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**VI CONGRESSO NAZIONALE AIIO**  
**VALUTAZIONE DELLE PERFORMANCE ASSISTENZIALI IN AMBITO ONCOLOGICO**  
**9-10 Giugno 2017 Università Campus Bio-Medico ROMA**

# ***NURSING SENSITIVE OUTCOMES*** **IN AMBITO ONCOLOGICO:** **COSA SAPPIAMO?**

D. Ausili\*, R. Tosetti

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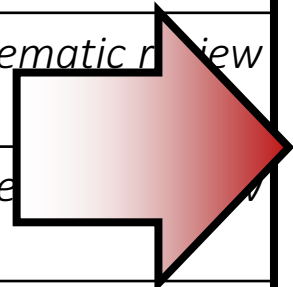
# ***NURSING SENSITIVE OUTCOMES IN AMBITO ONCOLOGICO: COSA SAPPIAMO?***

1. **Background**
2. *Nursing sensitive outcomes* in ambito oncologico: una revisione della letteratura
3. Conclusioni

# BACKGROUND-1

(Ausili, 2013, Prof Inf 66,3, 131-142 )

FONTE	TIPOLOGIA
Seago (2001)	<i>Systematic review</i>
Hickam et al. (2003)	<i>Systematic review</i>
Lang et al. (2004)	<i>Systematic review</i>
Lankshear et al. (2005)	<i>Systematic review</i>
Kane et al. (2007a; 2007b)	<i>Systematic review</i>
Griffiths et al. (2008)	<i>Systematic review</i>
Clarke, Donaldson (2010)	<i>Literature review (capitolo di libro)</i>
Doran (2011)	<i>Literature review (monografia)</i>



- ↓ Durata della degenza (*length of stay*)
- ↓ Infezioni nosocomiali
- ↓ Lesioni da pressione
- ↓ Mortalità
- ↓ *Hospital readmissions*
- ↓ *Failure to rescue*
- ↓ Errori di terapia.
- ↑ Riconoscimento/prevenzione di errori
- ↓ Polmoniti acquisite.
- ↓ Cadute
- ↑ Soddisfazione dei pazienti
- ↑ Confidenzialità delle informazioni sanitarie
- ↑ Continenza
- ↑ *Self-care*
- ↑ Conoscenza della malattia e dei trattamenti.
- ↑ Stato nutrizionale
- ↓ Dolore
- ↑ Stato funzionale
- ↓ *Distress* psicologico
- ↑ Accesso e utilizzo dei servizi sanitari

capitolo tra ricerche originali e revisioni anche sistematiche

## BACKGROUND-2

# Nurse staffing and education and hospital mortality in nine European countries: a retrospective observational study (2014)

Linda H Aiken, Douglas M Sloane, Luk Bruyneel, Koen Van den Heede, Peter Griffiths, Reinhard Busse, Marianna Diomidous, Juha Kinnunen, Maria Kózka, Emmanuel Lesaffre, Matthew D McHugh, M T Moreno-Casbas, Anne Marie Rafferty, Rene Schwendimann, P Anne Scott, Carol Tishelman, Theo van Achterberg, Walter Sermeus, for the RN4CAST consortium\*

	Nurse staffing (patients to nurse)		Nurse education (% of nurses with bachelor's degrees)	
	Mean (SD)	Range	Mean (SD)	Range
Belgium	10.8 (2.0)	7.5-15.9	55% (15)	26-86%
England	8.8 (1.5)	5.5-11.5	28% (9)	10-49%
Finland	7.6 (1.4)	5.3-10.6	50% (10)	36-71%
Ireland	6.9 (1.0)	5.4-8.9	58% (12)	35-81%
Netherlands	7.0 (0.8)	5.1-8.1	31% (12)	16-68%
Norway	5.2 (0.8)	3.4-6.7	100% (0)	100-100%
Spain	12.7 (2.0)	9.5-17.9	100% (0)	100-100%
Sweden	7.6 (1.1)	5.4-9.8	54% (12)	27-76%
Switzerland	7.8 (1.3)	4.6-9.8	10% (10)	0-39%
Total	8.3 (2.4)	3.4-17.9	52% (27)	0-100%

Means, SDs, and ranges are estimated from hospital data—eg, the 59 hospitals in Belgium have a mean patient-to-nurse ratio of 10.8, and the patient-to-nurse ratio ranges across those 59 hospitals from 7.5 to 15.9. Similarly, the 31 hospitals in Switzerland have, on average, 10% bachelor's nurses, and the percent of bachelor's nurses ranges across those 31 hospitals from 0% to 39%.

