

# Comparison of Quality of Life Measurements by Infusion Length and Volume in Patients Receiving Home Parenteral Nutrition

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## Background

Although home parenteral nutrition (HPN) can be a life-saving therapy, it can negatively affect quality of life (QOL). It has been suggested that changing some characteristics of the HPN formula, such as decreasing infusion frequency and volume may improve QOL in those receiving HPN.

## Purpose

The purpose of this study was to evaluate Short Form-36v2 (SF-36) QOL scores by infusion length (hours/day) and volume (mL/day) in patients enrolled in the Health Evaluation And Learning for Total Parenteral Nutrition at Home (HEALTH) Registry.

## Methods

### Analysis of data from the HEALTH Registry:

- Longitudinal, prospective registry designed to establish and track therapy utilization and outcomes of patients receiving HPN
  - Patients in the registry completed SF-36 QOL surveys at baseline and every 6 months
  - SF-36 scoring ranges 0-100; higher scores represent better QOL

### Inclusion criteria:

- Patients of any age, gender and HPN indication enrolled in the HEALTH Registry with completion of a baseline SF-36 survey and available HPN infusion length and/or volume data

### Primary outcome measures:

- Difference in SF-36 scores by infusion length:
  - ≤12 hours vs. >12 hours per day
- Difference in SF-36 scores by infusion volume:
  - <1800 mL vs. ≥1800 mL per day

## Results

A total of 219 patients in the registry completed a baseline survey; of those, 214 had available data on infusion length and 207 had available data on volume and were included in the analysis.

### Infusion length analysis:

- The mean length of infusion was 11.5 ± 1.1 hours in the ≤12 hour group and 18.4 ± 3.9 hours in the >12 hour group
- The mean physical component score and physical functioning, role-physical, bodily pain and social functioning domain scores were significantly higher in the ≤12 hour group vs. >12 hour group

### Infusion volume analysis:

- The mean volume of infusion was 1348.1 ± 296.3 mL in the <1800 mL group and 2316.5 ± 491.4 mL in the ≥1800 mL group
- There were no significant differences in QOL measurements between the groups

Figure 1. Comparison of mean infusion length (hrs/day)

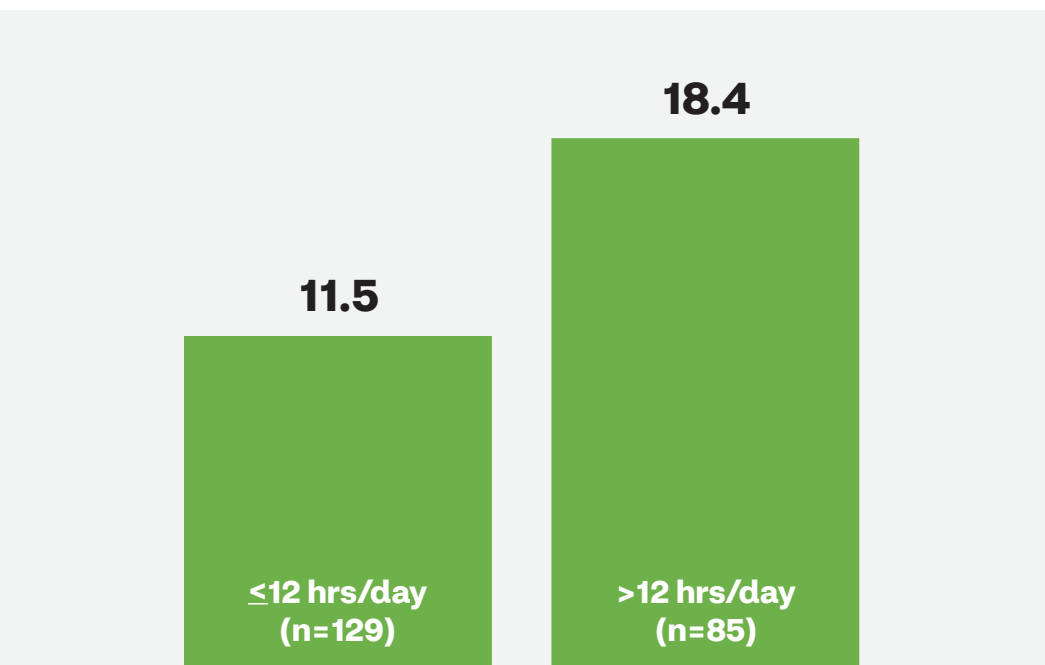
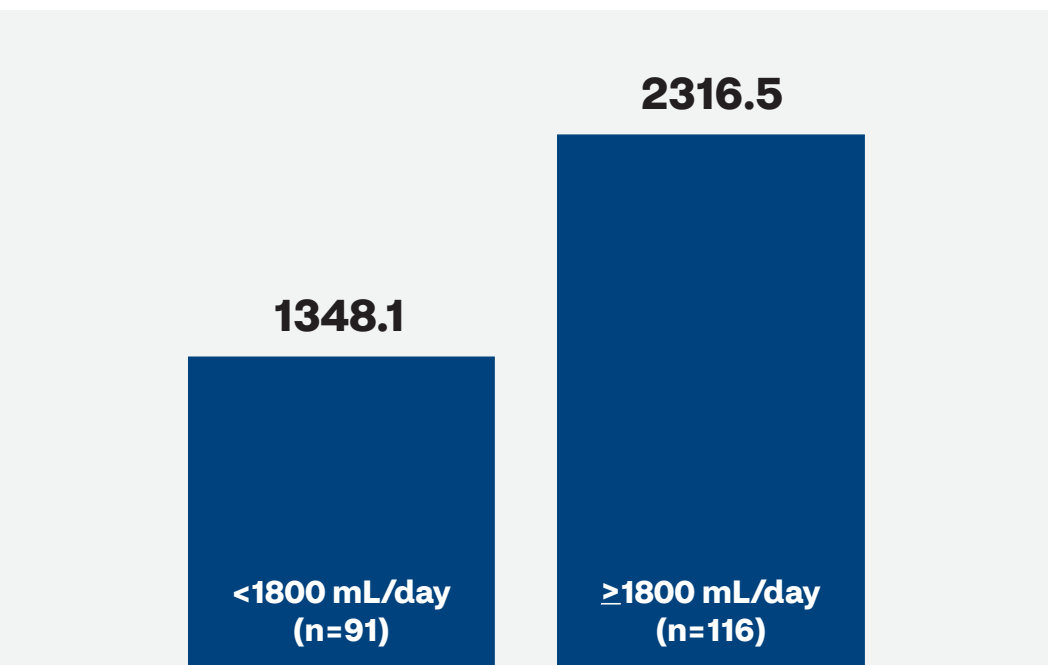


