

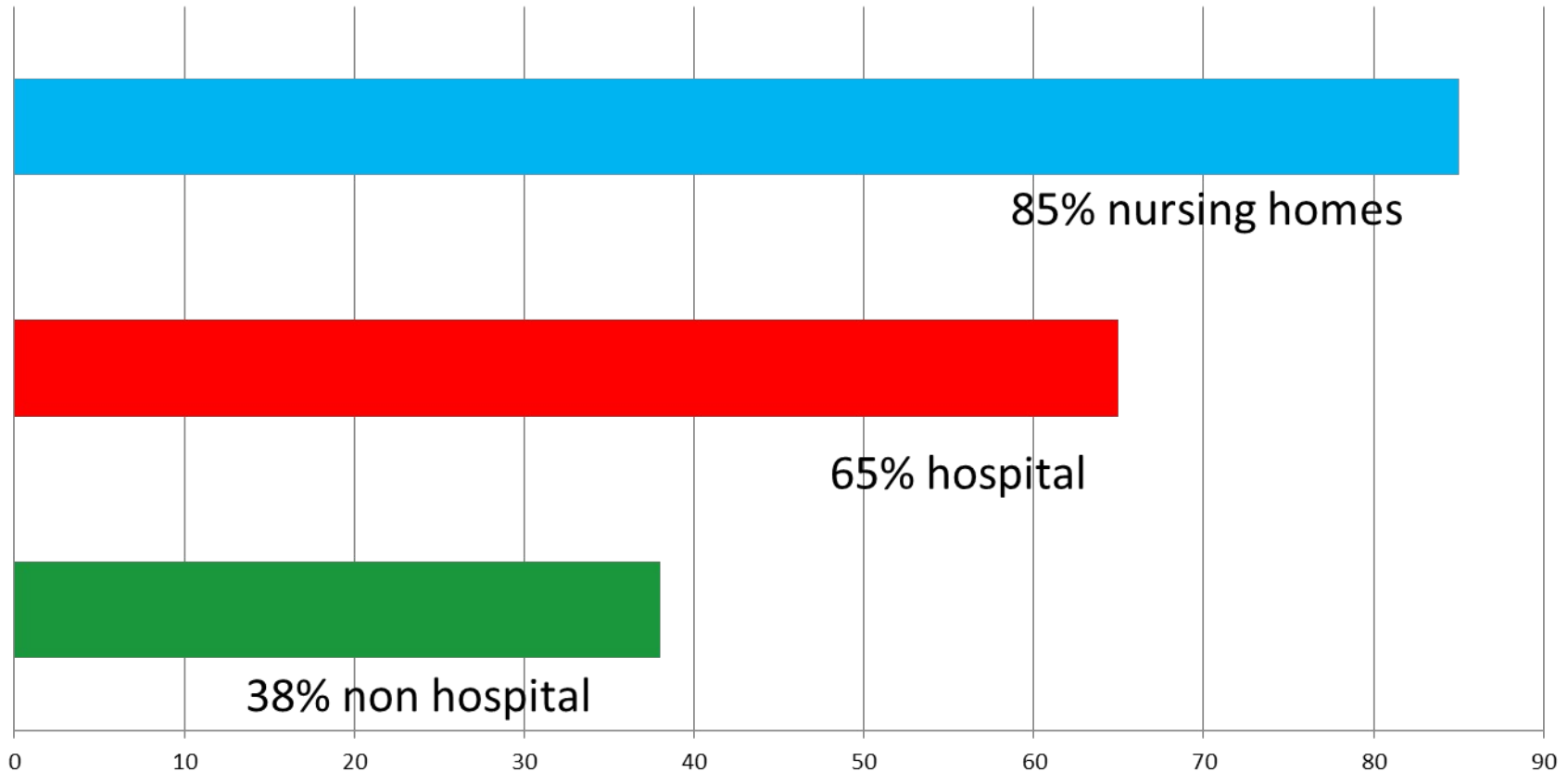
**MULTICENTER STUDY ON NUTRITIONAL
SURVEILLANCE, SCREENING AND EARLY
DIAGNOSIS OF MALNUTRITION IN THE
ELDERLY IN NURSING HOMES**

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Malnutrition represents a serious problem in elderly people, in hospital, in nursing homes and at home