Table 2: Nurse staffing and education in nine European countries

	Partly adjusted models		Fully adjusted model	
	OR (95% CI)	p value	OR (95% CI)	p value
Staffing	1.005 (0.965-1.046)	0.816	1.068 (1.031-1.106)	0.0002
Education	1.000 (0.959-1.044)	0.990	0.929 (0.886-0.973)	0.002

The partly adjusted models estimate the effects of nurse staffing and nurse education separately while controlling for unmeasured differences across countries. The fully adjusted model estimates the effects of nurse staffing and nurse education simultaneously, controlling for unmeasured differences across countries and for the hospital characteristics (bed size, teaching status, technology, and work environment), and patient characteristics (age, sex, admission type, type of surgery, and comorbidities present on admission). OR=odds ratio.

Table 4: Partly and fully adjusted odds ratios showing the effects of nurse staffing and nurse education on 30 day inpatient mortality

### Nurse staffing and education and hospital mortality in nine European countries: a retrospective observational study (2014)

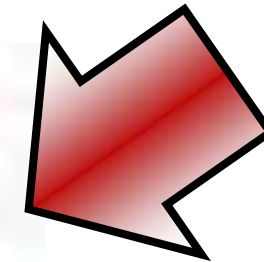
Linda H Aiken, Douglas M Sloane, Luk Bruyneel, Koen Van den Heede, Peter Griffiths, Reinhard Busse, Marianna Diomidous, Juha Kinnunen, Maria Kózka, Emmanuel Lesaffre, Matthew D McHugh, M T Moreno-Casbas, Anne Marie Rafferty, Rene Schwendimann, P Anne Scott, Carol Tishelman, Theo van Achterberg, Jeroen van der Wal, and J. Sermeus, for the RN4CAST consortium\*



#### Findings

An increase in a nurses' workload by **one patient** increased the likelihood of an inpatient **dying within 30 days of admission by 7%** (odds ratio 1.068, 95% CI 1.031—1.106), and every 10% increase in bachelor's degree nurses was associated with a **decrease in this likelihood by 7%** (0.929, 0.886—0.973). These associations imply that patients in hospitals in which 60% of nurses had bachelor's degrees and nurses cared for an average of **six patients** would have almost 30% lower mortality than patients in hospitals in which only **30% of nurses had bachelor's degrees** and nurses cared for an average of **of eight patients**.

**Prevalence, patterns and predictors of nursing care left undone in European hospitals: results from the multicountry cross-sectional RN4CAST study (2013)**



Dietmar Ausserhofer,<sup>1</sup> Britta Zander,<sup>2</sup> Reinhard Busse,<sup>2</sup> Maria Schubert,<sup>3</sup> Sabina De Geest,<sup>1,4</sup> Anne Marie Rafferty,<sup>5</sup> Jane Ball,<sup>6</sup> Anne Scott,<sup>7</sup> Juha Kinnunen,<sup>8</sup> Maud Heinen,<sup>9</sup> Ingeborg Strandseng Sjetne,<sup>10</sup> Terese Moreno-Casbas,<sup>11</sup> Marxa Kozka,<sup>12</sup> Rikard Lindqvist,<sup>13</sup> Marianna Damiidou,<sup>14</sup> Luk Bruyvel,<sup>15</sup> Walter Sermeus,<sup>16</sup> Linna H Alken,<sup>17</sup> René Schwendimann,<sup>1</sup> on behalf of the RN4CAST consortium

**ABSTRACT**

**Background** Unmet nursing care needs, which nursing care associates left undone as an intentional phenomenon.

**Aim** The aim of this study is to describe the prevalence and patterns of nursing care left undone across European hospitals and explore its associations with inpatient or organisational factors,

work, including the quality of the work environment and adequacy of staffing levels, are linked to patient safety and quality of care.<sup>1-4</sup> In acute care hospitals, unmet nurse staffing and skill mix levels have been linked to lower rates of mortality, fewer adverse events and shorter lengths of stay.<sup>5-7</sup> Allen et al. described a synergistic relationship between the quality of the



# BACKGROUND-5

Table 7 Prevalence (Mean percentage) and SD of nursing care activities left undone in European hospitals (n=488)

