

Evaluation of an internally developed computerised nutrition screening tool (WHNST)

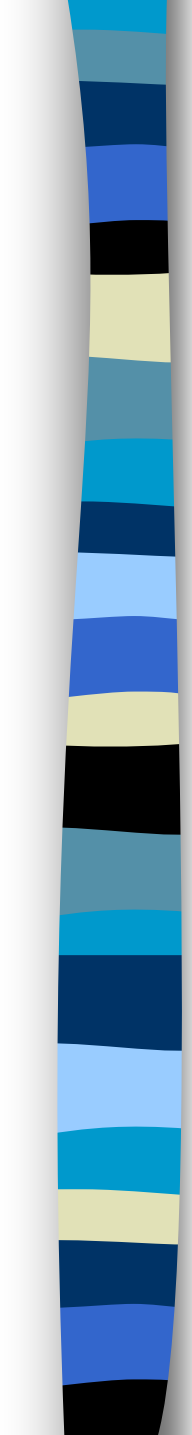


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Introduction

- Malnutrition affects 5-64% of hospital patients
- >50% of cases unrecognised and untreated
- Malnutrition often worsens during inpatient stay.....
- Effective system required to consistently identify patients at risk of malnutrition
- Many recommend nutrition screening - no gold standard



Evaluation of the validity of an internally developed computerised nutrition screening tool

- Research Aim: To validate an adult electronic nutritional screening tool (WHNST) for use across all specialities in a large District General Hospital

Objectives:

- Determine the sens and spec of the WHNST by comparison with a full dietetic assessment (Gold Standard)
- Determine the reproducibility of the WHNST by assessing inter-observer variability between nurse and dietitian
- Determine the concurrent validity by comparison with another validated tool (MUST, BAPEN, 2003)
- Determine the acceptability of the tool



Results

- 200 adult inpatients
- Characteristics of study population similar to those of entire hospital during study period
- Using our study criteria 18.5% of admissions considered to be malnourished



Content & Face Validity

- Developed by a group of multidisciplinary professionals
- Based on review of available literature
- Several stages of clinical trial, review and refinement
- Qualitative assessment of a sample of 42 nurses revealed that no further information should be added or omitted from WHNST
- WHNST is comprehensive and all sections contained are relevant to the outcome measure

Internal Consistency

- Cronbach's alpha for WHNST = 0.894
- All inter-item correlations were positive
- All sections are valid towards measuring the final outcome

Values of alpha when each of the variables indicated is excluded from the Cronbach's alpha calculation

<i>Variable excluded</i>	<i>Cronbach's alpha</i>
Intake	0.884
Weight loss	0.872
Nutrition risk	0.860
Appetite	0.841
Mental state	0.890



Sensitivity & Specificity

- Gold Standard = Full Dietetic Assessment (FDA)
- Sensitivity = 98% (95% CI 0.92-1.0)
- Specificity = 73% (95% CI 0.63-0.81)



Concurrent Validity with MUST

- WHNST V MUST
Fair to good agreement
Kappa = 0.46 (95% CI 0.36-0.55)
- WHNST V FDA (Gold Std)
Fair to good agreement
Kappa = 0.57 (95%CI 0.48-0.66)
- MUST V FDA (Gold Std)
Fair to good agreement
Kappa = 0.67 (95%CI 0.58-0.79)

Cross tabulation of malnutrition risk using WHNST and MUST

		MUST			
		Low Risk	Medium Risk	High Risk	Total
WHNST	Low Risk	70	3	0	73
	Medium Risk	30	11	6	47
	High Risk	8	19	42	69
	Total	108	33	48	189*

