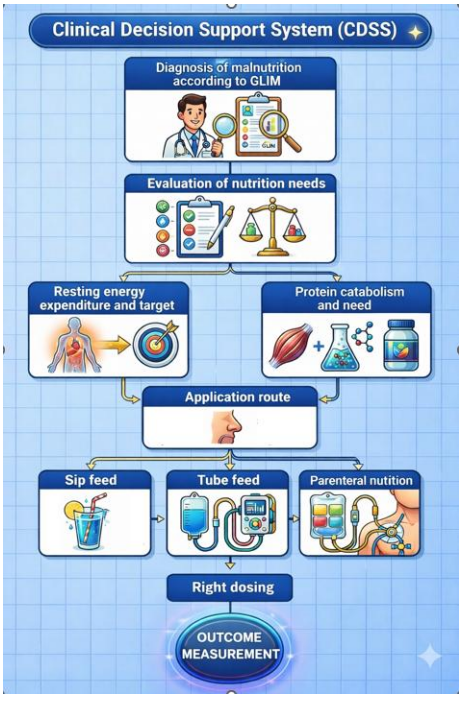
Optimising Nutrition Therapy with Clinical Decision Support System (CDSS)
A multicentre prospective study

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• **Background:** Malnutrition in hospitalized patients remains underdiagnosed and inadequately treated. Recent national survey identified that 64 % of hospitalized patients in Slovakia were malnourished or at risk of malnutrition, which leads to poorer patient's outcome and increased costs.
• **Rationale**: Slovak hospitals lack structured methodology and accessible tools to support physicians in making precise, individualized nutritional decisions. While screening tools exist, there is a critical gap in practical implementation of nutritional therapy. This project addresses this gap by introducing a Clinical Decision Support System (CDSS) that enables real-time, evidence-based nutritional decision-making and directly supports treatment, not only diagnosis.



Objectives and scope:
• To demonstrate that implementation of a CDSS improves precision and consistency of nutritional therapy and leads to minimum **10 % reduction in complications associated with malnutrition and clinically meaningful reduction in ICU length of stay**.
• Design: A prospective multicentre study including 500 surgical patients across 5 hospitals **comparing CDSS-supported care with standard clinical practice.**
•To establish a transferable model for multiple hospitals and other health care facilities.

Planned activities & deliverables
1. Project working group with support of Slovak Ministry of Health (MoH) is already established (physicians specializing in nutrition, clinical dietitians and surgeons) and CDSS algorithm is partially developed.
2. Technical development of CDSS web-based application prototype.
3. Multicenter pilot in **5 hospitals, 500 patients** undergoing major surgery. Data collection, clinical (number of complications) and economic outcome analysis (number of ICU days). Comparison of standard care vs CDSS-supported care.
4. CDSS fine tuning to fully functional web-based application.
5. Dissemination and implementation strategy of CDSS tool.

Achievements in 12-24 months:
Y1: Prototype of CDSS, implementation in pilot centers, first patient cohort enrolled (steps 1–3)
Y2: Completed multicentre study, outcome analysis, publication-ready results, implementation strategy for scale-up (step 4-5)
Y3: (beyond project): Nationwide implementation with support of MoH.

Resources & enablers

- **Personnel:** The project will be led by already established project team. Partial compensation for travel expenses and loss of income will be required. Hospital investigators in pilot testing will be responsible for patient inclusion, data collection, and implementation of the CDSS, to receive compensation for extra time. Data analyst will be responsible for the study design support, data analysis, and outcome evaluation.
- The project is supported through a combination of institutional backing and in-kind contributions. **The Ministry of Health** provides strategic support and facilitates implementation across participating hospitals. Clinical centers contribute personnel and infrastructure.
- **Success factors:** High-quality and safe IT solution, successful pilot testing phase – 3 hospitals already expressed their interest in the project.

Task	Description	Costs
WG	3 meetings, 2 full working days, CDSS design and algorithm	€ 5 000
CDSS tool	Development of web app and fine-tuning after pilot	€ 30 000
Pilot testing	Hospital investigators - data inclusion, UX testing	€ 4 000
Data analysis	Data processing and preparing for publication	€ 1 000
Total		€ 40 000

Results, expected outcomes & impact

- **Patient outcomes**: the implementation of the CDSS is expected to lead to a measurable improvement in the quality and consistency of nutritional care in hospitalized patients. Specifically, the project will improve diagnosis by implementing GLIM criteria and the adequacy of nutritional prescriptions. These improvements are anticipated to translate into direct patient benefits in measurable reduction of complications associated with malnutrition and a shorter ICU stay.
- **Impact on clinical decision-making:** the CDSS will provide physicians with a practical step-by-step tool, enabling more precise and timely nutritional interventions, streamlining nutritional care across hospital and significantly improving clinical decision-making at the point of care.
- **Transferability:** the proposed approach represents a scalable and transferable model for improving nutritional care, with clear potential for replication across different healthcare systems.

X **Please tick to confirm the PEN letter of endorsement is attached. Incomplete submissions will not be considered.**