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Validation of a nutritional screening system that does not require BMI: Results of a pilot study

J. D. Tammam, L. Wright and M. Hickson
Imperial College Healthcare NHS Trust, Department of Nutrition and Dietetics, Charing Cross Hospital, London W6 8RF, UK

Nutritional screening tools are central to identifying malnourished patients, with a view to providing nutritional support where necessary[1], thus potentially leading to a concomitant reduction in morbidity and economic burden. Nonetheless, many tools lack rigorous testing[2,3]. Moreover, as there is no conclusive definition of malnutrition, no single screening tool can claim absolute validity. Commonly used tools include the Malnutrition Universal Screening Tool (MUST) and the Mini Nutritional Assessment (MNA), both of which require BMI as part of the assessment. However, BMI is a poor predictor of nutritional risk[4] and, in acute settings, obtaining height can be difficult, with proxy measures often being inaccurate[5]. The Imperial Nutritional Screening System (INSYST) is a two-tiered screening tool that does not require BMI. The present study validates INSYST against MUST and MNA, in order to support its use in clinical practice.

The pre-screen (INSYST I; affirmation of either recent unintentional weight loss or decreased appetite) was carried out on all patients. INSYST II (detailing food intake, weight change and other risk factors; yielding 'not at risk', 'at risk' and 'malnourished' categories) was carried out only if triggered by INSYST I. Inpatients (n 61) were screened within 72 h by a pre-registration dietitian using INSYST, MUST and MNA. All patients had height and weight measurements taken. At-risk and malnourished patients were combined for statistical analysis. Inter-tool agreement (κ) was evaluated. Sensitivity (% correctly identified malnourished) and specificity (% correctly identified non-malnourished) were both calculated, comparing INSYST I and II with both MUST and MNA.

	κ	P	95% CI	Sensitivity (%)	Specificity (%)
MUST used as comparison standard					
INSYST I	0.73	<0.001	0.56, 0.92	95	80
INSYST II	0.53	<0.001	0.34, 0.72	95	65
MNA used as comparison standard					
INSYST I	0.76	<0.001	0.60, 0.92	100	83
INSYST II	0.53	<0.001	0.34, 0.72	95	65

INSYST has shown promising levels of concurrent validity, when compared with MUST and MNA. High sensitivity confirms its ability to detect potential malnutrition. Specificity was lower, due to INSYST classifying more patients at risk of malnutrition in comparison with MUST and MNA. Likewise, the disagreement that resulted in the lower λ scores for INSYST II with both MUST and MNA was due to classification of more patients as malnourished. This is because INSYST II includes additional risk factors and it needs only one risk factor to trigger classification as at risk of malnutrition. The overestimation of malnutritional risk is beneficial from a patient perspective, albeit with resource implications at service level. The substantial (INSYST I) and moderate (INSYST II) levels of agreement reported suggest BMI (and height) are unnecessary to identify malnourished patients. Thus, INSYST is a viable alternative to tools that require the use of BMI. As this was a relatively small pilot study, further research is warranted.

1. National Institute for Clinical Excellence (2006) *Nutrition Support in Adults: Oral Nutrition Support, Enteral Tube Feeding and Parenteral Nutrition. Clinical Guideline 32*. London: NICE.
2. Jones JM (2002) *J Hum Nutr Diet* **15**, 59–71.
3. Green SM & Watson R (2006) *J Adv Nurs* **54**, 477–490.
4. British Dietetic Association (2003) *Dietetics Today* **38**, 15–19.
5. Hickson M & Frost G (2003) *J Hum Nutr Diet* **16**, 13–20.