

# The home management of artificial nutrition: a survey among doctors and nurses

Sara Gamberi<sup>1</sup>, Diletta Calamassi<sup>2</sup>, David Coletta<sup>3</sup>, Silvia Dolenti<sup>3</sup>, Alice Valoriani<sup>3</sup>, Roberto Tarquini<sup>3</sup>

<sup>1</sup>Casa di Cura "Leonardo", Sovigliana, Ausl Centro Toscana, Italy; <sup>2</sup>School of Nursing Science, University of Florence, Italy; <sup>3</sup>Internal Medicine 1, Ospedale San Giuseppe, Empoli, Department of Medicine, Azienda USL Toscana Centro, Italy

**Summary.** *Background and aim of the work:* The management of Artificial Nutrition (NA), especially in the home environment (HAN) requires specific skills in order to ensure the correct therapeutic education, prevention of complications and the provision of appropriate treatment to the person. The aim of this survey was to identify the perceptions of nurses and doctors, as well as comparing to their perceived competence in NA and the gap between their perceived versus actual knowledge and management methods. *Methods:* This observational study was conducted in a Tuscan health region of Italy, involving 50 Home Care Services nurses and 50 general practitioners. Participants were asked to complete an online questionnaire that was constructed for purpose. *Results:* The results show that for the management of the person with NA, both for doctors and for nurses show great variability in responses. Less than half of those providing care make assessments of nutritional status and dysphagia as well as the possibility of re-feeding by natural means in NA patients. Care providers expressed uncertainty as to which professional should carry out such assessments. A mismatch was also evident between the skills possessed and the self-assessments performed regarding their knowledge base of NA. Almost all of doctors or nurses indicated a desire to participate in training events relating to NA. *Conclusions:* The results highlight the need for caregivers to have specific operating protocols. The results also highlight the need to aim to work as a team, emphasizing the importance of basic communication as well as the need for clarity as to the responsibilities and roles of the professionals involved. ([www.actabiomedica.it](http://www.actabiomedica.it))

**Key words:** artificial nutrition, nurses, doctors, home management, skills, training, team

## Introduction

Home artificial nutrition (HAN) is a complex process, involving technical skills and an array of professionals. HAN requires the coordinated action of nutritionists, doctors, nurses, pharmacists, psychologists, social workers and admin staff (1). In order to ensure optimal treatment, professionals are required to follow operational protocols and procedures developed in accordance with national and international guidelines.

According to the demographic data of the Italian Institute, last updated to December 31, 2004, regional

law, specific for HAN, is in place in only 10% of Italy and only for 1.6% of the Italian population. In 65% of the territory and 78.6% of the population there are regional general resolutions that often can be very different from each other. In about 25% of the country, covering 20% of the population, there is an absence of regulatory procedures that guarantee the initiation of HAN treatment (2).

Based on the observation of the Italian Society for Parenteral and Enteral Nutrition (SINPE) in April 2005, it was found that the average global prevalence of HAN is about 152.6 cases/million inhabitants, of

which 83.9% underwent home enteral nutrition (HEN) and the remaining 16, 1% undergoing home parenteral nutrition (HPN). However, there are significant differences between regions both in terms of prevalence, as well as in the appropriateness of indications and implementation protocols (3,4). Although there is a high prevalence of users undergoing HAN in this territory (5,6), there is a lack of data concerning the territorial scope, as well as the absence of a multidisciplinary team dedicated to the home management of patients undergoing HAN. Also significant regional variations are evident regarding the organizational management of care delivery in the various Italian regions (7), highlighting the need to investigate the knowledge and management methods of HAN of professional care providers at the local level. This survey explores the self-assessments of these professional HAN care providers, in regard to their self assessed knowledge versus tested knowledge, as well as looking at the identification of management arrangements for HAN.

## Material e method

The survey was addressed to the Nursing Home Care Services and the panel of general practitioners (GPs) belonging to health-care authority of Tuscany.

