

NUTRITIONAL RISK SCREENING USING ELECTRONIC PATIENT RECORDS DOES NOT IMPROVE SCREENING RATES AND DOES NOT IDENTIFY ALL PATIENTS AT NUTRITIONAL RISK – A CROSS SECTIONAL OBSERVATIONAL STUDY

T.K. THOMSEN¹, J.L. PEDERSEN², B. SLOTH¹, E.M. DAMSGAARD², C.L. RUD³ and C.L. HVAS³

1. Department of Nutrition, Aarhus University Hospital, Aarhus N, Denmark
2. Department of Geriatrics, Aarhus University Hospital, Aarhus N, Denmark
3. Department of Hepatology and Gastroenterology, Aarhus University Hospital, Aarhus N, Denmark

INTRODUCTION

Malnutrition predicts poor clinical outcomes in elderly patients, and nutritional risk screening is pivotal to identify patients at nutritional (1, 2).

As part of routine clinical procedure, uniform documentation of nutritional screening in electronic patient records has been implemented in Danish hospitals (3).

AIM

- To investigate how many hospitalized patients who had nutritional risk screening performed and documented.
- To compare the proportion of patients at nutritional risk in patients where risk screening was documented and those where no screening was documented.

METHOD

- Study period: November 2020
- Inclusion criteria: age ≥ 65 years, admission to a medical ward for minimum 24 hours
- Exclusion criteria: terminal illness, admission to psychiatric wards or intensive care units
- Nutritional Risk Screening tool (NRS-2002)
- Systematic screening performed by a trained nutrition nurse and a clinical dietitian

CONCLUSIONS

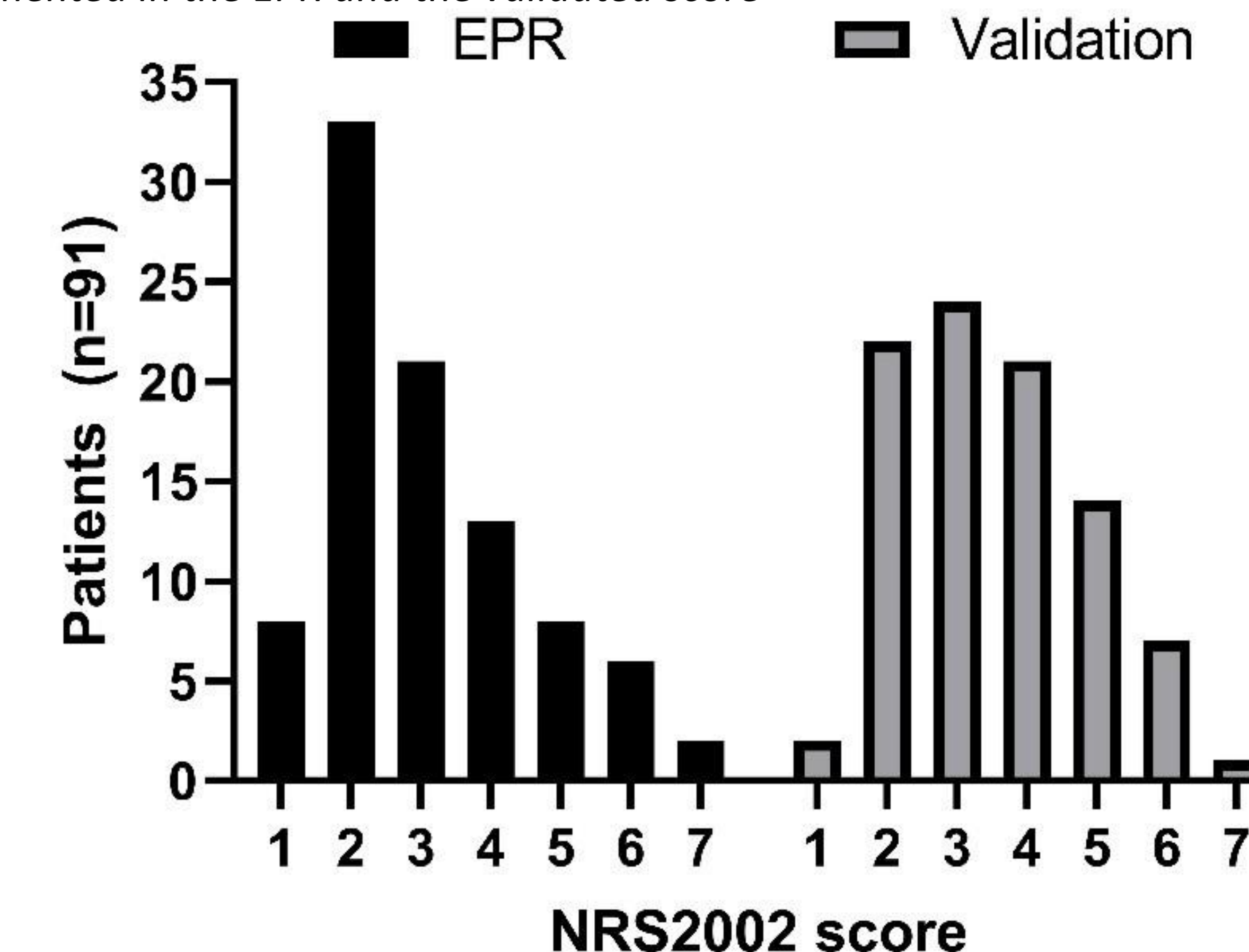
- Approximately one-third of elderly patients were adequately screened for nutritional risk. This indicates that the implementation of electronic documentation *per se* does not increase compliance.
- Patients for who no risk screening was documented had the same nutrition risk as patients in whom screening was documented, indicating that omission of risk screening is not related to the risk score.

