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Systematic review of nutritional interventions to prevent healthcare-associated infections in undernourished elderly

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Undernutrition in elderly patients is a major public health concern. Infections could be related to malnutrition, and may have a detrimental effect on health. The recognition and treatment of undernutrition may prevent infections in elderly. This systematic review explored a link between undernourished elderly and the risk of acquiring infections in a healthcare setting. It also explored the effectiveness of nutritional interventions in this group to prevent healthcare associated infections (HCAIs).

A search was performed according to Joanna Briggs Institute systematic review guidelines⁽¹⁾ was performed. Comprehensive search of key words was used to explore the following databases: MEDLINE, EMBASE, CINAHL and Cochrane Library. The search was limited to articles published in English and after 1990. The inclusion criteria were people ≥ 60 and undernourished. The outcome was limited to HCAIs only.

The search has generated 253 papers, of which 9 were identified as meeting inclusion criteria (3 interventions^(2–4) and 6 descriptive studies^(5–10)) and were included in final analysis.

Study	Type of study	Population	Groups	N	No of HCAIs	No of part. with HCAIs
Gamaletsou <i>et al.</i> 2012	Prospective (LOS 10.3 d)	Acutely ill	Undernourished	10	n/a	31
			Well Nourished	127	n/a	25
Bourdel-Marchasson <i>et al.</i> 1999	Prospective (LOS 18.8 d)	Critically ill	Undernourished	350	77	n/a
Bouillanne <i>et al.</i> 2005	Prospective (LOS 71.2d)	Hospitalised	Well Nourished	51	12	n/a
			Undernourished	121	50	n/a
			Well Nourished	60	9	n/a
Batsis <i>et al.</i> 2009	Prospective (LOS 24.5d)	Hip fracture	Undernourished	184	25	n/a
			Well Nourished	996	136	n/a
Kuikka <i>et al.</i> 2009	Prospective (duration 8 M)	Residents	Undernourished	18	40	n/a
			Well Nourished	36	47	n/a
Bruce <i>et al.</i> 1999	Case (LOS 11.1d)	Hip fracture	Undernourished	35	n/a	15
			Well Nourished	65	n/a	29
Rypkema <i>et al.</i> 2003	Pseudo-RCT (LOS 32.7d)	Non-terminally ill	Intervention Control	140	33	n/a
Johansen <i>et al.</i> 2004	RCT (LOS 9.9d)	Hospitalized	Intervention	108	n/a	20
			Control	104	n/a	12
Aquilani <i>et al.</i> 2010	RCT (duration 30d)	Post-acute illness	Intervention	40	n/a	21
			Control	40	n/a	33

Setting: hospital except Kuikka *et al.* (nursing home) and Aquilani *et al.* (Rehabilitation Centre), LOS = Mean Length Of Stay, n/a = data not available, *p* value for all studies either unavailable or not significant.

The data presented in the studies does not show a direct link between nutrition and HCAIs. The studies however were not designed to evaluate nutrition as a factor influencing development of HCAIs. Duration, number of people and parameters reported were not consistent in these studies, resulting in a poor quality of the data.

1. Pearson *et al.* (2005) *Int J Evid Based Healthc* 3, 207–215.
2. Rypkema *et al.* (2004) *J Nutr Health Aging* 8, 122–127.
3. Johansen *et al.* (2004) *Clin Nutr* 23, 539–550.
4. Aquilani *et al.* (2011) *Arch Gerontol Geriatr* 52, 123–128.
5. Batsis *et al.* (2009) *J Hosp Med* 4, 1–9.
6. Bouillanne *et al.* (2005) *Am J Clin Nutr* 82, 777–783.
7. Bourdel-Marchasson *et al.* (1999) *Clin Nutr* 18, 233–240.
8. Bruce *et al.* (1999) *Aust J Ageing* 18, 119–123.
9. Gamaletsou *et al.* (2012) *J Hosp Infect* 80, 68–172.
10. Kuikka *et al.* (2009) *J Am Med Dir Assoc* 10, 348–353.