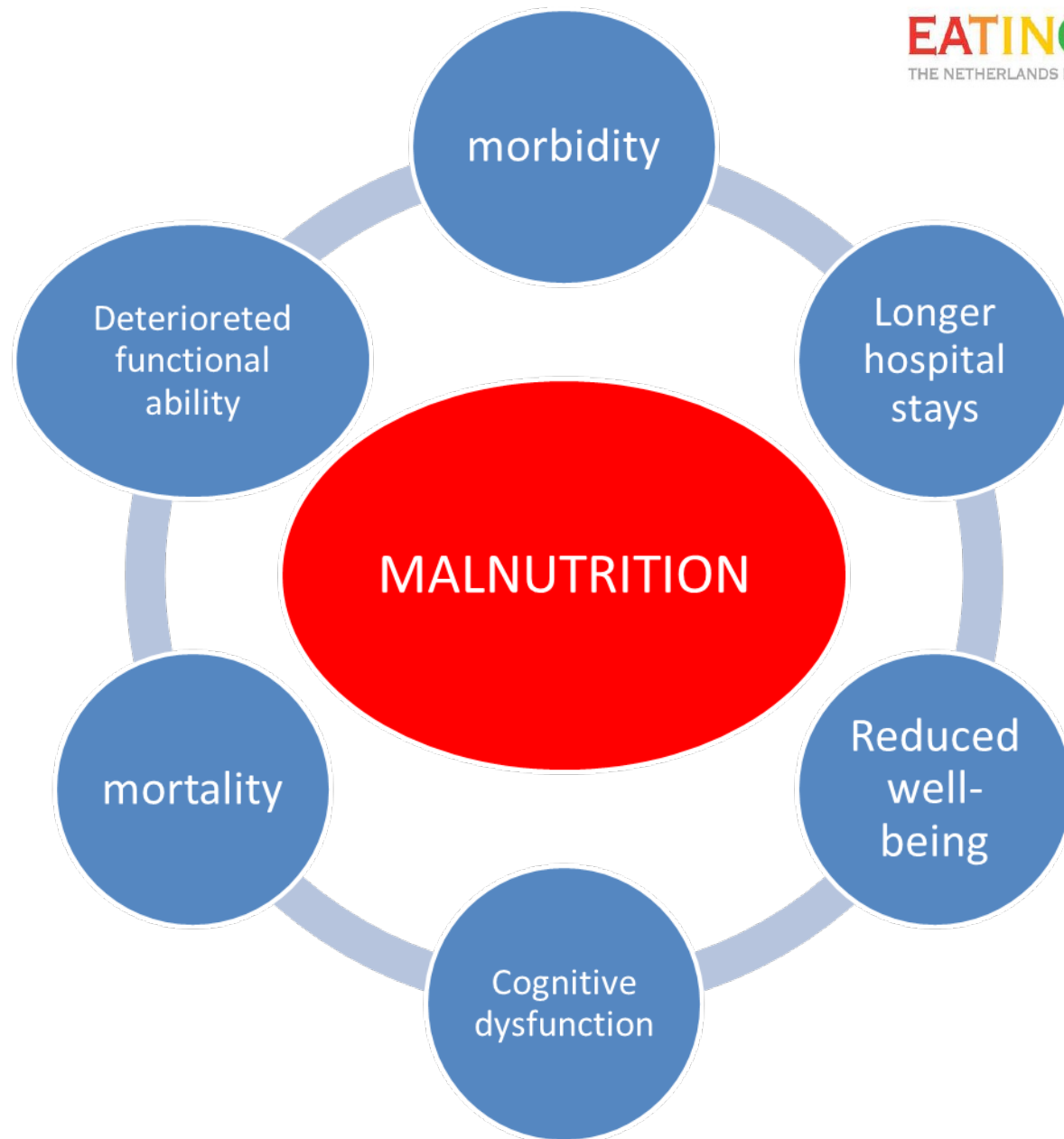


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Nutritional inadequacy in the elderly can be the result of one or more factors

Table 1. Factors influencing nutritional inadequacy in the elderly population^{5,10}			
Physiologic	Pathologic	Sociologic	Psychologic
Decreased taste	Dentition	Ability to shop for food	Depression
Decreased smell	Dysphagia, swallowing problems	Ability to prepare food	Anxiety
Dysregulation of satiation	Diseases (cancer, CHF, COPD, diabetes, ESRD, thyroid)	Financial status low socioeconomic	Loneliness
Delayed gastric emptying	Medications (diuretic, antihypertensive, dopamine agonist, antidepressant, antibiotic, antihistamine)	Impaired activities of daily living skills	Emotionally stressful life events
Decreased gastric acid	Alcoholism	Lack of interactions with others at mealtime	Grief
Decreased lean body mass	Dementia		Dysphoria

CHF = congestive heart failure; COPD = chronic obstructive pulmonary disease; ESRD = end-stage renal disease.