The study was carried out through the online distribution of a questionnaire constructed ad hoc, and sent to the email addresses of the participants. The questionnaire was constructed following the meeting of two focus groups, which were attended by an internist doctor, a GP and a nurse specialist. Initially, the size of the questionnaire was determined and, later, the nature of the questions and answers.

The questionnaire consisted of five basic sections:

Social-register, for a description of sample characteristics;

Self-assessment, which explored, by self-assessments, professionals subjective knowledge about, and performance management of, HAN;

Knowledge, to investigate the actual knowledge possessed (eg dressings, cleaning the probe);

Mapping NA, aiming to indirectly estimate the number of patients with NA-H discharged to domestic care services;

Operating procedures, aimed at identifying the actual modes of management by professional HAN providers.

The necessary sample size was identified with the Sample Size Calculator.

The analysis of the collected data was performed with the software Epi Info version 3.4; which allowed the calculation of the percentage, the absolute frequencies, the cumulative percentages and to many layers for each variable, in order to be able to compare the various responses and to calculate their performance.

The data collection took place between June 2013 and August 2013.

## Results

### *Questionnaire completers*

25 nurses out of 29 members of the Central Health Authority area and 25 to 51 of the buffer zone; 30 of 66 medical practitioners belonging to the central area and 20 of 105 from the peripheral area of this region. In total, questionnaire completers comprised 50 of 80 nurses and 50 of 170 doctors.

### *Section knowledge*

64% of nurses and 56% of doctors position the patient with enteral nutrition (NE) at an angle of 30-45° (Table 1).

17% of doctors say that in a patient with oncological disease and with life expectancy of less than two months, the NA is never initiated.

52% of nurses state the need to provide oral hygiene to patients with no oral feeding several times a day. 34% of nurses and 19% of doctors say that during the first 4-6 weeks after implantation of percutaneous endoscopic gastrostomy (PEG), it is necessary to dress the wound once a day. 76% of nurses versus 23% of doctors argue that the most appropriate mode for the administration of nutrients via PEG, in order to ensure fewer side effects, is from continuous pump infusion. Only 50% of nurses say that after using an infusion bag containing lipids, through a long-term central venous catheter (CVC), it is necessary to wash with 20 ml of saline solution (Table 2).

**Table 1.** Responses related to patient positioning with NA in progress. The correct answer is highlighted in black

Patient position with NE	Nurse	% Nurse	Medical	% Medical
at 20°	1	2.0%	4	8.0%
<b>at 30-40°</b>	32	64.0%	28	56.0%
at 90°	14	28.0%	7	14.0%
Don't know	1	2.0%	7	14.0%
Supine	2	4.0%	4	8.0%
Total	50	100.0%	50	100.0%

**Table 2.** Responses to the type of washing after the infusion bag with lipids through a long-term CVC. The correct answer is highlighted in black

CVC washing	Nurse	% Nurse
Washing with 10 ml of SF (saline) + 10 ml of heparinized solution	22	44.0%
<b>Washing with 20 ml of SF</b>	25	50.0%
Washing with 10 ml of heparinized solution	3	6.0%
Total	50	100.0%

### Section mapping artificial nutrition

The greatest need for professional presence is in the management of patients with PEG, followed by patients with a supplied nasogastric tube (SNG) and finally those with CVC.

More than half of the respondents stated that the survival for patients discharged with SNG and CVC is valid for less than a year, while for patients with PEG this exceeded three years.

26% of nurses and 36.7% of medics have witnessed aspiration in patients with SNG struggling for survival, while only 6% of nurses and 16.3% of the doctors have been present during aspiration phenomena in patients with PEG.

### Operating modes

74% of nurses and 67.4% of doctors state they always or often carry out nutritional assessment when taking charge of the patient (Table 3); 78% of nurses and 75.5% of physicians say they often or always

**Table 3.** Responses regarding the evaluation of nutritional status at the time of taking charge

Nutritional assessment at taking charge	Nurse	% Nurse	Medical	% Medical
Never	4	8.0%	4	8.2%
Rarely	9	18.0%	12	24.5%
Always	23	46.0%	19	38.8%
Often	14	28.0%	14	28.6%
Total	50	100.0%	49	100.0%

carry out the assessment of nutritional status following changes in the patient's clinical conditions. 60% of nurses and 61.2% of physicians say they often or always make a second assessment of nutritional status. 47% of doctors and 48% of nurses do not perform or rarely perform an evaluation of dysphagia.

