41st ESPEN CONGRESS

EUROPEAN SOCIETY FOR CLINICAL NUTRITION AND METABOLISM

Assuring quality medical nutrition support for patients at home

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Conflict of interest

Speaker's honoraria: Baxter, B Braun, Fresenius Kabi, Nestle, Nutricia, Shire, Vipharm

Advisory Boards: Baxter, Braun, Fresenius, Nestle, Nutricia, Tracheron

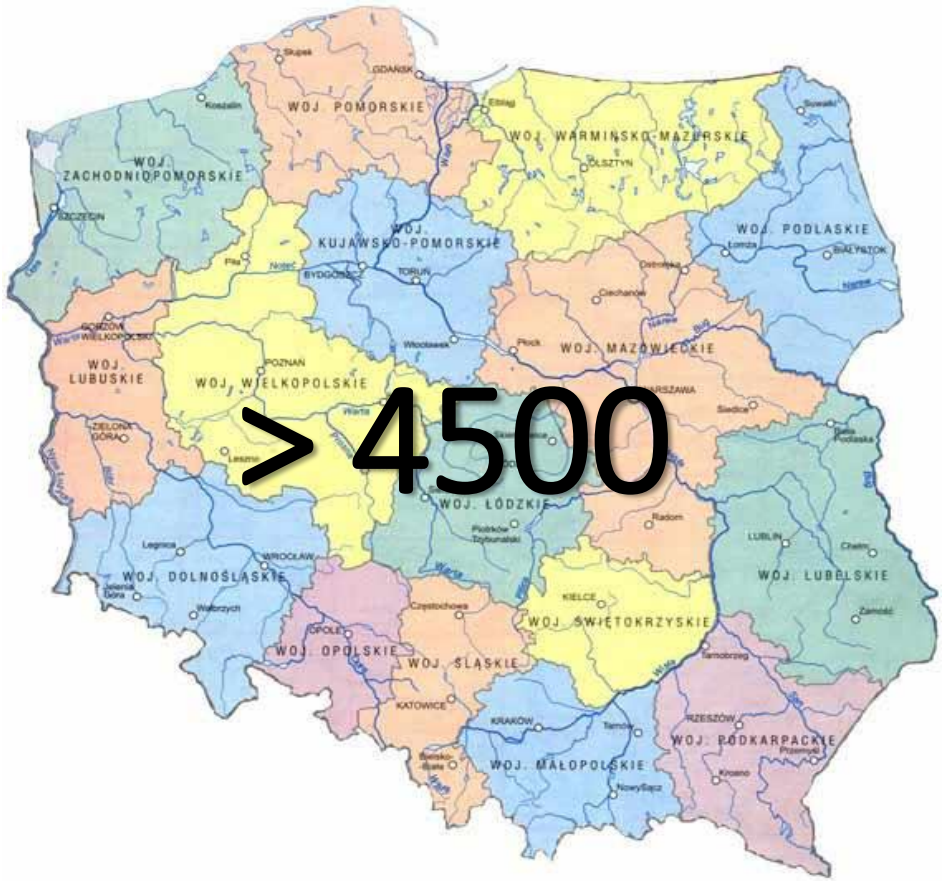
Main/ co-author: ESPEN guidelines in Surgery, ESPEN guidelines in Gastroenterology,

ESPEN definition of malnutrition, Acute Intestinal Failure Position Paper, ESPEN

Guidelines on HPN



Intestinal Failure Center at Stanley Dudrick's Memorial Hospital in Skawina



> 4500

1999-2019
Number of Home Artificial Nutrition Patients

Polish HAN

COMPLEX CARE (NST): every patients is under the surveillance of: physician, pharmacist, nurse and dietetics

- HAN center is responsible for everything: care, logistics of products and equipment, lab tests, regular check-ups from physician and nurse

Patient does not pay for anything (pays the public insurance company)

- HEN may start at home or hospital
- HPN must start at hospital



HPN in POLAND is fully reimbursed



NFZ
Narodowy Fundusz Zdrowia

Ministry of Health

Reimbursement of Home PN in adults:

216 PLN (50 USD/day)

- No nursing service included!



