULTS

The results of the estimation indicate that nearly 2.5 million (range: 1.4-3.7 million) people in Poland struggle with disease-related malnutrition each year. It is estimated that the additional costs to the public payer's budget resulting from the use of more medical resources (additional and longer hospitalisations, outpatient consultations, GP visits, or increased antibiotic therapy) for individuals with malnutrition exceed €1.2 billion annually for public payer and €1.7 billion for healthcare provider (Figure 2).

Nutritional treatment costs totalled €264 million for the public payer, with 64.5% for home care, 18.8% for inpatient care, and 16.7% for long-term care facilities and hospices. Data show that only a small percentage of patients receive nutritional treatment in hospitals and outpatient care, with 5.7% in hospitals and 2.8% in outpatient care using enteral or parenteral nutrition. In long-term care facilities and hospices, 56% of patients receive nutritional therapy.

If healthcare providers were to cover ONS costs for all malnourished patients, their annual spending would represent about 2% of the expenditure currently borne for managing malnutrition-related complications (€36 million).

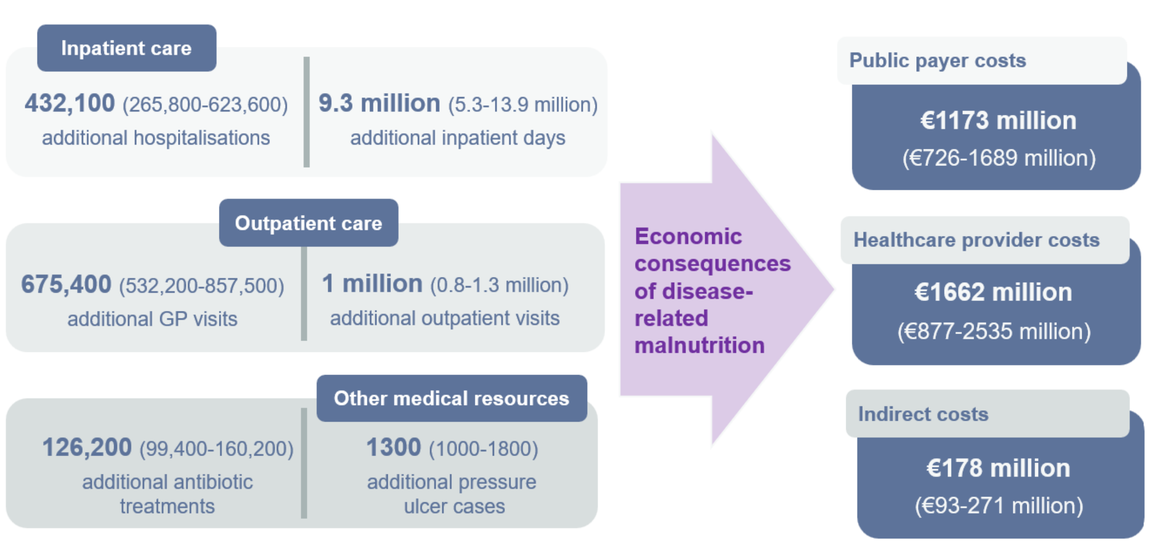

Figure 2. Results: Healthcare resource use and economic consequences of DRM

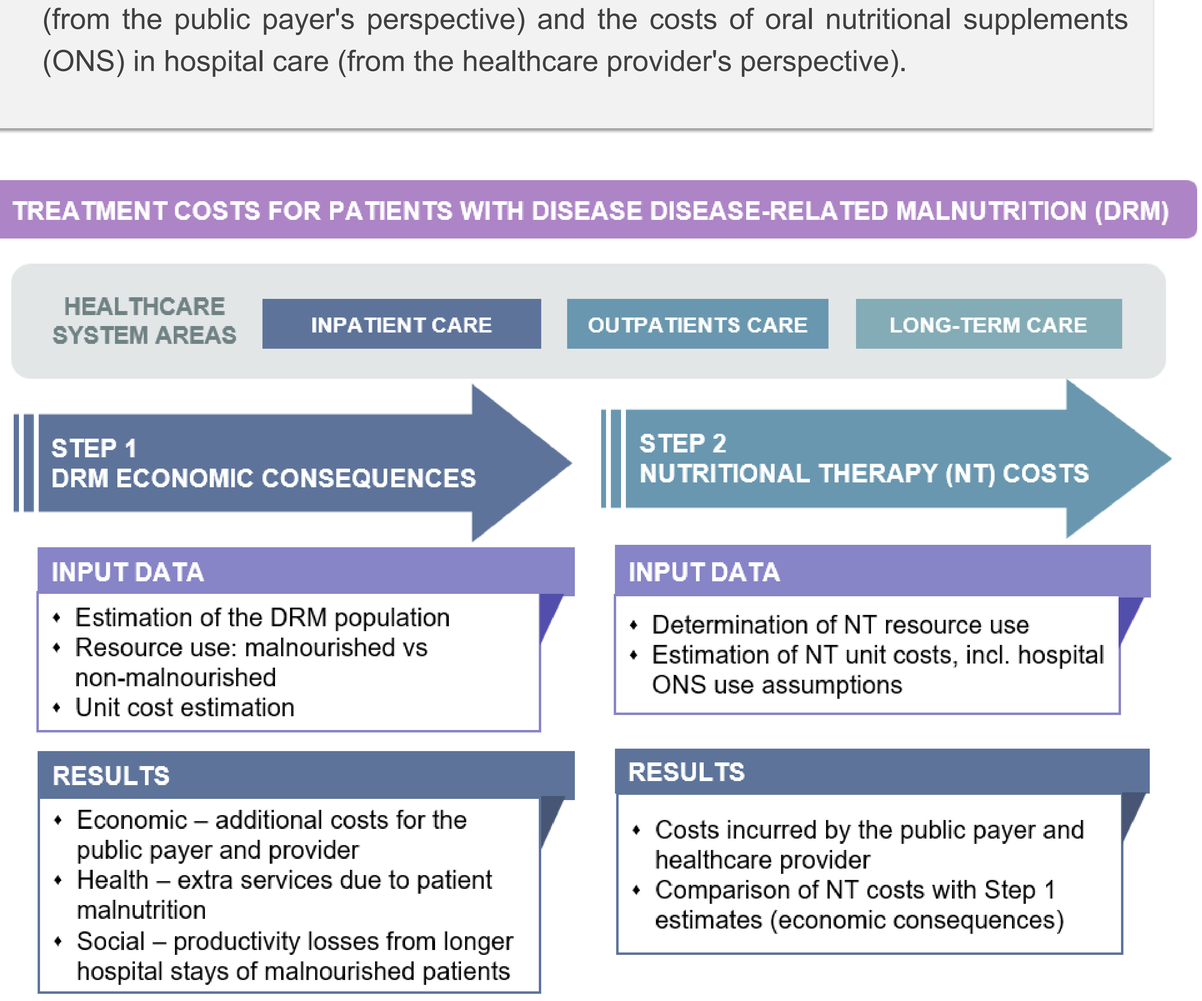

Figure 1. Economic model structure

Table 1. Additional average costs of DRM per patient (Step 1)

Perspective	Inpatient care	Outpatients care	Long-term care
Public payer	€372	€677	€49
Healthcare provider	€792	€427	€0

CONCLUSION

Untreated disease-related malnutrition imposes a significant financial burden on Poland's healthcare system. In 2023, ~7% of the population suffered from malnutrition, with complication-related costs consuming 3.2% of the NHF budget. Hospitalisations, complications, and intensive care costs far exceed the costs of nutritional interventions.

Widespread adoption of nutritional therapy is not only clinically justified but also economically advantageous. Timely therapy with improved access to nutrition care, could generate substantial savings and reduce strain on healthcare resources – particularly in the context of an ageing population.

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