



nutritionDay

IN EUROPEAN HOSPITALS

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Research project: Nutrition day in European Hospitals

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Introduction:

Malnutrition at hospital admission is a risk factor for an unfavourable outcome, prolonged hospital stay and delayed recovery. In addition a relevant proportion of patients have a nutritional intake below their needs during hospitalisation¹⁻³. In these patients the incidence of complications such as nosocomial infections, poor ventilatory function, prolonged bed rest is increased⁴. Mortality has been shown to be up to 8 times higher and dependency at discharge up to 3 times more frequent^{5,6}.

Several risk factors such as age, type of disease, severity of disease, degree of functional impairment, social background, nutritional awareness and structural factors have been proposed but never systematically assessed.

The extent of the problem has been assessed in 2001 at the European level^{7,8} and 5 major barriers for proper nutritional care in hospitals have been identified. These barriers are no clear definition of responsibility, insufficient education of hospital staff, lack of influence of patients, lack of co-operation between staff members and lack of involvement of hospital managers. Based on this information a resolution of the European Council has been taken in November 2003 (<https://wcm.coe.int/rsi/CM/index.jsp>).

The aim of this international cross-sectional multicentre audit in Europe is to generate a risk and level of nutritional intervention profile for an individual unit/ward based on case-mix, structures and social environment. This profile should give a snapshot on the relation of risk to resource allocation. The audit is unit and patient centred. Each unit should get as a feedback anonymously its position compared with all other participating units. Risk adjustment for selected patient groups, social environments and structures is planned.

In conclusion this audit will have two distinct outputs:

- An precise map of the prevalence of malnutrition before admission and of decreased nutrient intake according to risk factors, medical specialty, organisational structures and countries.

- An increase in awareness for clinical nutrition in patients, caregiver and hospital managers.

Methods:

One day international cross-sectional audit in all types of wards, including intermediate care, high dependency and specialised units including Intensive care units.

The data collected consist of four parts:

- 1. Unit organisation and structures:** Structural information about the unit (one sheet / unit) to be filled by the unit supervising physician together with the nursing head (see Unit structure sheet).
For ICU patients should be used other data collection form (see ICU Sheet 1)
- 2. Unit patient caregiver profile:** Demographic profile, diagnostic category based on ICD 10 and nutritional interventions for all patients (one line / patient) to be filled by a responsible person from the staff. (see Unit caregiver sheet).
For ICU patients should be used other data collection form (see ICU Sheet 2).
- 3. Individual patient questionnaire:** Each patient should document her/his nutritional intake during the study period. In addition patients may be asked to fill a questionnaire about changes in nutritional habits and reasons for decreased nutritional intake from the patient's perspective (see Sheet 3a and 3b) and evaluation of nutritional risk using the MUST [Malnutrition Universal Screening Tool]
For ICU patients should be used other data collection form (see ICU Sheet 3.4).
- 4. Individual patient outcome:** at hospital discharge or day 30, whatever comes first: date of unit discharge, date of hospital discharge, site of discharge and health status (see Sheet "unit patient list and outcome").
Individual patient outcome for Intensive care units :
at hospital discharge or day 60, whatever comes first: date of unit discharge, date of hospital discharge, site of discharge and health status (see "patient list ND ICU").
- 5. 6-months outcome in the community:** Israel will conduct a 6 months outcome follow-up after the patients that participated in Nutrition Day in the hospitals. The follow-up will take place in community clinics. Patients will be documented for survival, re-admissions, number of community clinic visits, pharmacy use, general health status and complexity [using Charlson's index] and recent blood test results (routine tests, not taken especially for the follow-up).

Three months after enrollment, at a visit to their community healthcare organization (i.e. Maccabi, Clalit etc.), patients will be asked to fill out a questionnaire about his/hers health and nutritional status, undergo screening for their risk of malnutrition [using MUST again], and fill out a 24-hr recall diary of their intake.

Patient inclusion:

All adult patients present within the unit from 7H00 to 7H00 (e.g.) from first nursing shift start to first nursing shift the following day, including admissions and discharges within the period.

Patient exclusion:

Patient with an age < 18 a.

Patients admitted and discharged during the same calendar day.

