

## Special Article – Malnutrition

## Cronicity Course Final Project

**Antonio Masia\***

Nutritional Risk and Malnutrition, Guillem de Castro Health Center, Spain

**\*Corresponding author:** Antonio Masia, Nutritional Assessment in Primary Care, Nutritional Risk and Malnutrition, Guillem de Castro Health Center (Valencia-Spain), Spain**Received:** December 12, 2019; **Accepted:** January 10, 2020; **Published:** January 17, 2020**Abstract**

Eating habits determine the state of health of the population. In Spain, according to the WHO, 8 out of 10 deaths are related to diet and alcohol consumption.

The statistical office of the European Union says that if in Spain in 2007 15.7% of the population was over 65 years old, by 2050 Spain will be one of the oldest European countries, having more than 65 years 34.1% of its inhabitants.

These demographic changes represent an important challenge for the health system, not only because of the increase in spending but also because it causes a change in the nature of the care and the care demanded.

**Introduction**

There is a high prevalence of the risk of malnutrition in Primary Care. In Spain it is estimated that 11% of the patients seen in the family doctor's office are at nutritional risk.

In the community:

4.3% malnourished.

25.4% at risk of malnutrition.

Home Patients:

20.2% malnourished.

51.9% at risk of malnutrition.

Geriatric residences:

7.9% malnourished.

61.8% at risk of malnutrition.

**Hypothesis**

A healthy nutritional state contributes, without any doubt, to improve the functional and mental state of the patient and, therefore, contributes to improving the patient's quality of life.

The assessment of nutritional status is an assessment aimed at detecting patients who are malnourished or who are at nutritional risk, in order to carry out an adequate nutritional plan and avoid complications.

Elderly patients who are exposed to malnutrition due to physiological, pathological, cultural and socio-economic circumstances are the type of patient with the most frequent nutritional problems in Primary Care consultations.

It is in these patients that the ESPEN guidelines (The European Society for Clinical Nutrition and Metabolism, with a grade of recommendation A for oral supplementation, can increase or improve their nutritional status, functional capacity and survival by increasing calorie intake, proteins and micronutrients.

In Primary Care, the assessment of nutritional status is not

included in the electronic medical record and, in addition, the few minutes available to the family doctor during the visit impede the routine performance of this assessment; but there are quick and easy-to-use methods and tools that allow you to know the nutritional status.

**Material and Methods**

The Primary Care Team (EAP) of a Health Center located in Valencia capital, belonging to one of the Health Departments of the Department of Health and with an assigned population of 27,000 inhabitants. One of the family doctors presented to the Medical Directorate the protocol of the Clinical Nutrition program from Primary Care, having relation to the Endocrinology Service and the Nutrition Unit of the reference hospital, being the first Health Center where it has been placed in March this pilot program.

Currently, a family doctor and a nurse from the Health Center are working on this program, circumscribing only patients belonging to it.

In addition to the relationship between Primary Care and Specialized Care, the medical professional has regular contact with the Medical Inspection regarding the quantitative and qualitative analysis of the prescription of dietary therapeutic products, the indications of the prescription and the quality of visas based on the criteria defined in the home enteral nutrition guide of the National Health System.

**Definition**

Food is the set of activities that are carried out from when food is purchased until it enters the mouth. It is a voluntary, conscious and modifiable act.

Conceptually we speak of NUTRITION as the set of processes through which the living being uses, transforms and incorporates into its structures substances that it receives through food with the aim of obtaining energy, building-repairing the organism and regulating metabolic processes. It is an involuntary and non-modifiable act.

WHO defines NUMBER as the imbalance between the contribution and needs of nutrients and calories that ensure growth,

maintenance and specific functions. It is classically classified as:

- + Caloric malnutrition: marked decrease in weight and adipose tissue.
- + Predominantly protein malnutrition: severe decrease in protein intake and/or increased requirements (acute illness).
- + Mixed malnutrition.
- + Deficiency states.

The term MALNUTRITION means alteration of nutrition, both by defect (malnutrition) and excess (hypernutrition). It is, therefore, the result of an imbalance between body needs and nutrient intake that can lead to a deficiency syndrome, dependence, toxicity or obesity.

Soeters et al (Clin Nutrition 2008) define MALNUTRITION as a state in which a combination of varying degrees of malnutrition or overnutrition related to inflammatory processes conditions changes in body composition and functional alterations.