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Home parenteral nutrition (HPN)



> 1300



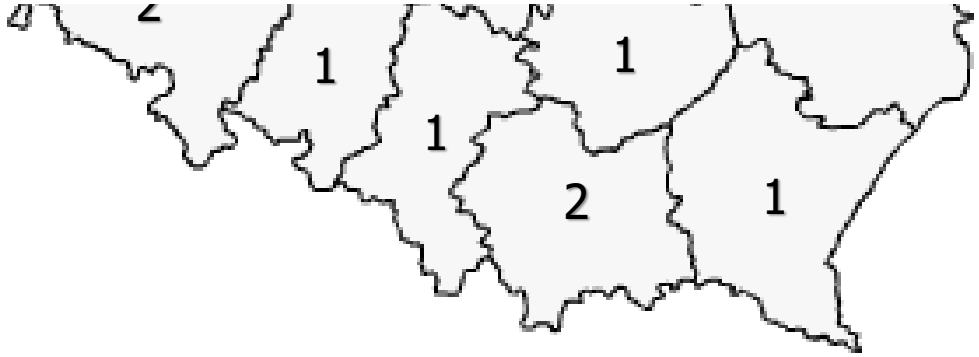
102 500 000 PLN

=

24 000 000 EURO



2019



NFZ
Narodowy Fundusz Zdrowia

HPN & hospital in different countries

EURO	England	Denmark	Italy	Spain	France
hospital	300	700	304	350	450
home	105-250	109	96	100	230

Is HAN (cost)-effective?



HPN: the survival probabilities

	1 yr	2 yr	3 yr	5 yr	6 yr	10 yr
(Lloyd, Vega et al., 2006)	86%		77%	73%		71%
(Pironi, Paganelli et al., 2003)	97%		82%	67%		
(Vantini, Benini et al., 2004)	95%	93%	88%	79%		65%
(Messing, Crenn et al., 1999)	94%		86%	75%		60%
Scotland	86%	82%	79%	77%	77%	–


ACG

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HEN: cost-effectiveness

Home enteral nutrition reduces complications, length of stay, and health care costs: results from a multicenter study[1–3]

Stanislaw Klek, Adam Hermanowicz, Grzegorz Dziwiszek, Konrad Matysiak, Kinga Szczepanek, Piotr Szybinski, and Aleksander Galas

The American Journal of Clinical Nutrition

Abstract

Background: Home enteral nutrition (HEN) has always been recognized as a life-saving procedure, but with the ongoing economic crisis influencing health care, its cost-effectiveness has been questioned recently.

Objective: The unique reimbursement situation in Poland enabled the otherwise ethically unacceptable, hence unavailable, comparison of the period of no-feeding and long-term feeding and the subsequent analyses of the clinical value of the latter and its cost-effectiveness.

Design: The observational multicenter study in the group of 456 HEN patients [142 children: 55 girls and 87 boys, mean (±SD) age 8.7 ± 5.9 y; 314 adults: 151 women and 163 men, mean age 59.3 ± 19.8 y] was performed between January 2007 and July 2013. Two 12-mo periods were compared. During the first period, patients were tube fed a homemade diet and were not monitored; during the other period, patients received HEN. HEN included tube feeding and complex monitoring by a nutrition support team. The number of complications, hospital admissions, length of hospital stay, biochemical and anthropometric variables, and costs of hospitalization were compared.

Results: Implementation of HEN enabled weight gain and stabilized liver function in both age groups, but it hardly influenced the other tests. HEN implementation reduced the incidence of infectious complications (37.4% compared with 14.9%; $P < 0.001$, McNemar test), the number of hospital admissions [1.98 ± 2.42 (mean ± SD) before and 1.26 ± 2.18 after EN; $P < 0.001$, Wilcoxon's signed-rank test], and length of hospital stay (39.7 ± 71.9 compared with 11.9 ± 28.5 d; $P < 0.001$, Wilcoxon's signed-rank test). The mean annual costs ($) of hospitalization were reduced from 6500.20 ± 10,402.69 to 2072.58 ± 5497.00.