Piedmont Project on Malnutrition in Nursing Homes

- obtain data concerning our regional situation
- promote an early malnutrition screening and diagnosis

Piedmont Project on Malnutrition in Nursing Homes

- **First period 2007-
2009**
18 nursing homes

**a global
nutrition
approach**



EATING CITY

THE NETHERLANDS DECEMBER 6-7, 2012



SOCIAL DIALOGUE FOR A MORE SUSTAINABLE FOOD SUPPLY CHAIN

Materials and methods

ANTHROPOMETRIC DATA COLLECTION

- weight and weight history
- height or height of the leg according to Chumlea
- BMI (kg/m²)

- Karnofsky index (KI)

MINI NUTRITIONAL ASSESTEMENT

Screening		
A	Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties? 0 = severe loss of appetite 1 = moderate loss of appetite 2 = no loss of appetite	<input type="checkbox"/>
B	Weight loss during last months 0 = weight loss greater than 3 kg (6.6 lbs) 1 = does not know 2 = weight loss between 1 and 3 kg (2.2 and 6.6 lbs) 3 = no weight loss	<input type="checkbox"/>
C	Mobility 0 = bed or chair bound 1 = able to get out of bed/chair but does not go out 2 = goes out	<input type="checkbox"/>
D	Has suffered psychological stress or acute disease in the past 3 months 0 = yes 2 = no	<input type="checkbox"/>
E	Neuropsychological problems 0 = severe dementia or depression 1 = mild dementia 2 = no psychological problems	<input type="checkbox"/>
F	Body Mass Index (BMI) (weight in kg) / (height in m) ² 0 = BMI less than 19 1 = BMI 19 to less than 21 2 = BMI 21 to less than 23 3 = BMI 23 or greater	<input type="checkbox"/>
Screening score (subtotal max. 14 points)		<input type="checkbox"/> <input type="checkbox"/>
12 points or greater	Normal – not at risk – no need to complete assessment	
11 points or below	Possible malnutrition – continue assessment	

- Body mass index (BMI) (kg/m²)
- Weight loss in past 3 months?
- Acute illness or major stress in past 3 months?
- Mobility
- Dementia or depression
- Has appetite & food intake declined in past 3 months?

SURVEY ON FOOD

TAKE



Diario alimentare

DATA	NOME E COGNOME		LETTO
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Segnare con il simbolo X la porzione consumata per ciascun alimento o portata.

COLAZIONE	Nulla	1/4	1/2	3/4	Tutto
Latte/yogurt	= 0	= 0,25	= 0,5	= 0,75	= 1
Pane/prodotto da forno	= 0	= 0,25	= 0,5	= 0,75	= 1
Marmellata, miele, zucchero	= 0	= 0,25	= 0,5	= 0,75	= 1
SPUNTINO	= 0	= 0,25	= 0,5	= 0,75	= 1
PRANZO					
1° piatto (asciutto o in brodo)	= 0	= 0,25	= 0,5	= 0,75	= 1
2° piatto (carne, pesce, formaggio, uova, salumi, legumi)	= 0	= 0,25	= 0,5	= 0,75	= 1
Verdura	= 0	= 0,25	= 0,5	= 0,75	= 1
Pane / Grissini/ Crackers	= 0	= 0,25	= 0,5	= 0,75	= 1
Fruita / Dolce	= 0	= 0,25	= 0,5	= 0,75	= 1
SPUNTINO	= 0	= 0,25	= 0,5	= 0,75	= 1
CENA					
1° piatto (asciutto o in brodo)	= 0	= 0,25	= 0,5	= 0,75	= 1
2° piatto (carne, pesce, formaggio, uova, salumi, legumi)	= 0	= 0,25	= 0,5	= 0,75	= 1
Verdura	= 0	= 0,25	= 0,5	= 0,75	= 1
Pane / Grissini/ Crackers	= 0	= 0,25	= 0,5	= 0,75	= 1
Fruita / Dolce	= 0	= 0,25	= 0,5	= 0,75	= 1
SPUNTINO	= 0	= 0,25	= 0,5	= 0,75	= 1
Punteggi parziali	=	=	=	=	=
Punteggio totale =					