The nutrition-health, malnutrition-disease relationship and improving the care of malnourished or at-risk patients of malnutrition invites us to reflect on the importance of the Family Physician in that an adequate nutritional assessment in Primary Care would improve the survival of their patients, reducing complications, hospital stays and socio-economic costs.

The Nutritional Supplements (SN) are prepared completely or not, in terms of their composition, they are administered orally and allow them to be dosed in a certain way (in small quantities). They complement or improve an insufficient oral diet, have a medical purpose and are considered a dietary food for special medical uses.

## Justification

Order June 2, 1998 on nutrition in the configuration of health benefits.

Royal Decree 63/1995 on dietary therapy and enteral nutrition treatments.

Portfolio of Public Health Services of the Valencian Community (Ministry of Health).

The inclusion in Public Health of food practices and nutrition in target population groups implies institutional support for the promotion of healthy eating from Primary Care as an activity of daily consultation.

## Objects

### General

1. Assess nutritional requirements.
2. Determine the nutritional status of the population.
3. Identify patients who can benefit from a nutritional intervention.
4. Predict the possibility of presenting risks added to the disease, attributable to nutritional disorders.

### Specific

Organize the nutritional risk care activity from the Primary Care

consultations.

To improve the coordination between the different levels and resources involved in the care of these patients (Endocrinology, Oncology; Surgery, Internal and Home Medicine).

Reduce the costs of hospital malnutrition avoiding unnecessary referrals.

Start and/or improve the training of the professionals of the Department in this assistance activity.

## Diana Population

### 1. Geriatric population:

Elderly with risk of malnutrition. Grade recommendation B.

Malnourished elders. Grade recommendation A.

Fragile elders. Grade recommendation A.

Elderly with pressure ulcers (UPP). Grade recommendation A.

Elderly after surgical processes (hip fracture,...). Grade of recommendation A.

### 2. Risk groups:

Drug addicts.

Alcoholics.

Migrants (poor).

Advanced age.

Marginal exclusion.

### 3. Malnourished patients with:

Kidney disease (dialysis).

Diabetes.

Oncological pathology.

Neurological pathology.

## Nutritional Intervention

Aging is a process of very heterogeneous causes, which influence biological, psychological and social changes.

While the passage of time is the same for the entire human body, not all organs suffer their effects in the same way. These universal, progressive and, in many cases, irreversible effects often affect food and the physiology of nutrition in one way or another.

Nutritional intervention through enteral formulas with a defined mixture of macro and micronutrients, used as the sole nutritional source or as a complement to the patient's normal intake prevents the risk of malnutrition or corrects the established one, reducing the associated complications and morbidity and mortality.

Who do we administer a nutritional supplement?

They are indicated in:

1. Patients with insufficient intake (2/3 of the nutritional requirements):

Difficulty ingesting and swallowing.

Decrease in intake in polymedics.

Oncological pathology.

Functional deterioration.

Neurological diseases.

2. Patients with increased protein and/or energy requirements:

Pressure ulcers (UPP)

Hip fractures.

Chronic pathologies that occur with cachexia (COPD, IC,..)

Situations of metabolic stress (QT, post-surgery, infections,...)

What supplements do we have to give?

Royal Decree 1091/2000, in article 2, of the Ministry of Health classifies complete foods into:

Standard supplements: with normal nutrient formulation.

Specific supplements: with adapted and specific formulation for certain diseases, disorders or conditions such as diabetes, cancer, renal pathology, liver, etc...

## Types

Protein supplements: they provide high amounts of proteins of high nutritional value, in addition to energy, vitamins and minerals. They should be used in all those patients with insufficient protein intake, difficulties in eating and with increased protein requirements.

Energy supplements: contains a high caloric intake in a reduced volume. They are rich in carbohydrates, lipids, but also contain proteins, vitamins and minerals. They should be used in patients with insufficient energy intake, difficulties in eating and with increased energy requirements and/or water restriction.

Whenever possible the patient should participate in the choice of taste and smell, taking into account that neutral flavors allow them to be added as ingredients of traditional food.

In the presence of problems in the control of swallowing, cream texture supplements will be administered and thickeners will be used for liquids [1-10].

