Editorial

The importance of the coding of hospital malnutrition in the health strategy of the European Union; a Spanish contribution

J. Álvarez, M. León, M. Planas and A. García de Lorenzo

Members of the Executive Board and Scientific Committee of SENPE (Spanish Society of Parenteral and Enteral Nutrition). Spain.

Abstract

Malnutrition related to illness and inadequate nutrition remains a matter of relevant interest in the member countries of the European Union because of its elevated prevalence and high costs. It is estimated to affect 30 million patients and cost 170 billion euros annually. The 2008-2013 strategy “Together for Health” put forward in the European Parliament urges Member States to develop, together with local and regional authorities, initiatives in the field of education of the population, training, investigation and good clinical practices. SENPE (Spanish Society of Parenteral and Enteral Nutrition) collaborates in different areas in the development of this strategy which aim to put malnutrition related to illness in the focus of the health system. One of its contributions has been the preparation of the Document of Consensus on the Coding of Malnutrition SENPE-SEDOM (Spanish Society of Medical Documentation). The agreements adopted have helped normalize the process of coding this pathology with the assignment of specific codes for specifically defined terms. This document has allowed the optimization of information regarding the types and degrees of malnutrition and the procedures employed for its prevention or treatment in the hospital centres of the National Health System.

DOI:10.3305/nh.2010.25.6.5027

Key words: Malnutrition. Health strategy. Coding. Consensus SENPE-SEDOM.

Introduction

Hospital Malnutrition is the focus of attention of a great number of health professionals and managers today. However, it is widely accepted that there is still a lot to be done.

In spite of important scientific and technical advances, malnutrition related to illness and inadequate nutrition continue to be of relevant interest due to its elevated prevalence and high cost, it is estimated to affect 30 million patients and cost 170 billion euros annually.1

The European Parliament, in plenary sessions held on the 25th of September and the 9th of October 2008 approved two resolutions which urge the European Commission to “take a more holistic approach to nutrition and make malnutrition, alongside obesity, a key priority in the field of health, incorporating it
Knowledge of our health reality will always help us to analyze the situation prior to making a decision. The importance of a record of activities in this regard is well known to everyone. All this information is important from an epidemiological and economic management point of view.

Coding is one way of indexing clinical information that contains clinical histories in order to facilitate its storage and recovery. In the middle of the 20th century the ICD-9, International Statistical Classification of Diseases and Related Health Problems was developed in the United States, as an adaptation of the International Classification of Diseases Adopted for use in the United States (ICDA-8) and the ICDA Adaptation for Hospitals (H-ICDA). The intention of this initiative was that it would serve as a basis both for mortality and morbidity data collected for statistical purposes as well as information regarding illnesses and operations present in clinical histories, with the object of facilitating the storage and recovery of said data.10

Several versions of this document have existed which have updated the information contained in it. The latest version in use in all Spanish hospitals is called the ICD 9 CM. It is a clinical modification of the International Classification of Diseases 9th Revision (ICD 9) of the World Health Organization.11

The term “clinical” is used to emphasize the purpose of the amendment: which is to serve not only for health statistics, but as a useful tool in the classification of morbidity data for the management of clinical histories, revisions of medical treatments, outpatient care programs and other types of medical care. Obviously to describe the clinical picture the codes must be more precise than those needed for statistical groupings and the analysis of trends.

The coding of diseases follows a system of numerical categories which have been assigned to diseases in accordance with previously established criteria. A classification of diseases must meet a series of conditions such as:

- Have a restricted number of categories in which all diseases must be grouped.
- Any disease can only be classified in one category, since the categories are exclusive among themselves.

The ICD 9 CM complies with these requisites and although, as we will see further on, it is not perfect, it has the advantage that it is being used in hospitals all over the world to code discharges and it is updated annually.12

Thus, the ICD 9 CM has established itself as a useful tool for the management of clinical information and constitutes an information baseline for the health financing systems in the United States of America and a great number of European countries.
**The exercise of coding**

The ICD 9 CM and its latest version the ICD 10 CM, are published in three volumes:

- Volume 1 Illnesses: Tabular List.
- Volume 2 Illnesses: Alphabetic Index.
- Volume 3 Procedures: Tabular List and Alphabetic Index.