	BE	EE	DE	FR	IT	NL	PL	PT	RO	SE	UA	UK	US	Total
1. Contacting with patients	52.7 (15.3)	51.8 (17.1)	51.2 (11.7)	38.9 (10.7)	37.1 (12.0)	48.1 (10.7)	68.0 (13.9)	44.6 (12.3)	39.1 (19.4)	39.8 (11.0)	44.9 (10.5)	55.3 (7.9)	52.5 (10.5)	52.5 (10.5)
2. Review of update nursing care plan/ care pathway	43.4 (17.2)	38.2 (12.2)	53.2 (11.2)	46.1 (15.1)	35.7 (12.5)	39.8 (14.9)	49.5 (13.4)	17.9 (11.2)	38.7 (11.2)	37.6 (10.0)	42.9 (10.0)	49.5 (12.8)	41.7 (13.6)	41.7 (13.6)
3. Educating patients and relatives	45.2 (10.0)	39.8 (11.6)	71.3 (11.0)	48.9 (11.2)	39.2 (11.0)	55.7 (11.8)	53.9 (12.5)	25.2 (10.1)	35.9 (16.1)	61.0 (9.7)	52.2 (7.1)	72.1 (8.7)	49.9 (17.1)	49.9 (17.1)
4. Dial systems	46.1 (11.0)	26.1 (11.8)	30.2 (10.7)	7.1 (8.2)	71.3 (11.1)	60.6 (14.1)	47.9 (9.1)	23.9 (9.7)	39.3 (10.0)	11.5 (11.4)	39.3 (10.7)	28.9 (7.9)	34.4 (14.5)	34.4 (14.5)
5. All patient equipment properly used	70.4 (17.7)	70.0 (11.0)	40.7 (13.7)	42.3 (8.5)	43.4 (11.0)	37.8 (16.0)	23.4 (8.7)	17.9 (8.8)	31.6 (10.4)	39.4 (8.8)	29.8 (10.6)	42.9 (10.1)	27.5 (14.2)	27.5 (14.2)
6. Medication patient surveillance	20.9 (11.5)	18.2 (10.5)	27.7 (11.7)	20.9 (6.9)	27.9 (11.0)	54.8 (12.7)	51.2 (10.0)	21.9 (7.4)	36.3 (8.4)	19.4 (8.2)	19.3 (7.0)	34.7 (10.1)	22.2 (13.6)	22.2 (13.6)
7. Wound care	20.5 (11.0)	19.2 (9.8)	43.7 (11.2)	18.5 (10.5)	32.0 (10.7)	42.0 (17.5)	27.4 (8.6)	15.7 (8.1)	15.3 (6.3)	38.4 (12.3)	10.0 (4.6)	17.8 (6.2)	25.8 (14.5)	25.8 (14.5)
8. Transfer (movement) of patient (patient)	17.8 (10.3)	18.0 (11.8)	27.4 (13.1)	18.1 (1.6)	19.6 (10.1)	58.8 (11.1)	19.0 (8.1)	46.9 (8.6)	29.0 (9.5)	30.1 (10.5)	18.4 (7.9)	38.8 (10.3)	24.7 (15.9)	24.7 (15.9)
9. Skin care	28.3 (13.8)	18.1 (11.4)	46.5 (11.1)	24.8 (8.2)	20.0 (11.3)	57.0 (16.1)	15.5 (8.6)	45.8 (7.5)	30.1 (8.3)	20.8 (7.5)	23.9 (8.1)	21.1 (7.4)	24.5 (12.8)	24.5 (12.8)
10. Assist patients and relatives with walking	28.3 (9.8)	18.1 (5.9)	22.5 (9.5)	33.7 (9.0)	11.9 (6.9)	36.1 (11.6)	30.3 (8.7)	15.0 (7.1)	13.6 (6.0)	39.3 (8.4)	15.7 (5.1)	20.9 (7.6)	22.4 (11.6)	22.4 (11.6)
11. Administer medications (time)	22.7 (10.8)	15.2 (7.9)	30.2 (10.6)	30.0 (6.8)	12.6 (7.9)	34.8 (15.2)	18.7 (8.8)	17.2 (6.7)	15.5 (5.3)	11.9 (6.6)	73.7 (7.1)	72.4 (6.1)	19.4 (10.5)	19.4 (10.5)
12. Pain management	15.7 (8.0)	8.3 (6.3)	19.7 (10.1)	4.0 (5.7)	7.1 (5.0)	27.2 (12.5)	4.4 (3.5)	11.7 (5.8)	1.6 (3.1)	5.4 (2.3)	5.5 (3.1)	7.1 (6.2)	10.8 (5.2)	10.8 (5.2)
13. Treatments and procedures	12.3 (7.7)	38.7 (7.6)	14.2 (5.4)	4.0 (5.1)	4.7 (5.1)	27.9 (12.5)	5.7 (3.6)	12.2 (4.7)	7.0 (4.3)	4.5 (2.3)	5.4 (3.1)	11.2 (6.2)	5.2 (3.0)	5.2 (3.0)
14. Composite score	4.1 (1.1)	2.8 (0.8)	4.7 (0.9)	3.5 (0.7)	2.4 (1.0)	5.0 (1.1)	3.4 (0.7)	2.5 (0.8)	3.9 (0.7)	3.6 (0.7)	2.4 (0.7)	4.0 (0.7)	3.4 (1.1)	3.4 (1.1)

The prevalence of nursing care left undone was based on the proportion of nursing activities left undone. The composite score was derived from the proportion of nursing care left undone.