Conclusions: The study showed that HEN improves clinical outcomes and decreases health care costs. It was impossible, however, to determine precisely which factor mattered more: the artificial diet itself or the introduction of complex care. This trial was registered at clinicaltrials.gov as NCT02122120. *Am J Clin Nutr* 2014;100:609–15.

transport route, lower cost, and safety (1). It may be performed with oral diets, but more preferably via enteral tubes (nasogastric or nasojejunal catheters, gastrostomy, or jejunostomy), which additionally ensure the correct provision. It can be performed at hospitals, long-term health care facilities, palliative care centers, or home. Long-term nutrition has been used for many years in North America, South America, all of Western and Central Europe, Some Asian countries, and Australia and has always been recognized as a life-saving procedure. Guidelines of the European Society for Clinical Nutrition and Metabolism precisely describe the vindications and methods for home artificial nutrition (2).

With the ongoing economic crisis, however, some authors criticized and questioned the benefits of these interventions because they were perceived as procedures that contributed significantly to annual costs paid by health care systems. The prevalence of home enteral nutrition (HEN) in the United States is 4 to 10 times that in other Western European countries, and after it was doubled in the early nineties finally they were estimated to cost between 9000 and 25,000 USD per patient in 2000, whereas in some European countries the amount varied between 9048 and 10,140 USD a year (3–14). The escalating costs of home care because of the widespread use of HEN has raised concerns about the cost-efficiency of the procedures of the National Health Systems (6–8, 15).

For that reason, some insurance companies and even governments decided to either not initiate reimbursement or to decrease it. Some Eastern European countries, such as Russia, Lithuania, Ukraine, Belarus, Latvia, and Estonia, decided to not reimburse for HEN.

[1] From Stanley Dudrick's Memorial Hospital, General and Oncology Surgery Unit, Skawina, Poland (SK, KS, and PS); the Department of Pediatric Surgery, Medical University of Bialystok, Bialystok, Poland (AH); the Home Enteral Nutrition Unit, Stomed, Ostroleka, Poland (GD); Gastroenterology

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Number of hospital admissions' ratio before and after HAN introduction

	Before HAN	After HAN	
Children and Adults [n=453]			
Number of hospital admissions **mean (SD)** **median (Q1-Q3)** **min-max**	1.98 (2.42) 1 (1-2) 0-31	1.26 (2.18) 0 (0-2) 0-20	$p^W<0.001$
Children [n=141]			
Number of hospital admissions **mean (SD)** **median (Q1-Q3)** **min-max**	2.30 (2.43) 1 (1-3) 0-14	1.62 (2.33) 1 (0-2) 0-10	$p^W=0.013$
Adults [n=312]			
Number of hospital admissions **mean (SD)** **median (Q1-Q3)** **min-max**	1.84 (2.40) 1 (1-2) 0-31	1.11 (2.10) 0 (0-1) 0-20	$p^W<0.001$

Length of hospital stay before and after introduction (days)

	Before HAN	After HAN	
Children and adults [n=451]			
Lenght of hospital stay **mean (SD)** **median (Q1-Q3)** **min-max**	 39.7 (71.9) 19 (7-49) 0-1044	 11.9 (28.5) 0 (0-12) 0-363	$p^W<0.001$
Children [n=141]			
Lenght of hospital stay **mean (SD)** **median (Q1-Q3)** **min-max**	 46.4 (64.9) 19 (6.5-69.5) 0-409	 17.0 (41.6) 1 (0-14) 0-363	$p^W<0.001$
Adults [n=312]			
Lenght of hospital stay **mean (SD)** **median (Q1-Q3)** **min-max**	 36.7 (74.8) 19 (7-40.25) 0-1044	 9.6 (19.4) 0 (0-10.25) 0-130	$p^W<0.001$

Klek S, 2014, AJCN

Savings (USD)

Cost	Before HEN	After HEN	
	$	$	
All groups (n = 455)			
Cost of hospitalization	6500 ± 10,403[2]	2073 ± 5497	$P^W < 0.001$
Median (Q1–Q3)	2850 (938–7313)	0 (0–1938)	
Range	0–72,343	0–39,000	
Children (n = 141)			
Cost of hospitalization	8405 ± 12,738	3082 ± 8226	$P^W < 0.001$
Median (Q1–Q3)	2969 (940–11,969)	163 (0–2231)	
Range	0–231,500	0–73,125	
Adults (n = 314)			
Cost of hospitalization	5513 ± 9043	1619 ± 3592	$P^W < 0.001$
Median (Q1–Q3)	2846 (906–5958)	0 (0–1594)	
Range	0–64,688	0–25,782	

Klek S, 2014, AJCN