In the ICD 9 CM each chapter is divided into categories or sections to which a 3 digit code is always assigned. Within each category there are different subcategories which add a fourth digit to the code and sometimes the subcategory is divided into sub classifications which will add a 5th digit to the code. In order to classify and code correctly, the greatest number of digits possible must be reached. Very few diseases exist which can be classified with only 3 digits.

To guide the coder in his activity, at the beginning of each chapter, section, subcategory or sub classification of the tabular list of diseases appears a series of orders such as: Includes; Excludes; Note; Code addition or Use additional code if desired. Some abbreviations are also used, for example NOS which means Not Otherwise Specified, and signs which indicate whether it is necessary to add a complementary code. Also, the classification of diseases has been increased to include physical states related with health and to provide greater specificity to the level of the fifth digit. Said fifth digits are not optional; they were designed for use in the recording of targeted information data (from the information collected) in the clinical history.

It is difficult for us doctors to understand the coding work that our documentalist colleagues do. It is clear that the exercise of coding requires rigorous method which is faithfully followed through ad hoc training.

The procedure of coding for each care episode is rigorously established. This must begin with the indexing which consists of identifying the principal diagnosis, secondary diagnosis and procedures.

The preferred primary document for the indexing of the clinical history for the MBDS (Minimum Basic Data Set) is the discharge report, provided that both (discharge report and clinical history) are consistent. When it is deemed that the discharge report is incomplete, subsequently, the following clinical history documents will be taken into account in order of priority:

- Anamnestic page(s).
- Operative page(s).
- Anatomic pathologic report.
- Urgent care report.
- Nurse’s observations.
- Other documents.

The coder must extract, from the discharge reports, the significant elements:
diagnosis. In the case of chronic diseases, always make reference to the aggravations, complications or consequences which justify the care.

Concept of malnutrition in ICD-9 CM

One of the objectives of the SENPE-SEDOM coding work group was to meticulously analyze the concepts established as definitive for malnutrition in the ICD 9 CM. In the concrete case of malnutrition, it has added the principal malnutrition codes for protein malnutrition (Kwashiorkor), caloric (Marasmus) or mixed with the definition criteria for malnutrition which have historically been defined in the paediatric age group in less developed countries. Therefore, it does not specifically consider the case of hospital malnutrition in adults.

This is limiting in terms of achieving truthful information, a reflection of the care reality in hospital centres, given that our sick adults or children in the western world, who present with malnutrition as a secondary diagnosis in its different degrees of severity should receive some of these codes are not in line with clinical reality. For example, a previously healthy individual who after a severe event develops severe protein malnutrition should be coded as such. According to the ICD 9 he would be assigned the code 260 or probably better 262, but, with the definition given by the ICD 9, in the view of the doctor, neither of the two adjusts to this clinical manifestation in a way that could be considered adequate (table I).

A universally accepted definition of malnutrition does not exist. In addition, in recent years new clinical-pathological terms related to malnutrition are emerging, such as sarcopenia, cachexia and pre-cachexia which have been the subject of consensus documents among international Scientific Societies.15 Probably all this has contributed to maintaining certain difficulties in the interpretation of the codes, but an agreement has repeatedly been called for on the definitions and terms underpinning these codes (16). For this reason, the conclusions of the SENPE-SEDOM Coding group include definitions and codes agreed upon for the different types and degrees of hospital malnutrition which we diagnose daily in our patients’ (table II y III).

Recently a group of experts from ESPEN and ASPEN have agreed on a proposed definition for malnutrition in adults, linking it directly with the “etiological-

### Table I

**Assigned malnutrition codes from the ICD 9 CM**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>260</td>
<td>Kwashiorkor: Nutritional oedema with dyspigmentation of skin and hair.</td>
</tr>
<tr>
<td>262</td>
<td>Other severe protein-calorie malnutrition: Nutritional oedema without mention of dyspigmentation of skin and hair.</td>
</tr>
<tr>
<td>263.0</td>
<td>Other and unspecified protein-energy malnutrition</td>
</tr>
<tr>
<td>263.1</td>
<td>Arrested development following protein-calorie malnutrition.</td>
</tr>
<tr>
<td>263.2</td>
<td>Physical retardation from malnutrition.</td>
</tr>
<tr>
<td>263.3</td>
<td>Other protein-calorie malnutrition</td>
</tr>
<tr>
<td>263.4</td>
<td>Unspecified protein-calorie malnutrition</td>
</tr>
<tr>
<td>Excludes nutritional deficiency NOS (269.9)</td>
<td></td>
</tr>
</tbody>
</table>