BE, Belgium; EE, Switzerland; DE, Germany; FR, France; IT, Italy; NL, Netherlands; PL, Poland; PT, Portugal; RO, Romania; SE, Sweden; UA, Ukraine; UK, United Kingdom; US, United States of America.

## BACKGROUND-6

**Table 3** Association between nurse-related organisational factors and nursing care left undone (n=33 659 nurses)

	Estimate	Standard error	p Value
<b>Organisational context of nursing</b>			
Nurse staffing	0.09109	0.01413	<0.0001
Nurse work environment	-2.1901	0.1758	<0.0001
Non-nursing tasks during last shift	2.1780	0.1922	<0.0001
<b>Nurse factors</b>			
Gender	0.2483	0.06567	0.0002
Education	0.1951	0.04244	<0.0001
Employment	0.1708	0.03905	<0.0001
Professional experience in the hospital	-0.01727	0.001995	<0.0001
<b>Hospital characteristics</b>			
Number of beds	-0.00008	0.000124	0.5198
Technology level	-0.07750	0.09712	0.4249
Teaching status	0.1148	0.1078	0.2869

Multiple multilevel linear regression model with hospital-level as random and country-level as fixed effects, accounting for the hierarchical structure of the data (nurses nested within hospitals within countries).

**Results** Across European hospitals, the most frequent nursing care activities left undone included 'Comfort/talk with patients' (53%), 'Developing or updating nursing care plans/care pathways' (42%) and 'Educating patients and families' (41%). In hospitals with more favourable work environments ( $B=-2.19$ ;  $p<0.0001$ ), lower patient to nurse ratios ( $B=0.09$ ;  $p<0.0001$ ), and lower proportions of nurses carrying out non-nursing tasks frequently ( $B=2.18$ ;  $p<0.0001$ ), fewer nurses reported leaving nursing care undone.

**Conclusions** Nursing care left undone was prevalent across all European countries and was associated with nurse-related organisational factors. We discovered similar patterns of nursing care left undone across a cross-section of European hospitals, suggesting that nurses develop informal task hierarchies to facilitate important patient-care decisions. Further research on the impact of nursing care left undone for patient outcomes and nurse well-being is required.



## Deskilling Hospital Nurse Workforce Is Associated With Poor Outcomes

Aiken et al. BMJQS Nov 2016

- Each 10% decrease in proportion of nurses is associated with 12% increased risk of death
- Adding one assistant per 25 patients instead of adding a nurse is associated with a 21% increased odds of dying
- More assistants do not improve nurses' job satisfaction or reduce nurse burnout
- Deskilling occurs by adding assistants without adding more nurses or reducing nurses



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## Good Nursing Returns High Value

Silber, Aiken, McHugh JAMA Surgery

- Objective: determine whether hospitals with good nurse staffing and work environments produce better patient outcomes at same/lower cost
- Matched 100,000 elderly general surgery patients by risk factors in over 450 hospitals
- Hospitals with good staffing & work environments had significantly lower mortality and lower costs for patients at every risk level
- Good nursing resulted in lower costs due to less use of ICU days and shorter hospital length of stay



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## Editorial

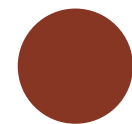
### *9.5 patients per nurse = higher than the average of EU countries*