Survey recruitment plan:

5-20 units with 20-30 beds per participating country. A minimum of 10 units per medical specialty will be necessary to allow specialty adjustment. Within each specialty a minimum number of 20 patients per diagnostic category will be necessary. Recruitment will be via the national societies as well as international and national congresses. The target would be all types of hospital wards within hospitals of different sizes and level of care.

Data security:

On the datasheets the unit is identified by a numeric code delivered by the coordinating centre after application to the coordinating centre and, the patient by initials and age. Thus the data handling centre cannot trace data back to an individual patient.

Thus data transfer and storage is made in a way to protect the patient's anonymity and the unit's identity. Ideally all data transfer will be done via the internet, with patient identifiers kept only at the individual unit/ward. The access to data entry will be protected by username and password.

Alternatively a FAX data transfer will be available to a dedicated data collection FAX that is located in a remote room that can only be accessed by the coordinating team and has only the ability to receive data.

Furthermore data may also be sent by mail to the coordinating centre.

A local patient's list will be used at the level of the participating unit to match identifiers in the database by initials and age in order to facilitate outcome evaluation at day 30 and consecutive data entry.

A unit specific report with anonymous cohort comparison should be finally available for each unit for download from a research website.

All data transfer between the local unit and the coordinating centre in Vienna will be user / password protected. Username and password will be delivered during the registration process of an individual unit coordinator.

Data analysis and modelling:

The first focus is on the unit/ward with the unit's specific population, diagnostic categories, proportion of patients admitted with recent weight loss as well as the proportion with a decreased nutrient intake. The related outcome parameters will be mortality, length of stay in hospital and site of discharge (other hospital, long-term care or home).

The secondary parameter used for between units benchmarking will be the proportion of patients requiring nutritional interventions and a ranking of potentially modifiable factors with their respective weight.

The primary patient based outcome will be risk adjusted length of stay (LOSa) in relation to the demographic and nutritional risk factors and the nutritional intervention intensity.

The secondary patient-based outcome will be site of discharge and death during the actual hospitalisation. Variability in LOSa will be analysed with Cox regression and dichotomous outcomes with logistic regression.

The efficacy of individual nutritional and structural interventions on outcome will similarly be quantified based on the total cohort only.

All data analysis will be done at the Dept. for Medical Statistics, Medical University Vienna, with SAS 12, GraphPad Prism 5. I. After publication of the multinational results, all national datasets will be available for national publication based on a research plan, if the number of wards is large enough to ensure anonymity for the individual ward within the country.

Data elements:

All questionnaires have been translated by the national representative for the used languages (English, German, French, Italian, etc) within the country and checked for consistency after back translation into one of the two master languages by the coordinator.

1. Unit organisation: Human resources, guidelines, hospital wide nutrition team, awareness, typical medication interfering with nutrition and appetite.

2. Unit patient profile: Initials, year of birth, (bed nr.), weight (measured/indicated), height (measured/indicated), date of hospital admission, date of unit admission, ICU stay during current admission (none, up to 2 days, more than 2 days), date of unit discharge, date of hospital discharge, site of discharge (hospital, long-term care, nursing home, home, eventually death) medical specialty (ENT, internal medicine

(cardiology, gastroenterology, endocrinology, infectious diseases, ...), neurology, oncology, surgery (burn, cardiac, gastrointestinal, general, orthopaedic, plastic, thoracic, trauma, vascular,), diagnostic category (each medical specialty should define the 7 most frequent diagnostic groups, which should cover 75% of the population and eventually 5

important rarer conditions), comorbidities (diabetes, stroke, COPD, heart failure, renal failure, hepatic failure, active infection, active oncological treatment), mobility (bed-rest, toilet, ward, hospital) surgical patients should be defined as preoperative or postoperative, medical patients should be defined as during diagnostic evaluation or during treatment. Nutritional therapy: type of available access (peripheral intravenous, central venous, nasogastric tube, nasojejunal tube, PEG, gastrostomy, catheter-jejunosotomy) Nutritional intervention: none (normal diet), specific diet, no oral allowed, oral supplements (minimum 400 ml), partial enteral, partial parenteral, exclusive enteral, exclusive parenteral, prokinetics, laxatives, probiotics, prebiotics

3. Patient questionnaire: (to be filled by the patient and for patients not able to write by a person not involved in treatment decisions) for each of 5 meals: proportion eaten, volume drunk, number of nutritional supplements. weight loss history, reasons for decreased nutritional intake, food by friends or relatives mobility

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