“Operative Proposals for catering in nursing homes“ of Piedmont Region



REGIONE
PIEMONTE
Assessorato alla Tutela
della salute e Sanità
Direzione Sanità Pubblica

**Proposte
operative per la
ristorazione
assistenziale**

Diets

- Standard diet
- Special diets (dysphagia, gluten free, hypercaloric diets, slurry diets)

**SUSTAINABILITY OF
PRODUCTION AND FOOD
CONSUMPTION**

Table 2. Features ^a of the population according to nutritional status

Variable	Malnutrition (N=101)	Nutritional risk (N=479)	Well nourished (N=158)	P-value ^b
Age, years	83.4±9.1	82.9±10.7	81.1±9.1	.122
Male, N (%)	23 (22.8)	115 (24.0)	47 (29.7)	.299
Body mass index, Kg/m ²	18.6±3.3	21.9±4.5	27.2±4.9	<.001
MNA-SF	5.2±1.1	9.0±1.3	12.3±0.5	<.001
Weight loss, 1-3 kg, N (%)	26 (25.7)	109 (22.8)	5 (3.2)	<.001
>3 kg, N (%)	56 (55.4)	61 (12.7)	14 (8.1)	
Food intake, (adequacy score)	7.9±2.7	9.9±2.6	11.1±2.1	<.001
inadequate (score 0-7), N (%)	15 (14.9)	27 (5.6)	3 (1.9)	<.001
reduced (score 8-11), N (%)	61 (60.4)	183 (38.2)	25 (15.8)	
Dentition, altered, N (%)	46 (45.5)	138 (28.8)	14 (8.1)	<.001
poor, N (%)	35 (34.7)	134 (28.0)	23 (14.6)	
Dysphagia, N (%)	25 (24.8)	57 (11.9)	2 (1.3)	<.001
Sip feeding, N (%)	55 (54.4)	93 (19.4)	2 (1.3)	<.001
Tube feeding, N (%)	0 (0)	10 (2.1)	0 (0)	<0.065
Karnofsky index	43.1±5.8	45.2±7.1	47.7±7.9	<.001
Comorbidities ≥3, N (%)	8 (7.9)	45 (9.4)	14 (8.1)	.891
Pressure ulcers, N (%)	12 (11.9)	35 (7.3)	4 (2.5)	.013
Duration of stay, New admission, N (%)	62 (61.4)	178 (37.2)	48 (30.4)	<.001
Stay <5 years, N (%)	15 (14.8)	151 (31.5)	60 (38.0)	
Stay ≥5 years, N (%)	24 (23.8)	150 (31.3)	50 (31.6)	

Abbreviations: MNA-SF, short-form Mini Nutritional Assessment

^a Data are reported as mean (SD) or as counts (%), respectively. Percentages are calculated within single groups.

^b Continuous and categorical variables were compared between groups with one way ANOVA or the Fisher's exact test, respectively.