#### The general results of the RN4CAST survey in Italy

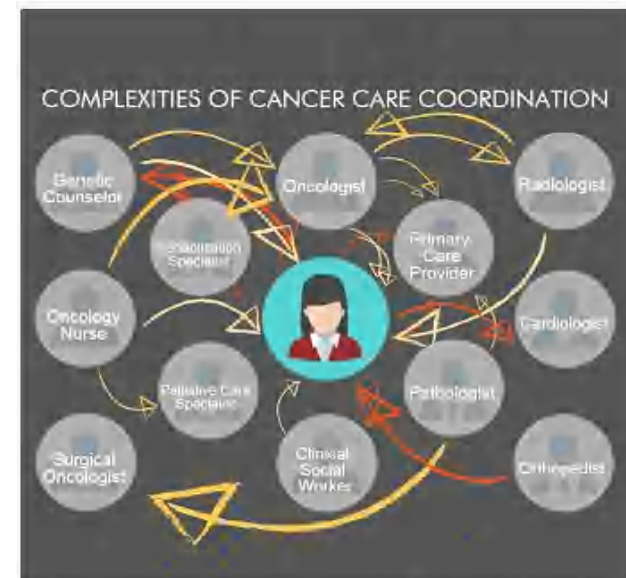
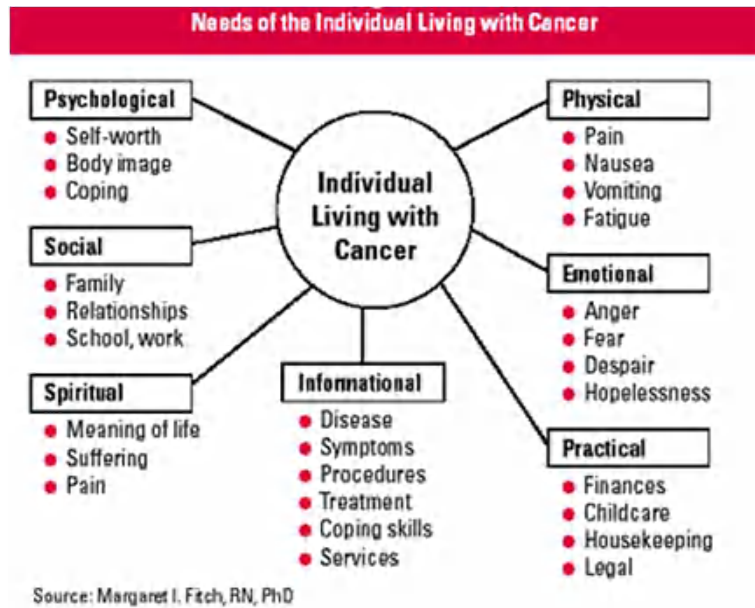
The issue of health workforce shortage and its particular of nurses, has been debated globally for almost three decades (Aiken & Mullinix 1987, Aiken *et al.* 1996, 2001, 2010), and has been exacerbated by the recent global financial crisis. The European RN4CAST project has shifted focus from considering only nursing workforce planning and workforce volumes to considering the impact of adequate nurse-patient ratios and work environment on patient safety and the quality of care (Sermeus *et al.* 2011). The common RN4CAST international protocol (Sermeus *et al.* 2011) enables data to be analysed and compared with those of 13 other countries (European countries).

Care left undone has been identified as a factor that mediates the relationship between nurse staffing and patient outcomes and the chances of care being left undone are halved when nurses care for six patients compared with when they care for ten patients (Ball *et al.* 2016). In the Italian RN4CAST study, the patient care activities mostly left undone (mean 41%) included oral hygiene, frequently change patient's position, comfort/dialogue with patients, patient and family education, developing or updating care plan, appropriate patient surveillance and planning care. This result also shows that Italian nurses mainly tend to leave undone relational, communication, educational and planning activities, which instead are the ones that mostly distinguish nursing competencies from those of other health professionals, and are obliged to conduct purely practical activities, such as administering medications, treatment and

Sasso L, Bagnasco A, Zanini M, Catania G, Aleo G, Santullo A, Spandonaro F, Icardi G, Watson R, Sermeus W: **The general results of the RN4CAST survey in Italy.** *J Adv Nurs* 2016.



# BACKGROUND - RATIONALE



This diagram illustrates the complexity of cancer care coordination. With clinical, procedural, and other supportive office visits, cancer patients may need to coordinate care with additional members of their care team, including a nurse navigator, a psychotherapist, occupational therapist, neurologist, hematologist, gynecologist, urologist, pulmonologist, or other providers. This diagram is adapted from "Ambulatory Care Coordination for One Patient" from *Instant Replay—A Quarterback's View of Care Coordination*, a perspective piece by Matthew J. Press, M.D.

# REVISIONE DELLA LETTERATURA

## RICERCA NELLE PRINCIPALI BANCHE DATI:

Inclusi studi primari, revisioni della letteratura, letteratura grigia in lingua italiana e inglese successiva all'anno 1995

## MAIN KEY-WORDS:

*Nurse staffing, oncology service, oncology nursing, cancer nursing, nursing sensitive outcomes, patients outcomes*

# ***NURSING SENSITIVE OUTCOMES IN AMBITO ONCOLOGICO: COSA SAPPIAMO?***

1. Background

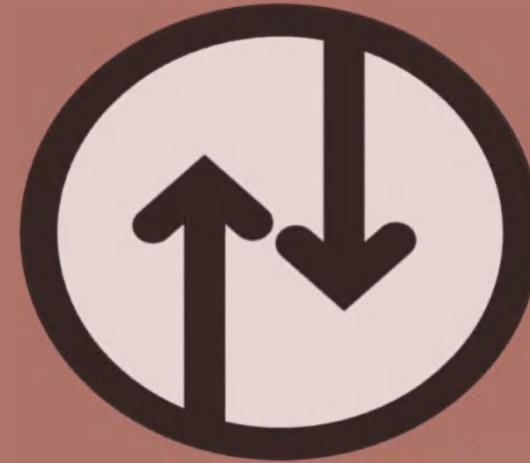
2. *Nursing sensitive outcomes in ambito oncologico: una revisione della letteratura*