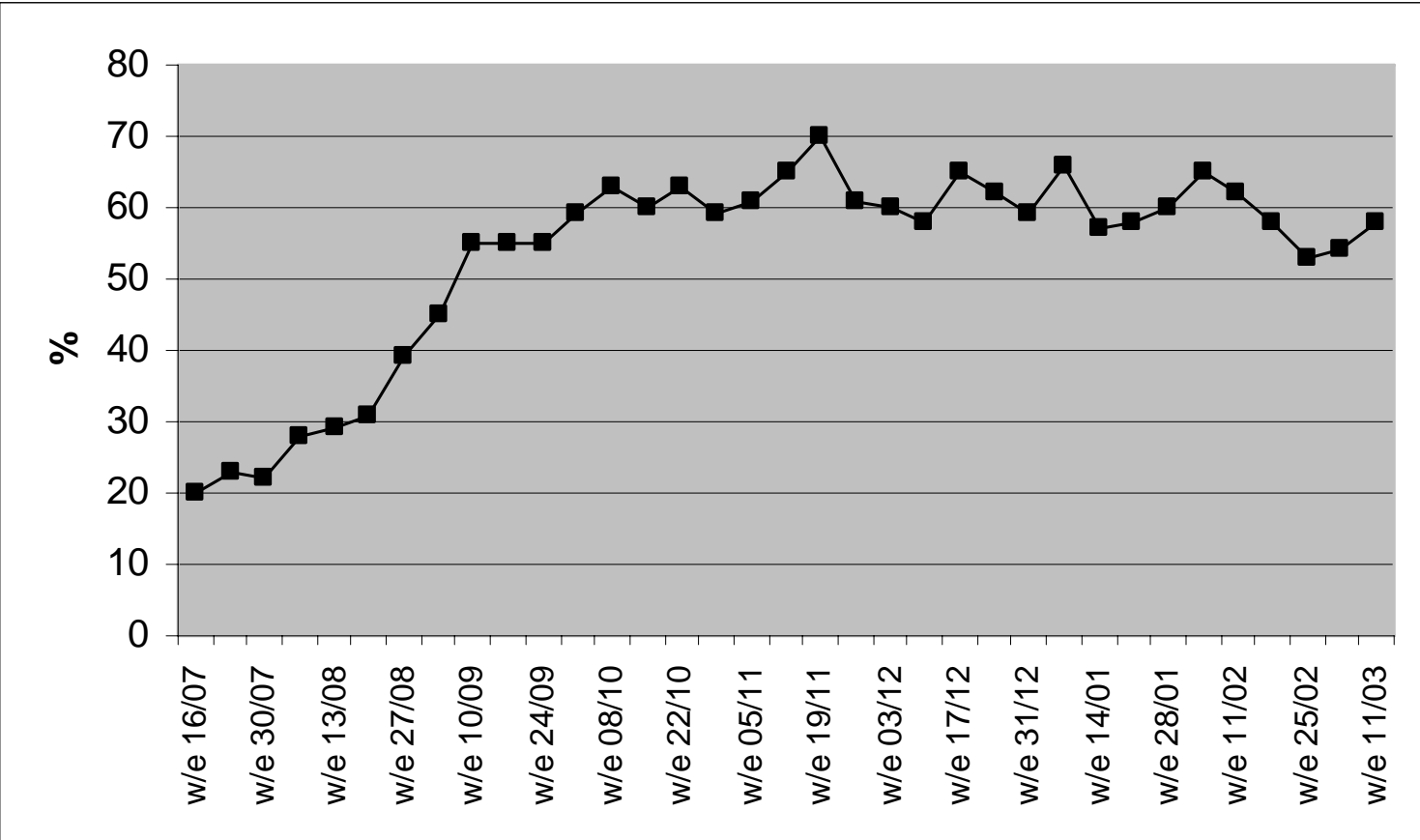
*MUST could not be completed by SRD on 5% of patients, as current weight, height, previous weight or surrogate measures could not be obtained



Inter-rater reliability

- It is not feasible for dietitians to assess every patient
- Nurses are perfectly placed to screen patients as they see all new admissions
- Cohen's kappa for nurse V dietitian using WHNST on the same patients was fair, $k = 0.2$

Compliance with use of WHNST





Acceptability

- Sample of 42 nurses from 8 wards
- 95% rated as very easy or quite easy
- 74% take <5mins to complete
- 93% thought WHNST could be used on most patients
- 86% preferred to complete WHNST electronically



Impact on Dietetic Services

- Anticipated that introduction of WHNST may increase referrals to dietetics
 - 10.3% increase in referrals between years
- 0.5% decrease in hospital admissions for same periods
- New dietitian in post from Aug 06
- Cannot attribute increase in referrals directly to WHNST
- No baseline data to compare appropriateness of dietetic referrals



Summary

- Wirral Hospital Nutrition Screening Tool
 - has got content and face validity
 - demonstrates good internal consistency
 - is sensitive and specific in the hands of a dietitian
 - has concurrent validity with MUST & FDA
 - is practical and acceptable for use
 - compliance with use is improving
 - **inter-rater reliability between nurse and dietitian is fair**



Conclusion

- WHNST is a valid tool for use in this Trust and was successfully implemented during the assessment period
- However, inter-rater reliability between nurse and dietitian needs to be improved before WHNST can be recommended as a fully integrated working tool