Figure 2. Comparison of mean infusion volume (mL/day)



# Conclusions

- Results suggest that patients receiving HPN ≤12 hours per day have a better QOL than those receiving HPN >12 hours per day
- There were no significant differences in QOL measurements when comparing HPN volume (<1800 mL per day vs. ≥1800 mL per day)
- Other clinical and demographic characteristics of the patients, including HPN duration, may have impacted these results
- Further studies are needed to determine causative factors and interventions leading to improved QOL



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Table 1. Clinical and demographic characteristics of patients at baseline by infusion length (N=214) and volume (N=207)

	≤12 hrs/day (n=129)	>12 hrs/day (n=85)	P value	<1800 mL/day (n=91)	≥1800 mL/day (n=116)	P value
Age (yrs)	57.8 ± 15.7	49.5 ± 17.3	0.0005*	56.1 ± 16.1	52.5 ± 17.4	0.12
BMI (kg/m²)	24.0 ± 6.2 <sup>a</sup>	23.6 ± 7.1 <sup>d</sup>	0.63	22.9 ± 6.3	24.7 ± 6.8	0.04*
HPN duration (d)	228.0 (750.0)	48.0 (239.0)	<0.0001*	132.0 (682.5)	162.5 (469.5)	0.95
HPN formula Frequency (d)	6.5 ± 1.1 <sup>a</sup>	6.9 ± 0.6	0.002*	6.3 ± 1.3	6.9 ± 0.5	<0.0001*
Length (hr)	11.5 ± 1.1	18.4 ± 3.9	<0.0001*	13.7 ± 4.5 <sup>a</sup>	14.5 ± 4.0	0.16
Volume (mL)	1835.4 ± 632.2	1980.8 ± 640.9 <sup>a</sup>	0.11	1348.1 ± 296.3	2316.5 ± 491.4	<0.0001*
Dextrose (g)	219.8 ± 81.1 <sup>b</sup>	243.4 ± 76.8 <sup>f</sup>	0.04*	187.7 ± 70.9	261.0 ± 72.0	<0.0001*
AA (g)	75.6 ± 25.2 <sup>b</sup>	85.0 ± 25.4 <sup>f</sup>	0.009*	65.8 ± 22.1	90.2 ± 23.0	<0.0001*
Lipids (g)	32.3 ± 18.0 <sup>b</sup>	37.8 ± 19.6 <sup>f</sup>	0.04*	27.8 ± 15.8	39.8 ± 19.3	<0.0001*
Total kcal	1359.7 ± 437.9 <sup>c</sup>	1545.8 ± 441.3 <sup>f</sup>	0.003*	1171.6 ± 385.0	1641.0 ± 379.8 <sup>b</sup>	<0.0001*
Sex						
Female	94 (72.9)	55 (64.7)	0.26	74 (81.3)	71 (61.2)	0.003*
Male	34 (26.4)	29 (34.1)	0.29	16 (17.6)	44 (37.9)	0.002*
Missing	1 (0.8)	1 (1.2)		1 (1.1)	1 (0.9)	
HPN Indication						
SBS	49 (38.0)	10 (11.8)	<0.0001*	30 (33.0)	26 (22.4)	0.12
Dysmotility	23 (17.8)	21 (24.7)	0.30	18 (19.8)	25 (21.6)	0.89
Fistula	17 (13.2)	9 (10.6)	0.72	5 (5.5)	21 (18.1)	0.01*
Malnutrition	15 (11.6)	17 (20.0)	0.14	14 (15.4)	16 (13.8)	0.90
Bowel obstruction	10 (7.8)	8 (9.4)	0.86	7 (7.7)	10 (8.6)	1.00
IBD	10 (7.8)	8 (9.4)	0.86	12 (13.2)	6 (5.2)	0.07
Other	5 (3.9)	12 (14.1)	0.01*	5 (5.5)	12 (10.3)	0.31

