

Proactive interdisciplinary monitoring of malnutrition and risk factors during hospitalization: building a cost-effective approach to fight malnutrition across the chain of care

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Description of the initiative

In addition to the mandatory screening for risk of malnutrition (Malnutrition Universal Screening Tool; MUST) upon hospital admission, the University Medical Center Groningen (UMCG) has taken the initiative to monitor nutritional status and underlying risk factors, e.g., presence of nutrition impact symptoms, during hospitalization.

Rationale for the initiative

In the Netherlands, screening for malnutrition at hospital admission has been successfully implemented at the national level. However, nowadays average length of stay has become very short. As result, poor nutritional status is not restored during hospital stay, and continuation of the nutrition care process after discharge is required. To enable triaging for and/or continuation of interdisciplinary interventions after discharge, routine monitoring of nutritional status and underlying risk factors, e.g., nutrition impact symptoms, during hospitalization and at discharge is of utmost importance.

From March 2016 to July 2017, a pilot study^{1,2} has been performed in 4 hospital wards of the UMCG (n=652). The study demonstrated that nutritional status (according to the Patient-Generated Subjective Global Assessment; PG-SGA) is subject to change during hospital stay, with 31% patients well nourished at diagnosis becoming malnourished at the last assessment before discharge, while 86% of malnourished patients remained so during hospital stay. There were marked individual differences in change of PG-SGA score (median Δ 1, range -15 to +17). The pilot study also revealed that a diagnosis of malnutrition at admission is associated with greater length of stay and higher risk of readmission (HR 1.9 [95%CI 1.0-3.4]) and mortality (HR 12.9 [3.3-49.8]) than risk of malnutrition according to screening with MUST (HR resp. 1.7 [0.9-3.4] and 4.8 [1.7-13.0]).

Objectives and scope

We aim to: 1) Implement the monitoring of nutritional status and risk factors in daily routine practice; 2) Build a cost-effective infrastructure to timely identify patients in need for interdisciplinary nutritional interventions, throughout the chain of care, i.e., during hospitalization and after discharge.

Planned activities & deliverables

Steps to be taken

We will estimate additional costs of malnutrition (e.g. prolonged length of stay, deployment of the various disciplines involved in the treatment of malnutrition, like dietitian, nurse, physician and others) of the patients included in our pilot study. Moreover, we will estimate costs related to monitoring of nutritional status and risk factors during hospitalization. Also, we will expand our data collection in selected patient populations (e.g., renal transplant patients) to the outpatient setting, with medium-term follow up (up to 6 months after discharge).

Concrete deliverables of the project

We will deliver a business case and early estimate of cost-effectiveness of routine screening, assessment and monitoring of nutritional status and risk factors for malnutrition during hospitalization (day 1, day 4, day 10, at discharge) and in the outpatient setting (every month to 3 months, varies per population; max. 6 months follow up). This business case will describe the costs related to routine monitoring of malnutrition and risk factors, and will describe the modelled cost-effectiveness of interdisciplinary treatment of malnutrition throughout the chain of care. Furthermore, we will deliver a protocol on how to implement routine monitoring of nutritional status and risk factors, including triaging for interventions, which will be tested on (cost-)effectiveness in the future.

What achievements are possible in the next 12 and 24 months?

Cost calculation on the study sample (hospitalized patients) already included (n=652) will be ready at 12 months. The cost calculation on 200 outpatients, the overall business case and the protocol will be ready at 24 months.

Resources & enablers

€5.000 will be allocated for the cost calculation and €25.000 will be allocated for hiring a researcher, who will perform the additional data collection and analysis, and write the business case and protocol.

What factors will make it successful?

The interdisciplinary collaboration (e.g., dietitians, physicians, nurses) has proven to be very successful thus far. Continuous dissemination by internal meetings, training sessions and feedback of results by fact sheets has maintained willingness among the medical staff. Technical support is given by embedding the assessment and monitoring instrument in the Electronic Medical Records, to facilitate quick and easy completion of the tool, and making the nutritional data visible for healthcare professionals.

Results/outcomes & expected impact

How will the findings be implemented?

The business case will be used as a basis to (re-)allocate tasks on performing the monitoring of nutritional status and risk factors and interventions to prevent or treat malnutrition among the interdisciplinary teams. Implementation of monitoring in routine care will first start at the wards already participating in the project, after which implementation will be upscaled to other wards.

How will this project advance patient care / contribute to optimal nutritional care?

The triaging for interdisciplinary nutritional interventions during hospitalization and at discharge will enable continuation of the nutrition care process throughout the chain of care, which will help improving the nutritional status of the patient, and subsequently improve clinical outcomes (prevention of increased length of stay, reduced number of readmissions, and improved survival). Moreover, the project will facilitate patient-centered care: patients complete the patient component of the PG-SGA (PG-SGA Short Form [SF]), which has shown to improve awareness of malnutrition risk and need for interventions among the patients.³

What makes this project innovative?

This project is the first in Europe to evaluate routine monitoring and subsequent tackling of malnutrition, in addition to screening, of nutritional status and underlying risk factors during hospitalization. Moreover, it is the first project that actively involves the patient in the monitoring of nutritional status and underlying risk factors, by self-administration of the patient component of the assessment and monitoring tool (PG-SGA SF), which will improve patients' awareness on malnutrition risk, and empower patients in self-management and prevention of malnutrition; both increasing compliance to for example oral nutritional supplements. Importantly, an elaborate business case and early cost-effectiveness analysis is foreseen.

Will the project be likely to influence national nutrition policy?

The project is likely to influence national policy on the fight against malnutrition. The PG-SGA has been included in the national multidisciplinary guideline on malnutrition⁴, and as such included in the toolbox for prevention and treatment of malnutrition. Multiple institutions are implementing the PG-SGA (SF), and this project will serve as a 'blue print' for other institutions, with an evidence based business case and protocol.

Transferability to other settings / countries

The instrument used for (risk) assessment and monitoring of nutritional status, i.e., the PG-SGA, is already available in multiple European languages (e.g., Dutch, German, Italian, Norwegian, Portuguese), and various other language versions are in progress, which enables data-pooling on the European level. The PG-SGA SF is perceived very comprehensible and easy to complete by patients across multiple countries.⁵⁻⁹ Moreover, the PG-SGA SF has shown to be feasible in both the hospital, outpatient setting, and in the nursing home setting.¹⁰

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