### Table II

**Consensus on the definition of types of malnutrition**

<table>
<thead>
<tr>
<th>Type</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calorie malnutrition (equivalence: Marasmus)</td>
<td>Calorie malnutrition due to an absence or waste of energy and nutrients. It causes an important decrease in body weight, characterized by loss of adipose tissue, in smaller quantity than muscle mass and without significant alterations in visceral proteins or oedema. The anthropometric variables are also affected. Plasma albumin and protein should be normal or with slight alteration.</td>
</tr>
<tr>
<td>Protein malnutrition or predominantly protein (equivalence: Kwashiorkor)</td>
<td>Assimilated in well-developed countries to the concept of acute malnutrition due to stress which appear when there are a decrease in the protein administration or an increase in the demands such as in acute infections, multi-trauma, major surgery and others. The fat mass is preserved, being the loss basically protein, mainly visceral. The anthropometric variables could be in the normal ranges with low levels of visceral proteins.</td>
</tr>
<tr>
<td>Mixed malnutrition</td>
<td>Severe malnutrition protein-calorie o Kwashiorkor-marasmatic, which mix the characteristics of both anterior conditions, decrease in fat free mass, fat mass and visceral proteins. Appear in patients with prior chronic malnutrition type marasmus (in general due to chronic disease) with some acute process which produces stress (surgery, infections). It is the more frequent model in the hospitalized patients. It is possible to evaluate the severity of the more affected component, prevalence calorie or protein.</td>
</tr>
<tr>
<td>Lacking states</td>
<td>Isolated deficiency of some nutrient (essential trace elements or vitamins), by decline in its intake or increased loss. Generally associated with one of the previous types.</td>
</tr>
</tbody>
</table>

This definition highlights the importance of malnutrition related to the primary illness of the patient. This consensus describes three types of malnutrition:

- When there is chronic emaciation without inflammation, the experts propose the term “emaciation related with malnutrition”. Examples of this clinical situation would be situations similar to those we see in a patient with anorexia nervosa.

- When there is chronic emaciation with chronic inflammation, of mild or moderate degree, they propose the term “malnutrition related with chronic illness”. An example of this type would be patients who present criteria of organ failure, pancreatic cancer, rheumatoid arthritis or obesity with sarcopenia.

- When there is chronic emaciation with inflammation acute and of severe degree, the proposal of the experts is to term it “malnutrition related with acute illness or state of aggression”, accompanied by an acute inflammatory response. Some examples would be the malnutrition presented by patients with severe infections, burns, multiple injuries or cranial trauma.

It is obvious that this work group does not have the capacity to modify a universal norm, but to adapt, in a practical and rigorous way, the definitions, categorizations and coding of malnutrition in the ICD 9 CM, with the intention of facilitating the work of the coders and the better understanding of the doctors.

We have in our hands, validated methods of screening and nutritional diagnosis, which permit us to establish a diagnosis on the discharge of a patient to identify malnutrition as a primary or secondary diagnosis, as a determining pathology, the type according to the deficiency, caloric and/or protein and the severity. All this data contributes to the enrichment of our information systems, the MBDS of our hospital, and if we accept the coding agreements we could have an information management and resource consumption tool which permits us to make comparisons with ourselves in distinct periods of time and with hospitals of similar characteristics (benchmarking).

### How to code malnutrition and the related procedures

As we have already said, malnutrition usually forms a part of the list of secondary diagnoses in a discharge report. Its recording is fundamental because of its clinical implications and because the consumption of resources associated with a malnourished person, by the illness itself or the diagnostic and therapeutic procedures used to prevent or reverse it is high and must always be taken into account.