Continuous data presented as mean ± standard deviation and categorical data presented as n (%)  
HPN duration presented as median (interquartile range)  
Independent samples T test (parametric data) or Mann Whitney U (non-parametric data) used to analyze differences between continuous data  
Chi-square test used to analyze differences between categorical data  
\*Indicates statistical significance  
<sup>a</sup>n=128; <sup>b</sup>n=127; <sup>c</sup>n=126; <sup>d</sup>n=84; <sup>e</sup>n=80; <sup>f</sup>n=81; <sup>g</sup>n=91; <sup>h</sup>n=115  
Key: BMI, body mass index; HPN, home parenteral nutrition; AA, amino acids; kcal, kilocalorie; SBS, short bowel syndrome; IBD, inflammatory bowel disease

Figure 3. Comparison of SF-36 scores by infusion length (N=214)

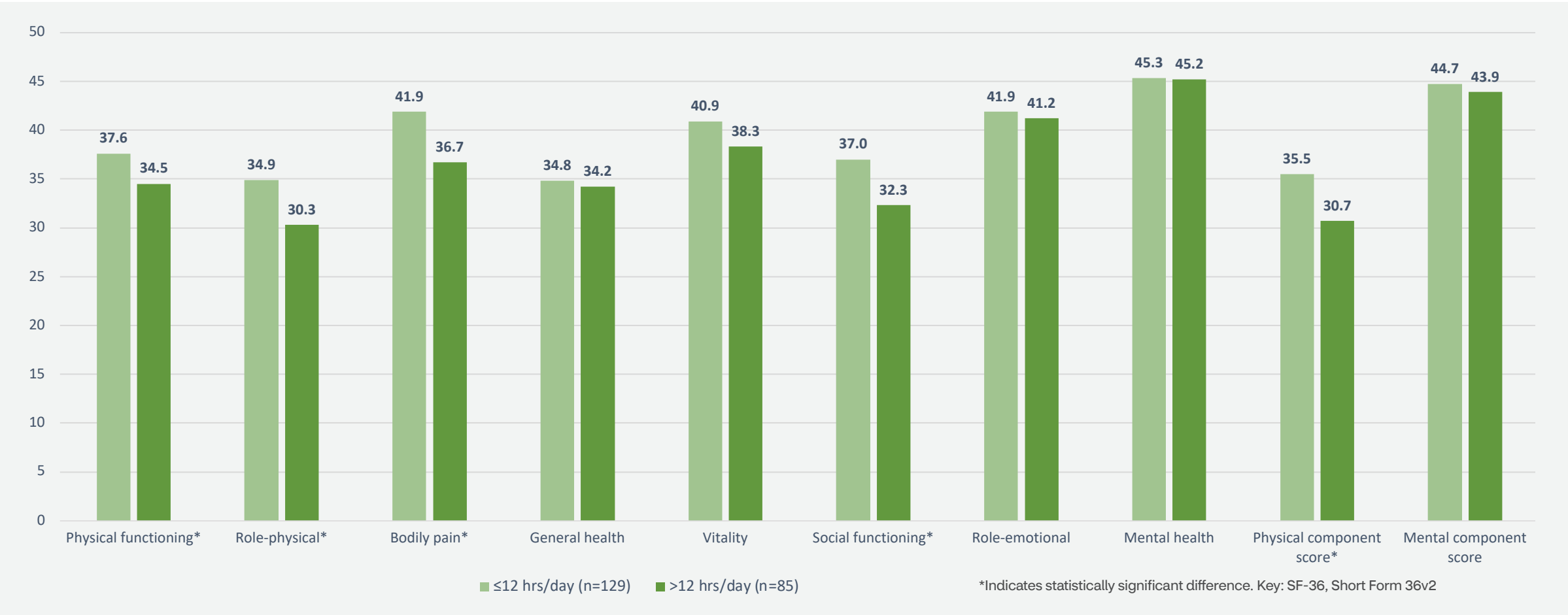


Figure 4. Comparison of SF-36 scores by infusion volume (N=207)