Respondents expressed uncertainty about which professional should make such evaluations (Table 4, 5).

48% of nurses and 61.2% of doctors say that dysphagia assessment should be made by the physician; 24% of nurses and 24.5% of physicians believe that such assessments should be made by the nurse.

### Self-assessment

The medical staff indicate increased gaps in their knowledge of the complications related to NA (namely: PEG, CVC, SNG) although both nurses and med-

**Table 4.** Responses about being a professional has to make the assessment of nutritional status

About the state of nutritional value	Nurse	% Nurse	Medical	% Medical
Caregiver	0	0.0%	1	2.0%
Dietitian	3	6.0%	0	0.0%
Nurse	16	32.0%	13	26.5%
The professionals involved	0	0.0%	1	2.0%
Speech therapist	1	2.0%	0	0.0%
Hospital doctors	1	2.0%	0	0.0%
Doctor	27	54.0%	31	63.3%
Doctor and nurse	1	2.0%	0	0.0%
Nobody	1	2.0%	2	4.1%
Nutritionist	0	0.0%	1	2.0%
Total	50	100.0%	49	100.0%

**Table 5.** Answers about being a professional has to make the assessment on the possibility of re-feeding

Assessing the possibility of refeeding	Nurse	% Nurse	Medical	% Medical
Caregiver	0	0.0%	1	2.0%
Dietitian	2	4.0%	0	0.0%
Nurse	18	36.0%	5	10.2%
Professionals involved	0	0.0%	1	2.0%
Speech therapist	5	10.0%	0	0.0%
Medical	23	46.0%	38	77.6%
Medical speech therapist	1	2.0%	0	0.0%
Nobody	1	2.0%	4	8.2%
Total	50	100.0%	49	100.0%

ics show considerable variability in the responses (Table 6, 7, 8).

70% of nurses and 56% of physicians say they feel appropriate in assessing the nutritional status in patients with NA.

50% of nurses and 42% of physicians feel adequate in evaluating dysphagia in patients with NA.

92% of nurses and 44% of physicians feel adequate in managing NA in patient with SNG and in managing the NA in patients with PEG.

92% of nurses and 30% of physicians say they feel appropriate in managing NA in patients with CVC.

76% of doctors and 88% of nurses consider it important to have specific training in NA-H. 100% of nurses and 92% of physicians would be willing to participate in such specific training.

**Table 6.** Self-assessments on the knowledge about the complications of the NA by PEG

Complications knowledge re PEG	Nurse	% Nurse	Medical	% Medical
Nothing	0	0.0%	8	16.0%
Little	2	4.0%	11	22.0%
Enough	27	54.0%	24	48.0%
A lot	19	38.0%	5	10.0%
Extensive	2	4.0%	2	4.0%
Total	50	100.0%	50	100.0%

**Table 7.** Self-assessments on the knowledge about the complications of the NA by CVC

Complications knowledge re CVC	Nurse	% Nurse	Medical	% Medical
Nothing	0	0.0%	7	14.0%
Little	4	8.0%	14	28.0%
Enough	27	54.0%	26	52.0%
A lot	15	30.0%	2	4.0%
Extensive	4	8.0%	1	2.0%
Total	50	100.0%	50	100.0%

**Table 8.** Self-assessments on the knowledge about the complications of AA via SNG

Complications knowledge re SNG	Nurse	% Nurse	Medical	% Medical
Nothing	0	0.0%	6	12.0%
Little	1	2.0%	10	20.0%
Enough	28	56.0%	28	56.0%
A lot	18	36.0%	5	10.0%
Extensive	3	6.0%	1	2.0%
Total	50	100.0%	50	100.0%

#### *Stratifications on self-assessment answers, operational and actual knowledge*

Of the 35 nurses who feel adequate at undertaking the assessment of nutritional status, 29 perform this upon taking charge of the patient and 30 when the patient's clinical condition changes.