---

**Table III**

<table>
<thead>
<tr>
<th>Diagnostic parameter values of degrees of malnutrition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Normal range</strong></td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>BMI</td>
</tr>
<tr>
<td>Percentage of usual weight</td>
</tr>
<tr>
<td>% weight loss/Time</td>
</tr>
<tr>
<td>1 week</td>
</tr>
<tr>
<td>1 month</td>
</tr>
<tr>
<td>3 months</td>
</tr>
<tr>
<td>Skin Fol. And other anthropometric measures</td>
</tr>
<tr>
<td>Albumin (g/dl)</td>
</tr>
<tr>
<td>Transferrin (mg/dl)</td>
</tr>
<tr>
<td>Prealbumin (mg/dl)</td>
</tr>
<tr>
<td>RBP (mg/dl)</td>
</tr>
<tr>
<td>NB</td>
</tr>
<tr>
<td>Lymphocytes (cells / mm³)</td>
</tr>
<tr>
<td>Cholesterol (mg/dl)</td>
</tr>
<tr>
<td>SGA</td>
</tr>
<tr>
<td>MNA</td>
</tr>
</tbody>
</table>

RBP: retinol-binding protein.
NB: nitrogen balance.
SGA: subjective global assessment.
MNA: mini nutritional assessment.

Diagnosis of malnutrition with at least 3 altered values (1 anthropometric, 1 visceral proteins, 1 biochemical) or SGA score (Subjective Global Assessment) in accordance with the screening test performed.
The criteria for coding in the matter of malnutrition demand:

1. Documentation confirmation. For the assignment of a malnutrition code a diagnosis of the same is necessary with the corresponding documentation which reflects it.

2. Documentation sources. The preferred documentation source is the Discharge report, the decision of the doctor responsible or the Nutritional Support Team also being valid, the diagnosis of malnutrition in the clinical history, regardless of the support for the same, as we have previously said.

3. Different state. When a patient passes through different degrees of malnutrition in the same episode, the most severe that he has suffered will be recorded.

4. Procedures of artificial nutritional support. The performance of a nutritional procedure does not constitute the presumption of a diagnosis. In the presence of nutritional support without a diagnosis, the existence of the same must be confirmed and if it does not exist, only procedural codes will be recorded. The nutritional support must be greater than 1,000 kcal/day for it to be taken into consideration when it comes to coding.

5. Guidelines to follow in coding. If we take into consideration the general guidelines of coding previously described, after identifying the key term of the secondary diagnosis (malnutrition) we locate it in the alphabetic index and look to the tabular list to select the code which best defines the diagnosis, taking into account the categories and subcategories. In this way we would find it in the ICD 9 CM:

Malnutrition (caloric) 263.9
 - abandonment..............
 - - degree
 - - - severe 261
 - - - - protein-calorie 262
 - - - mild 263.1
 - - - moderate 263.0
 - - - first 261.1
 - - - second 263.0
 - - third 262
 - severe 261
 - - protein-calorie NCOC (Not codable under another concept) 262
 - - mild 263.1
 - - malignant 260
 - - moderate 263.0
 - protein 260
 - - protein-calorie 263.9
 - - severe 262
 - - specified type NCOC 263.8

The SENPE-SEDOM agreements have permitted the identification, categorization and coding of the distinct types and degrees of malnutrition, facilitating the assigning of codes by the coder to the definitions of malnutrition, types and degrees, accepted by consensus by the doctors and documentalists. The allocation of the consensually proposed codes is the following:

Calorie Malnutrition:
Mild: 263.1
Moderate: 263.0
Severe: 261
Unspecified degree: 263.9

Protein Malnutrition:
In any degree: 260

Mixed or Protein-calorie Malnutrition:
Mild: 263.8
Moderate: 263.8
Severe: 262
Unspecified degree: 263.9

6. Coding of nutritional support procedures: Parenteral Nutrition: 99.15. The corresponding catheter insertion must be coded, provided that it takes place during admitting.

Enteral Nutrition: 96.6 reflecting support greater than 1000 Kcal/day.

In this difficult framework, the reader could be surprised by the allocation of the same code to identify various diagnoses, like for example those of mixed malnutrition of unspecified degree and unspecified malnutrition of unspecified degree, or those of caloric malnutrition mild or moderate and unspecified malnutrition in mild or moderate degree. These codes were agreed upon by doctors and documentalists to facilitate the classification of processes which until that time were assigned according to the subjective criteria of the coder. On occasions the lack of information supplied in the discharge report did not allow for the allocation of the proper code with the consequences that this could have on the estimates of the consumption of resources.