As for the temperature, the most accepted are those of sweet taste if they are administered cold and in case of warm/warm preference, heat in a water bath or microwave, avoiding boiling them.

With regard to the administration schedule, its objective is to ensure that food consumption is not reduced orally, avoiding the displacement of the usual intake with a schedule of breakfast, mid-morning, lunch, snack, dinner and snack on the 10:30 p.m.

They must be kept in a refrigerator and once opened no more than 24 hours. Keep them always closed.

The registration of the supplement is essential to assess the nutritional intervention and modify it if necessary. An evaluation must be carried out at 3 months, if there is improvement, withdraw the supplement and reevaluate at 6 months, if it remains the same

or worsens to go on a complete enteral diet (oral or with a tube) and reevaluate at 2 months.

The control of spontaneous intake should not be neglected in order to supplement, since this depends on the effectiveness and pattern of supplementation.

## Organization

The program will begin with the "Clinical Nutrition Unit" model formed by:

1. Doctor
2. ATS/DUE
3. Dietitian
4. Pharmacist

For its initial implementation, the "formator of trainers" will attend the consultation of his patients and those of his teammates by scheduled appointment. This plan means the internal referral of patients, guaranteeing care equity and the learning of all professionals. The trainer receives the patients referred by the EAP colleagues mentioned in a weekly schedule of scheduled visits.

## Development phases

Start the activity in a Department Health Center, following the initial schedule approved by the Directorate.

Strengthen and facilitate the training of all professionals, decentralizing care, in its day, by basic health area.

## Activities of the professionals

**Medical staff activities:** & Clinical and dietary history: 24-hour survey or diet log over a period of time:

1. Number of daily meals
2. Quantity, quality and variety of foods
3. Liquid intake
4. Way of eating
5. Purchase and preparation of food
6. Presence of digestive symptoms: vomiting, diarrhea, satiety,... & Clinical examination

## Signs of malnutrition & Biochemical parameters:

1. Albumin
2. Cholesterol
3. Lymphocytes
4. Transferrin
5. Prealbumin & Treatment establishment
6. Control of patients at the request of nursing and consultation at discharge

## Nursing staff activities & Anthropometry:

1. Weight

2. Size (standing, knee height, knee length maleolo and elbow-styloid distance)
3. BMI
4. Measurement of skin folds and arm circumference (MUAC)
5. Nutritional screening (Nutritional assessment scales)
6. They are validated tools for diagnosis, allow to detect the risk and appropriate for the population being studied

#### Clinical methods:

NRS (nutritional risk screening): ESPEN

MUST (universal malnutrition screening tool): ESPEN

MNA (Mini-Nutritional Assessment).

#### Automated method:

**Conut:** The MNA and the MUST are the most used in Primary Care. The first has greater specificity and sensitivity in the population over 65, and the second is validated for the general population.

**Dietitian activities:** Nutritional assessment, food care and nutritional education of patients.

1. Planning, coordination and computerization of diets
2. Nutritional formulation of enteral and parenteral feeding
3. Development and monitoring of dietary intervention protocols for specific patient groups

#### Pharmacist activities:

1. Selection of artificial nutrition preparations
2. Assessment of the requirements, design and preparation of the diets
3. Advice on the prescription and monitoring of patients with nutritional support given their knowledge in pharmacotherapy, pharmacokinetics, metabolism and interactions of nutrients and drugs.

#### Activities of the multidisciplinary team & Continuing Education:

1. Sessions of the Unit and with Specialized Attention
2. Internal rotation of professionals
3. Preparation of a satisfaction survey
4. Teaching and research activity

#### Internal circuit of the Health Center & Patient Management

**Recruitment to the program:** & Active recruitment of all subsidiary patients to benefit from this clinical and care activity.

& Collection mechanism:

Through medical consultation on demand and/or scheduled.

Through the nursing consultation, in consultation and/or domicile, referring to your doctor.

**First visit (each center doctor). Valuation-derivation:** Objective:

Collect complete information about the patient and his pathology for his referral to the nutrition consultation.

**Scheduled nutrition consultation:** Objective: Development of the program by the multidisciplinary team of the clinical nutrition consultation [11-15].