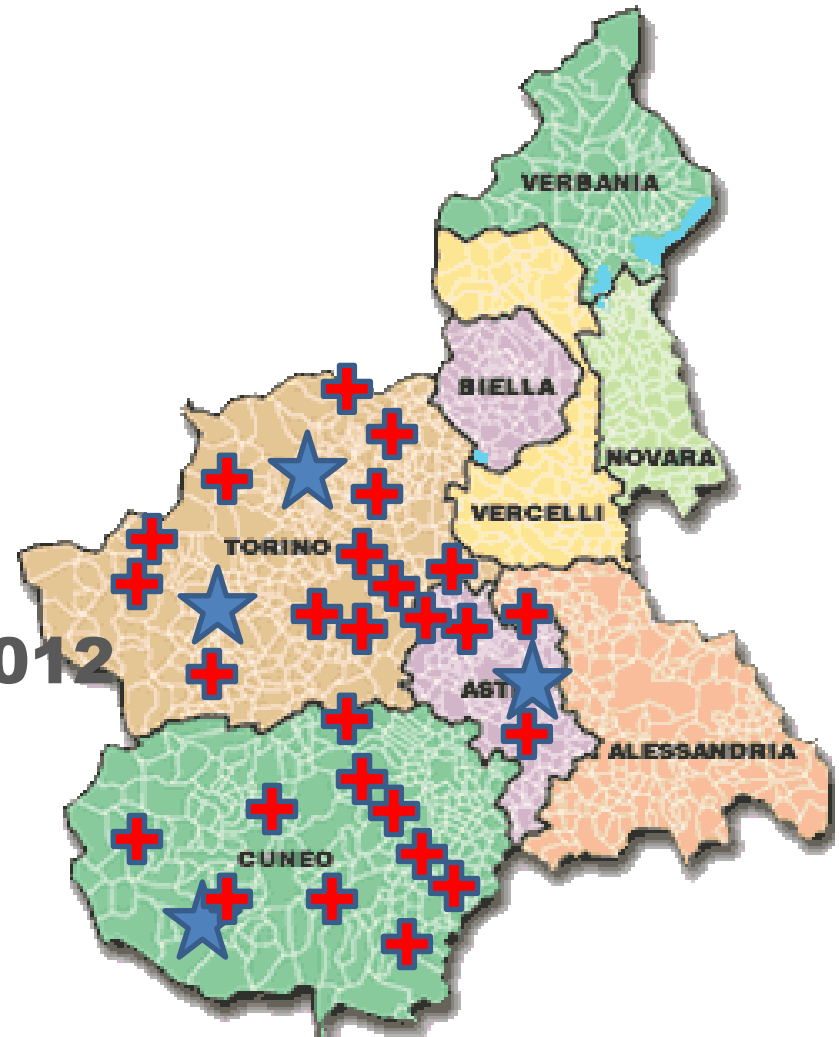
• at risk of malnutrition
64,9%
• Already malnourished
13,7%

IN RESPECT TO

- BMI
- weight loss
- reduced intake
- Dysphagia
- dentition

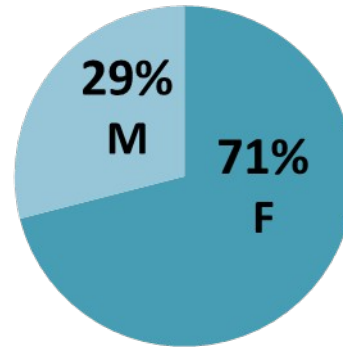
Piedmont Project on Malnutrition in Nursing Homes

- First period 2007-2009
18 nursing homes
- **Second period 2010-2012**
63 nursing homes