3. Conclusioni



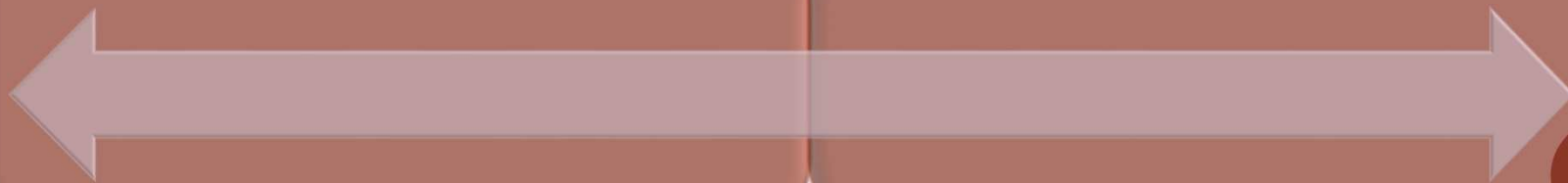
### OUTCOMES CLINICI

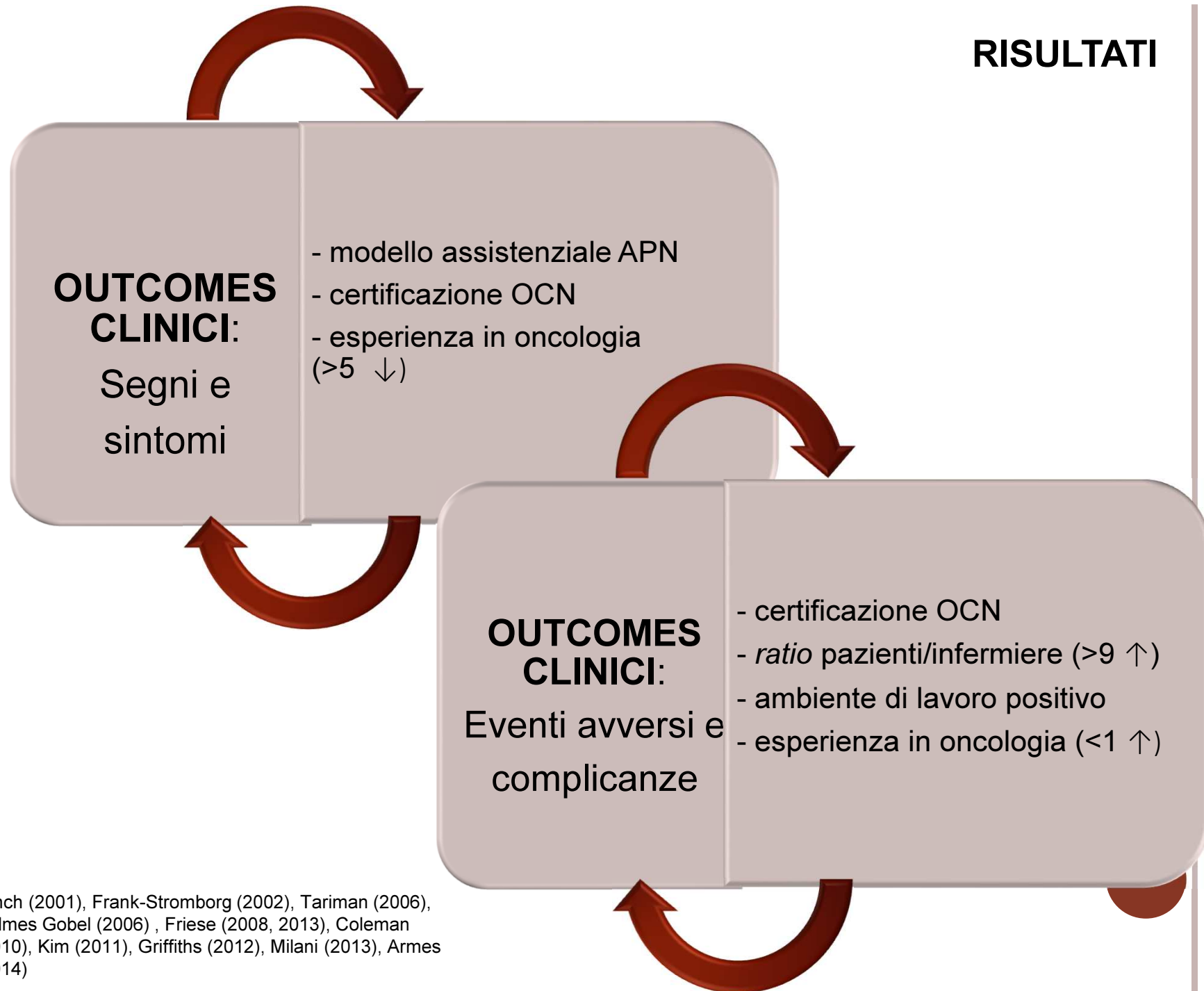
- Segni e sintomi
- Eventi avversi e complicanze