**Follow-up visits:** Consultation scheduled for medical discharge.

### Nutritional Risk Indicators

1. Unintentional weight loss of 5% in one month, 7.5% in three months or 10% in six months
2. Low weight for height (<20% of ideal weight)
3. BMI <22
4. Serum albumin <3.5 mg/dl
5. Serum cholesterol <160 mg/dl
6. Change in functional status, from independent to dependent
7. Adequate food intake

### Patient Type for Assessment

NORMONUTRID (weight loss <5%):

Dietary recommendations

Recommendations eating habits

Mild-moderated malnutrition (weight loss between 5-10%):

Weekly weight control

Oral nutritional support

Revision

SERIOUS NUTRITION (weight loss of more than 10%):

Refer to specialty

### Coordination

A fluid relationship with Specialized Care is key and important, resulting in its fundamental participation in cases of diagnostic doubt, therapeutic indication, continuous training and follow-up of patients when the performance capacity of Primary Care is exceeded.

### Resources

#### Humans

1. Doctor (Family and Specialty)
2. ATS/DUE
3. Dietitian
4. Pharmacy

#### Materials

1. Query
2. H<sup>a</sup> electronic clinic ("Abucasis")
3. Anthropometry: height meter and weight
4. Laboratory "on line": biochemical parameters

5. Stationery
6. Nutritional assessment scales (MNA, MUST,...)
7. Satisfaction surveys (Appendix 1 to Appendix 28)

## References

1. Ministry of Health and Consumer Affairs. BOE n°139 of June of 1998. 19294-19296.
2. Ministry of Health and Consumer Affairs. Royal Decree 63/1995. Home enteral nutrition guide.
3. Department of Health. DOCV26838. Order 10/2012, of July 24. Update of the Public Health Services Portfolio of the Valencian Community.
4. Manual of clinical and dietetic nutrition. Dr. Oliveira Fuster et al. (editors). Diaz de Santos.
5. Planas M, Montejo JC. Methodology applied in the assessment of nutritional status. In: The white paper of clinical malnutrition in Spain. García de Lorenzo A, García Luna PP, Marsé P, Planas M editors. Medical Action, Madrid. 2004; 77-87.
6. Miján De La Torre A, De Mateo Silleras B, Pérez García A. Guidelines for nutrition support in the elderly. *Pub Health Nutr*. 2001; 4: 1379-1384.
7. Jones JM. The methodology of nutritional screening and assessment tools *J Hum Nutr Diet*. 2002; 15: 59-71.
8. Sánchez Juan C, Real Collado JT. Malnutrition. Concept, classification and etiopathogenesis. Main syndromes Clinical assessment. *Medicine*. 2002; 8: 4717-4719.
9. Basic Manual of Clinical and Dietary Nutrition. Valencia Clinical Hospital. Generalitat Valenciana. 2000.
10. Cuesta Triana F, Motia Martín P, Sánchez Rodríguez JL. Nutritional assessment of the elderly. Malnutrition Diagnosis, classification and therapeutic attitude. *Medicine*. 2003; 8: 5841-5851.
11. Vellas B, Guigoz Y, Garry PJ, Nourhashemi F, Bannahum D, Lauque S, et al. The Mini Nutritional Assesment (MNA) and its use in grading the nutritional state of elderly patients. *Nutrition*. 1999; 15: 116-122.
12. Griep MI, Mets TF, Collys K, et al. Risk of malnutrition in retirement homes elderly persons measured by the "mini-nutritional assesment". *J Gerontol A Biol Sci Med Sci* 2000; 55: M57-M63. Nadya-Senpe Group. Manual of home and ambulatory artificial nutrition. Educational and therapeutic procedures. SENPE. 1996.
13. García Peris P, Cord Compés C, Camblor Alvarez M. Nutritional supplements to support the conventional diet. In nutrition treatise. Volume IV Clinical nutrition Gil A, Alvarez Hernández J, García de Lorenzo A, Montejo JC, Planas M, (editors). Medical Action Group. Madrid. 2005.
14. Martínez-Sogues M., Pons-Busom M., Roca-Rossellini N, Aguas M. Enteral supplements: supplements or diet substitutes? *Nutr Hosp*. 2006; 21: 581-590.
15. Rusell CA. The impact of malnutrition on healthcare costs and economic considerations for the use of oral nutritional supplementes. *Clinical Nutrition Supplements*. 2007; 2: 25-32.