Of the 28 doctors who feel adequate at undertaking the assessment of nutritional status, one performs when taking charge of the patient and 27 only when the patient's clinical condition changes. As such, the operational practises in medics are more consistency.

Of the 25 nurses (50% of nurses) and 21 doctors (42% of doctors) who feel adequate in assessing dysphagia, 18 nurses and 17 doctors carry out this assessment.

Of the 46 nurses (92% of nurses) and 22 doctors (44% of doctors) who feel adequate in managing NA in patients with SNG, only 29 nurses and 18 doctors

correctly answered the question concerning patient positioning during NE.

Despite the positive self-assessments, a comparison to actual knowledge base, especially in nurses, shows poor concurrence.

Moreover, of the 46 nurses (92% of nurses) and 22 doctors (44% of doctors) who feel adequate in managing NA in patients with PEG, only 29 and 15 respectively correctly answered the question on patient positioning during NE.

Similarly, of the 46 nurses and 22 doctors who feel adequate in managing NA in patients with PEG, only 34 and 5 respectively correctly answered the question on the proper method of administration of nutrients by PEG.

Similar percentages are found regarding self-assessment versus knowledge questions in regard to wound dressing and management of gastrostomy.

Of the 46 nurses who feel adequate in managing the NA in patients with CVC, only 25 answered the question correctly regarding the appropriate washing to be made after CVC, following lipid bag administration.

## Discussion

The above results highlight considerable variability in the answers of both primary professional groups. Consequently, there is likely to be notable heterogeneities over the course of taking charge of the patient, including in the nature of the assistance and care given to NA patients.

The data also indicate a better performance of nurses compared to doctors.

The survey made it possible to map the number of HAN users within the given health authority region: more than half of the carers are in charge of assisted PEG, for a period of over 3 years; assistance for SNG and CVC patients for more than half of the primary carers is for less than 1 year. As to management of patients with HAN, the best performance is recorded by nurses.

It turned out that less than half of these main caregiving professionals perform an assessment of nutritional status, dysphagia and the possibility of re-

feeding by natural means. As such, an assessment of the possibility of being able to resume feeding by more natural means is rare, with likely negative impact on patients, family and healthcare company costs.

The data also indicate a lack of clarity about the roles and responsibilities that the various professionals should carry out in the management of HAN patients and the tasks to be performed and the limits to be respected.

The results of knowledge self-assessment regarding the management of HAN, showed positive responses in the majority of participants, with nurses scoring higher. However, when comparing this data with the answers on specific skills, there was a distinct discrepancy, highlighting an overestimation of their own knowledge. It is also of note that there is a slightly greater consistency of responses in doctors, compared to nurses.

The self-assessments also indicate a notable percentage who do not feel adequate in their knowledge base in regard to managing HAN.

The participants considered further training to be necessary and expressed a willingness to participate in specific training events in regard to HAN.

## Conclusions

The survey has highlighted major areas for potential improvement in the management of services provided to HAN patients.

It is clear that the doctors and nurses of this Italian region could benefit from specific protocols for the management of HAN patients, in order to standardize optimal care and ensure quality performance.

Another key element is teamwork. In particular, greater collaboration is required between doctors and nurses, particularly in regard to clarity as to their respective roles and responsibilities, which would also help to optimize the provision of appropriate care and evaluations.

Given the eagerness of participants to engage in specific training courses, the design and provision of targeted training is a matter of some urgency.

Replication of this study, with the possibility of involving all primary caregivers in such a regional ter-

ritory, will allow a better estimate the precise number HAN patients requiring assistance and the nature of, and problems with, the care provided.

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Correspondence:

Sara Gamberi, RN

Casa di Cura "Leonardo", Sovigliana,

Ausl Centro Toscana, Italy

E-mail: [gamberi.sara@libero.it](mailto:gamberi.sara@libero.it)