### OUTCOMES FUNZIONALI

- Qualità di vita e benessere
- Distress psicologico
- *Self-care*
- Soddisfazione dell'utenza

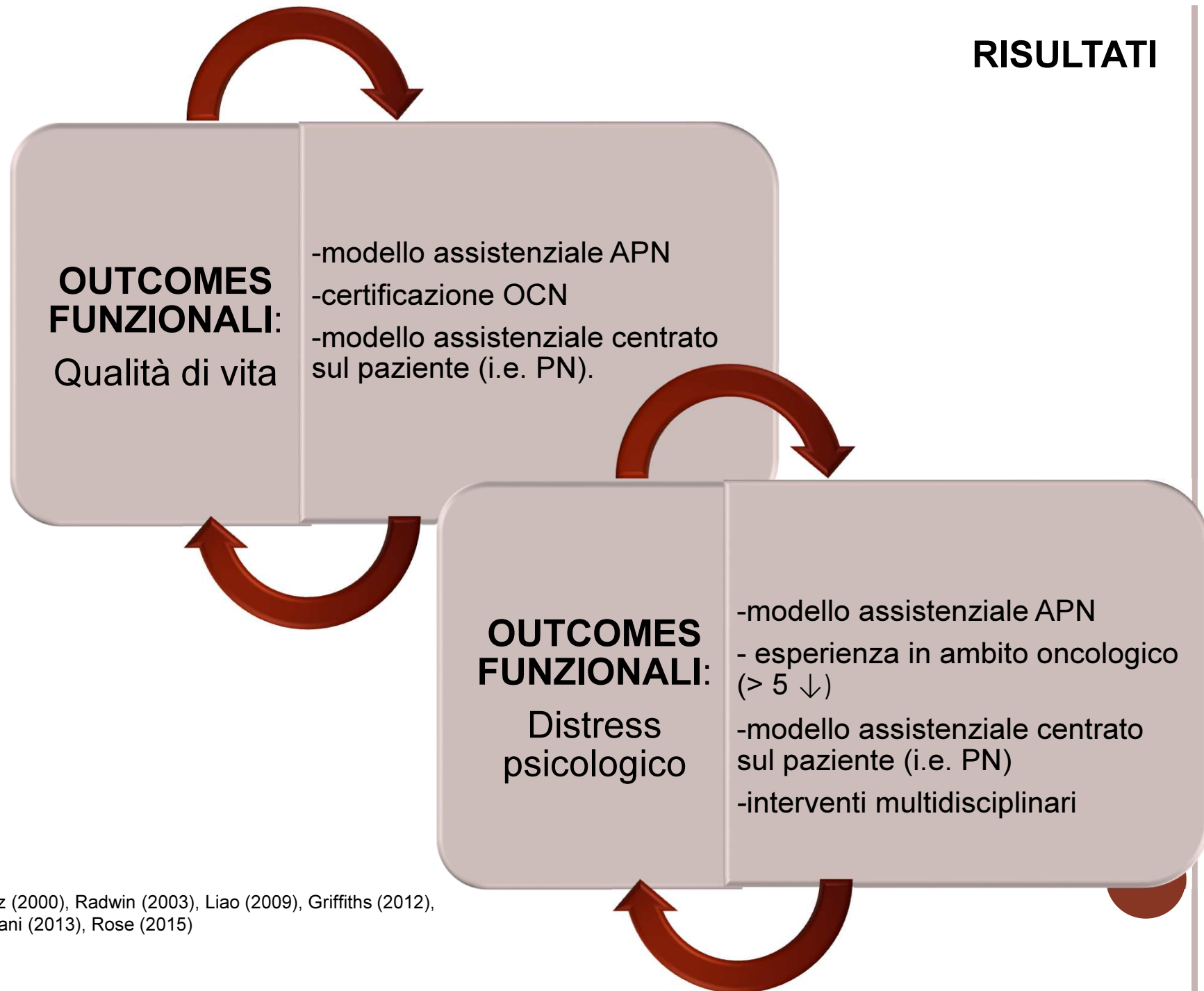




Lynch (2001), Frank-Stromborg (2002), Tariman (2006), Holmes Gobel (2006), Friese (2008, 2013), Coleman (2010), Kim (2011), Griffiths (2012), Milani (2013), Armes (2014)

