The real-world use and impact of oral nutritional supplements on hospital stay using the multi-country nutritionDay cohort

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Description of the initiative:

Oral nutritional supplements (ONS) such as nutritionally complete pre-packed drinks are prevalent in the hospital setting for the augmentation of the patient's overall food and fluid intake in order to improve clinical outcomes. Clinical effectiveness of ONS has not been established in the generalized hospital setting and optimal use of ONS in the hospital, which maximises benefits for the patients while also considering efficiency, remains unclear. Length of stay (LOS) is a dual-function outcome measure used as a proxy for a combination of clinical outcomes and also as an economic outcome. A reduction in LOS could signify prompter healing, a reduction in complications such as infections, pressure ulcers, or other clinically relevant outcomes. Concurrently, as an economic outcome, a reduction in LOS signifies a freeing up of hospital resources for new patients (important for efficient hospital capacity management and staffing), and can result in substantial savings for payers in the healthcare system.

This study seeks funding to explore the real-world use of ONS and its impact on hospital LOS in a heterogeneous group of hospitalised patients based on data from the nutritionDay survey. It aims to generate evidence on the optimal use of ONS. The specific objectives are to 1) explore real-world patterns of hospital ONS use, 2) assess the impact of ONS on LOS, and 3) identify predictors for optimised ONS use.

Planned activities & deliverables:

The analysis will use the unique, global, real-world, multi-level, annual cross-sectional nutritionDay data with 30-day outcomes collected on over 150,000 patients in 60 countries. First, real-world patterns of hospital ONS use will be identified through descriptive analysis. Second, patients who were given ONS on nutritionDay will be matched to a comparator group using propensity score methods. Three comparisons will be explored: 1) ONS vs. regular hospital food (RHF) patients; 2) ONS vs. RHF+ONS patients; 3) RHF+ONS vs. RHF patients. Propensity scores (PS) for analysing treatment effects in observational data will be used to ensure balance of confounders in the comparison groups, similar to the process of randomization in a clinical trial. PS analysis methods will then be used to assess the association between ONS and LOS in the comparison groups.   Best practice adjustment methods such as LOS bias correction, competing risks analysis, and censoring will be employed. To minimize nutritionDay specific limitations, adjustments will be made for prior-LOS at data collection and setting (country, hospital, unit, as appropriate). Finally, predictors for optimised ONS use will be identified by clustering patient types that correspond to reduced LOS. The data analysis will commence in October 2017 for a period of 12 months, at the end of which a deliverable of at least one peer reviewed publication and a presentation (at ESPEN 2018) will result.

Resources & enablers:

The nutritionDay survey is funded by ESPEN, and the data has been made available to the Department of Health Economics (DHE), Medical University of Vienna where this research would be conducted as part of a long-term collaboration with nutritionDay. The analysis will be carried out by Noemi Kiss MSc and supported in-kind by the core senior nutritionDay team: Prof Michael Hiesmayr (clinical medicine), Prof Judit Simon (health economics), Prof Peter Bauer (statistics). The software, hardware, and infrastructure are provided by the DHE. The grant would be used to cover personnel costs, dissemination of the results (open-access fee) and ESPEN conference attendance to present the results.

Success factors:

This project is unique in that it uses real-world, global data, with a large sample size of over 150,000 patients. The project is multi-disciplinary, crossing the realms of nutrition science, clinical decision making, health services research, and health economics while applying the latest statistical methods for robust results. The multi-disciplinary team has experience with the dataset and is at the centre of the nutritionDay network of nutrition care stakeholders in over 50 countries that would amplify the reach of the results and facilitate important discussions among the nutrition care community.

Results/outcomes & expected impact

This globally relevant project has the potential to contribute to optimal nutrition care by providing evidence to assist healthcare professionals in identifying patients in the hospital who are most likely to benefit from ONS and by providing real world evidence to various stakeholders on the association between ONS and LOS in order to optimise guidelines and utilisation. The findings will be disseminated throughout the global network of nutritionDay which consists of dieticians, hospital administrators, and others who work in the field of hospital nutrition, and in the form of at least one high impact, open-access peer-reviewed publication and presentation at the 2018 ESPEN conference.