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Estimation of malnutrition prevalence using administrative data: Not as simple as it seems.

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Dear Editor,

Malnutrition is a common finding among hospitalized patients, leading to increased morbidity and higher length of stay and costs (1). Several studies have assessed the prevalence of malnutrition using hospital discharge data, i.e. using international classification of diseases (ICD) codes. Nowadays, most hospital data is available in electronic format, including prealbumin, a marker of malnutrition (2). Whether malnutrition defined by low prealbumin levels is actively reported in discharge data has seldom been assessed. Thus, we assessed the prevalence of malnutrition according to four definitions: 1) any ICD-10 code E40 to E46; 2) ICD-10 code R63 or R64; 3) prealbumin levels <15 mg/dL (measurements performed in 996 patients devoid of liver disease or infection) and 4) any one of the previous three. We used data from 2002 to 2013 from the Department of Internal Medicine of the Lausanne University Hospital, Switzerland (32,850 patients aged ≥18 years).

Prevalence (95% confidence interval – CI) of malnutrition using the entire sample was 2.7% (2.5-2.9); 1.7% (1.6-1.9); 2.0% (1.8-2.2) and 6.1% (5.9-6.4) for definitions 1, 2, 3 and 4, respectively. These findings are in agreement with other studies conducted in the United States and Spain, which reported 3.2% and 1.4% malnutrition diagnosis at discharge according to ICD-9 codes (3, 4). No differences in prevalence were found between genders or age groups using definitions 1 and 2, while higher prevalence were found in men using definition 3 and in younger patients using definitions 3 and 4 (Table). Among the 996 patients for whom prealbumin was measured, 656 [65.9% (62.8-68.8)] had prealbumin levels <15 mg/dL, but of these 656 patients with possible malnutrition, only 56 (8.5%) were reported as malnourished in discharge data (definition 1) and only 17 (2.6%) were considered as malnourished according to definition 2. These findings are in accordance with the literature (4, 5), showing that results from objective

nutritional assessments are rarely translated into ICD codes at discharge. This underreporting of malnutrition has considerable consequences for health planning, as health statistics and most public health decisions are based solely on hospital discharge data.

We conclude that the prevalence and determinants of hospital malnutrition vary significantly according to the definition applied. Results from objectively assessed malnutrition are not actively coded, leading to a considerable underestimation of malnutrition prevalence in hospital discharge data. Professionals filling the discharge letter should be more sensitized towards malnutrition.

Table: Malnutrition prevalence according to gender and age groups. Results are expressed as number of hospitalizations and (%).

	Malnutrition Definition			
	ICD-10 code E40 to E46	**ICD-10 code R63 or R64**	**Prealbumin <15 mg/dL**	**All**
Gender				
Women	450 (2.8)	298 (1.9)	286 (1.8)	993 (6.2)
Men	432 (2.6)	269 (1.6)	370 (2.2)	1027 (6.2)
* *P*-value	0.265	0.104	0.004	0.99
Age group				
30-59	226 (2.9)	142 (1.8)	174 (2.2)	509 (6.5)
60-69	166 (3.0)	94 (1.7)	151 (2.7)	393 (7.1)
70-79	201 (2.6)	109 (1.5)	177 (2.3)	473 (6.2)
80-89	221 (2.4)	172 (1.9)	127 (1.4)	503 (5.5)
90+	68 (2.5)	50 (1.8)	27 (1.0)	142 (5.3)
**P*-value	0.131	0.219	< 0.001	< 0.001

ICD, International Classification of Diseases. **P*-value for between group comparisons using Chi-square test

References:

1. Norman K, Pichard C, Lochs H, Pirlich M. Prognostic impact of disease-related malnutrition. Clin Nutr. 2008;27(1):5-15.

2. Robinson MK, Trujillo EB, Mogensen KM, Rounds J, McManus K, Jacobs DO. Improving nutritional screening of hospitalized patients: the role of prealbumin. JPEN Journal of parenteral and enteral nutrition. 2003;27(6):389-95; quiz 439.

3. Corkins MR, Guenter P, DiMaria-Ghalili RA, Jensen GL, Malone A, Miller S, et al. Malnutrition Diagnoses in Hospitalized Patients: United States, 2010. JPEN. 2014;38(2):186-95.

4. Marco J, Barba R, Zapatero A, Matia P, Plaza S, Losa JE, et al. Prevalence of the notification of malnutrition in the departments of internal medicine and its prognostic implications. Clin Nutr. 2011;30(4):450-4.

5. Polednak AP. Indicators of nutritional screening in hospital records of newly diagnosed Hispanic and Asian-American adult cancer patients in Connecticut. Nutrition. 2008;24(10):1053-6.