We also want to point out that according to the definitions established in the ICD 9 CM for the nutritional support procedures, both dietary counselling and nutritional supplements are not covered and therefore are not considered in the classification and allocation of codes. In the field of clinical nutrition, this is one of the criticisms that the ICD 9 CM receives, as it leaves out the classification of aspects of diagnostic or procedural interest. However, to understand this absence it is important to remember two fundamental aspects. The first is the conceptual origin of the ICD 9 CM which we have commented on throughout the text. The second is that it deals with a general norm, internationally and
It is clear that the interest of both doctors as well as coders has increased, to obtain this information and significantly increase the records of malnutrition and coded procedures (fig. 1), as well as the assignment of more specific numerical codes. The recorded rate of any code corresponding to any type of malnutrition in 2003 was 3.3 for every 1000 hospital discharges, while in 2007, after the implementation of the hospital malnutrition coding document, the rate was 5.93 for every 1000 discharges. In the case of procedures, during the same period, the records increased from 9.14 to 12.24 for every 1,000 discharges25 (tables IV, V and VI).

Final considerations

The coding process demands specific training and the knowledge of a laborious methodology. The stringency in coding allows us to obtain information of great relevance in the field of epidemiology, of economic management and the quality of care.

Malnutrition related to illness and especially hospital malnutrition constitutes a clinical entity of great significance in public health care systems around the world because of its high socio-health and economic costs.

The implementation of measures to optimize the information is a commitment from SENPE. That is why the development of a tool along these lines, like the SENPE-SEDOM Consensus document for the

### Table IV

| Coding of malnutrition diagnosis for every 1,000 discharges period 2003. Information taken from technical office of the ICD 9 CM of the MHC |
|---|---|---|---|---|---|
| | 2003 | 2004 | 2005 | 2006 | 2007 |
| Diagnosis (D) | 3.30 | 4.34 | 5.10 | 5.41 | 5.93 |
| Procedure (P) | 9.14 | 10.01 | 10.80 | 11.18 | 12.24 |
| D+P | 0.63 | 0.92 | 1.06 | 1.08 | 1.24 |
| Other | 11.80 | 13.43 | 14.85 | 15.51 | 16.94 |

### Table V

| Number of codes recorded in the period 2003-2007 for every 1,000 discharges. Information taken from the technical office of the ICD 9 CM of the MHC |
|---|---|---|---|---|---|
| 260 | 176 | 209 | 353 | 426 | 498 | 1,662 |
| 261 | 694 | 806 | 901 | 776 | 1,000 | 4,177 |
| 262 | 1,073 | 1,440 | 2,208 | 2,163 | 2,382 | 9,266 |
| 263.0 | 584 | 1,459 | 1,771 | 1,928 | 1,920 | 7,662 |
| 263.1 | 273 | 889 | 1,236 | 1,043 | 1,062 | 4,503 |
| 263.2 | 135 | 173 | 281 | 331 | 387 | 1,307 |
| 263.8 | 665 | 538 | 883 | 1,185 | 1,284 | 4,555 |
| 263.9 | 7,751 | 9,656 | 10,434 | 11,556 | 13,333 | 52,730 |
Codiﬁcation of Malnutrition, has been an object of great interest among the members of both scientiﬁc societies, because it allows us to seek more rigorous information in our national care panorama in this area.

We believe that this document could be of assistance to all those members of other scientiﬁc societies similar to SENPE, federated in ESPEN, standardizing the deﬁnition and coding of malnutrition, types and degrees. A common language in a global health strategy.

Acknowledgements

Our appreciation to Dr J de Rio Mata, member of SEDOM, for his collaboration with the SENPE-SEDOM consensus document for the coding of Hospital, as well as, the analysis of malnutrition coding data from Spanish hospitals.

References


<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Enteral</td>
<td>13,607</td>
<td>15,358</td>
<td>17,309</td>
<td>18,423</td>
<td>21,172</td>
<td>85,869</td>
</tr>
<tr>
<td>Enteral + Parent</td>
<td>2,292</td>
<td>2,791</td>
<td>3,335</td>
<td>3,610</td>
<td>4,122</td>
<td>16,150</td>
</tr>
<tr>
<td>Parenteral</td>
<td>15,573</td>
<td>16,857</td>
<td>17,605</td>
<td>18,113</td>
<td>19,844</td>
<td>87,992</td>
</tr>
</tbody>
</table>

**Table VI**

**Coding of procedures for every 1,000 discharges period 2003-2007. Information taken from the technical office of the ICD 9 CM of the MHC**

880