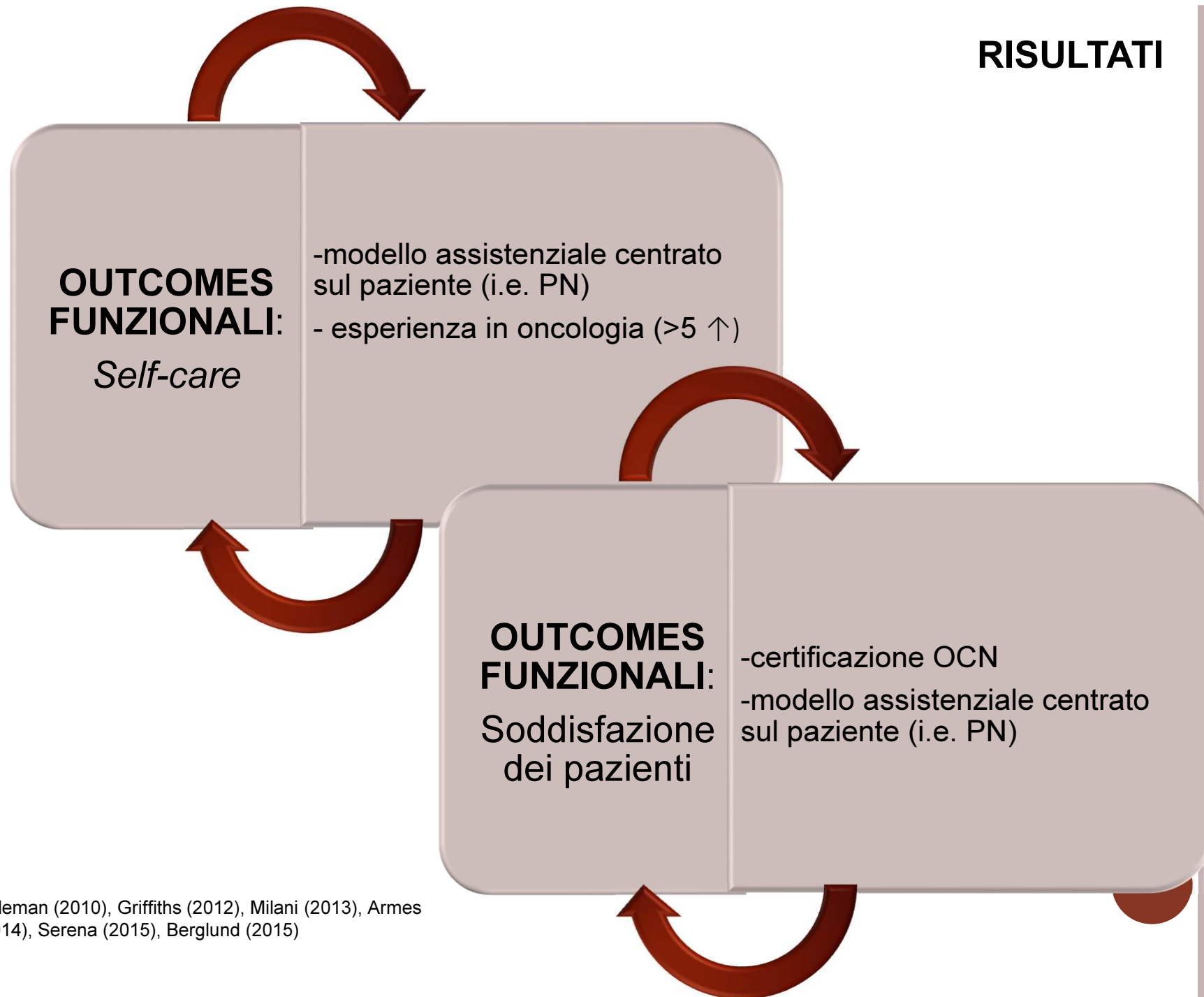


## RISULTATI



Ritz (2000), Radwin (2003), Liao (2009), Griffiths (2012),  
Milani (2013), Rose (2015)

## RISULTATI



Coleman (2010), Griffiths (2012), Milani (2013), Armes (2014), Serena (2015), Berglund (2015)

# ***NURSING SENSITIVE OUTCOMES IN AMBITO ONCOLOGICO: COSA SAPPIAMO?***

1. Background
2. *Nursing sensitive outcomes* in ambito oncologico: una revisione della letteratura
3. **Conclusioni**

### LIMITI

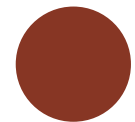
- letteratura limitata
- i pochi studi sono osservazionali e trasversali

### IMPLICAZIONI

- percorsi di formazione specialistica (& *role implementation*)
- *ratio* pazienti/infermiere
- modelli assistenziali *patient-centred*

### RICERCA

- studi sperimentali
- studi qualitativi
- ricerca a livello nazionale (in corso RN4CAST@IT) in modo specifico in ambito oncologico



***NURSING SENSITIVE OUTCOMES***  
**IN AMBITO ONCOLOGICO:**  
**COSA SAPPIAMO?**

Together is my  
watch word





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grazie per l'attenzione

per ogni contatto

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