Results

- 1947 patients



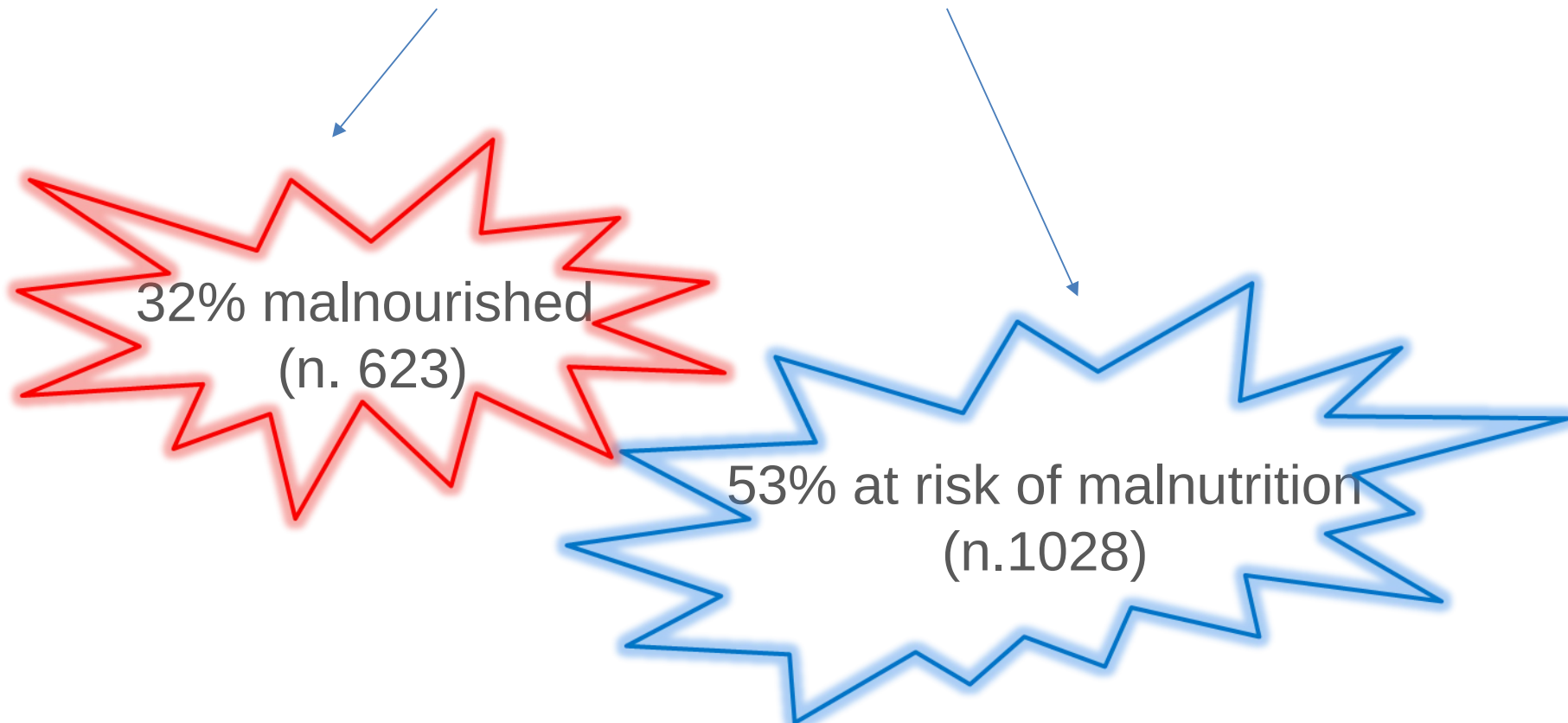
- Median age: 82 years (range 51-104)
- Median BMI: 22 kg/m² (range 12-39)

Main admission diagnosis:

- 30% fractures, not self-sufficient
- **70% dementia or mild cognitive impairment, cerebrovascular disease, Parkinson disease**

Results

MNA-SF (**average score 7**)



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	Malnutrito (0-7)	A rischio/Normale (8-14)	Analisi univariata (Chi-square test/Fisher's exact test)
Età (anni-classe)			
<= 80	120 (32.17%)	253 (67.82%)	
81-90	205 (38.17%)	332 (61.82%)	p = 0.09 (NS)
> 90	91 (39.91%)	137 (60.08%)	
Disfagia			
SI	52,7% 136 (52.71%)	122 (47.28%)	p < 0.0001
NO	280 (31.81%)	600 (68.18%)	
Diabete			
SI	81 (34.32%)	155 (65.67%)	p = 0.44 (NS)
NO	335 (37.13%)	567 (62.86%)	
Lesioni da pressione			
SI	58,5% 69 (58.47%)	49 (41.52%)	p < 0.0001
NO	347 (34.01%)	673 (65.98%)	
Intervento nutrizionale			
SI	219 (45.34%)	264 (54.65%)	p < 0.0001
NO	197 (30.07%)	458 (69.92%)	
Periodo di permanenza in struttura (anni-classe)			
<= 2	172 (41.44%)	243 (58.55%)	
2-4	114 (32.85%)	233 (67.14%)	p = 0.030
> 4	130 (34.57%)	246 (65.42%)	

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**623
malnourished
pts**

47%

Dietary recommendations

53% ONS

Dietary recommendations

The first line of action
in the treatment of malnutrition
is to implement
the caloric and protein intake

Oral Nutritional Supplements

- High caloric and high-protein ONS
- Liquid or creamy consistency
- disease-specific ONS

Conclusions

- Our data confirm literature data: patients in nursing homes are at high risk of malnutrition
- Proved advantage of an early taking in charge
- The dietitian is key figure, but still not ever present in nursing homes
- administration of meals is often inadequate for nutritional composition, texture and palatability

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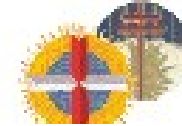
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S. CROCE E CARLE*

San Giovanni Bosco
Croce e Carle

Cardinal Massaia

San Luigi Gonzaga S.

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