

## Concurrent Session 13

**Evaluation of the reliability and validity of a nutrition screening tool for residential aged-care facilities**

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**Background** - Personal care and nursing staff of aged-care facilities can apply nutrition screening tools on residents to identify those at risk of deterioration in nutritional health.<sup>1</sup> Residents are classified according to their level of nutritional risk, which is followed by appropriate intervention. It is essential that nutrition screening tools be tested for reliability and validity. If not, resident care may be compromised.<sup>2</sup>

**Objective** - To evaluate the reliability and validity of a nutrition screening tool developed for residential aged-care facilities, titled the Nutritional Risk Screening Tool (NRST).

**Design** - Data was collected at five residential aged-care facilities (n=86). Three different assessors obtained a nutritional risk classification for each participant using the NRST. Reliability was assessed by calculating the percentage level of agreement and Fleiss' Kappa. The principal investigator took various anthropometric measurements and measured food intake. Residents were assigned a 'gold standard' nutritional risk classification. One assessor obtained a nutritional risk classification for each participant using a currently available reliable and valid nutrition screening tool, titled the Mini Nutritional Assessment (MNA). Validity was assessed by calculating the percentage level of agreement between the 'gold standard' and the NRST and MNA classifications, as well as Fleiss' Kappa, sensitivity and specificity.

**Outcomes** - There was a 'high' percentage agreement (81%) between the three assessors. Fleiss' Kappa (0.66) inferred a 'good' level of agreement. There was a 'moderate' percentage agreement (59%) between the 'gold standard' and the NRST classifications, whilst the Fleiss' Kappa (0.11) inferred a 'low' level of agreement. There was a 'moderate-high' level of sensitivity (71%) and specificity (75%). The NRST showed a higher level of validity than the MNA.

**Conclusions** - The NRST has a high level of reliability and a moderate-high level of validity however these levels may be improved. It is more appropriate for use than the MNA.

**References**

- Davidson I, Smith S. Nutritional screening: pitfalls of nutritional screening in the injured obese patient. *Proc Nutr Soc* 2001; 63: 421-425
- Arrowsmith HA. A critical evaluation of the use of nutrition screening tools by nurses. *Brit J Nurs* 1999; 8: 1483-1490.

**Anthropometric and biochemical markers for nutritional risk among residents within an Australian residential care facility**

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**Background** - The risk of malnutrition is high among the elderly population yet few studies have measured indicators of nutritional status among the elderly in Australian residential care facilities.

**Objective** - To determine the prevalence of malnutrition in elderly residents living in a residential care facility, who were recruited to participate in a larger study, investigating the effects of a nutritional intervention.

**Design** - Anthropometric and biochemical analyses were measured from 83 High Level Care (HLC) and 29 Low Level Care (LLC) residents.

**Outcomes** - The mean (SD) body mass index (BMI) for all subjects was 26.3 (5.0) kg/m<sup>2</sup>. Seven percent of subjects were underweight (16.4 (1.6) kg/m<sup>2</sup>) and 17% were obese (33.9 (2.3) kg/m<sup>2</sup>). Mid upper arm circumference was measured in 101 subjects, and "muscle wasting" (<24 cm) occurred in 16% of subjects (22.1 (1.3) cm). Low serum zinc levels (<10.7 µmol/L) were found among 46% of subjects (9.1 (1.2) µmol/L). Four percent of subjects had frank vitamin D deficiency (<12.5 nmol/L, 9.7 (2.8) nmol/L), 22% had marginal deficiency (12.5-25 nmol/L, 18.6 (4.0) nmol/L), and 52% had insufficient levels (25-50 nmol/L, 35.5 (7.2) nmol/L). Fourteen percent of subjects had low levels of albumin (33.7 (0.76) g/L). Those in LLC had higher serum albumin (39.8 ± 0.6 g/L vs. 38.3 ± 0.4 g/L, *P* = 0.026, mean ± SEM) compared with those in HLC.

Mean ± SEM	BMI (kg/m <sup>2</sup> )	MUAC (cm) n=101	Zinc (µmol/l)	Vitamin D (nmol/l)	Albumin (g/l)
HLC (n=72)	26.1 ± 0.6	28.3 ± 0.5	11.1 ± 0.3	36.1 ± 2.2	38.3 ± 0.4
LLC (n=29)	26.8 ± 0.8	28.2 ± 0.7	11.5 ± 0.3	39.4 ± 2.3	39.8 ± 0.6*
Deficiency: HLC:	10%	18%	41%	77% <sup>†</sup>	17%
LLC:	0%	10%	31%	83% <sup>†</sup>	7%

\* *P* = 0.026; <sup>†</sup> <50 nmol/L; MUAC: Mid Upper Arm Circumference

**Conclusions** - In this group, at least 30% of subjects were deficient in serum zinc, and more than 75% had low levels of vitamin D. This indicates that the elderly in long term residential care facilities are at high risk for nutrient deficiencies, potentially increasing morbidity and mortality.