RESULTS

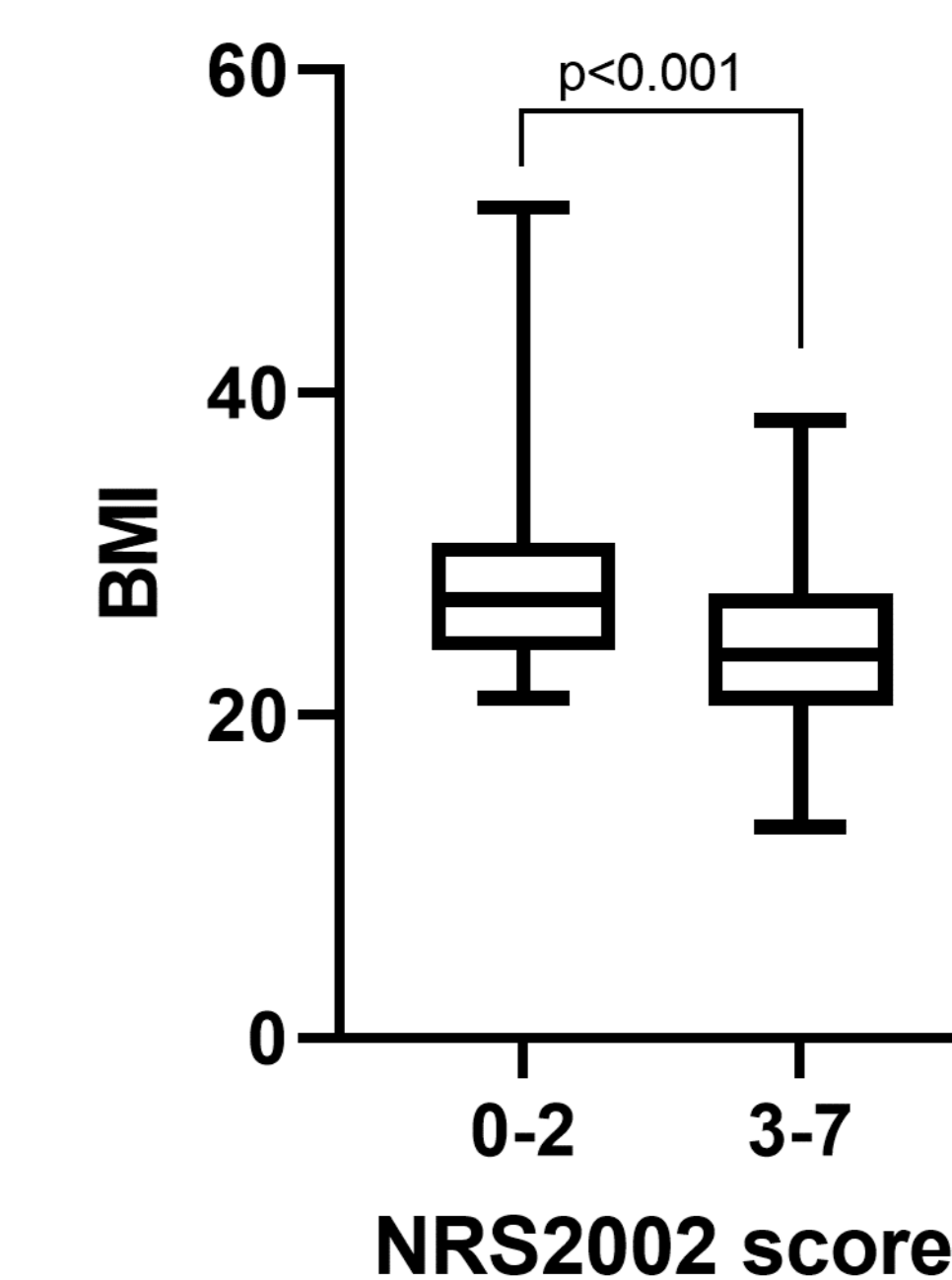
- Of 817 patients, an NRS-2002 risk score was documented in 294 (36%), among whom 177 (60%) were at nutritional risk
- Systematic risk screening was performed in 237 patients. The nutritional risk increased with increasing age, and overall statistically significant differences in risk were associated with age groups ($p < 0.001$) and departments ($p < 0.001$).
- An NRS-2002 score of 2 was the most frequent score given in routine screening, and we observed a statistically significant difference between the individual scores in routine risk estimation and the validation score ($p < 0.001$).
- In 146 patients where no score was documented, 88 (60%) were at nutritional risk. In 91 patients where both a record-based score and a validated score were documented, the specificity of the record-based score was 100%, while the sensitivity was 75%, indicating that routine screening underestimated nutritional risk ($p < 0.001$). Routine screening underestimated nutritional risk by 19% (95%CI 10;28%, $p < 0.001$).

Patient characteristics	Documented EPR (N=817)	Systematic screening (N=237)
Average age	77.1 year	77.6 year
Gender		
Male	447 (55%)	123 (52%)
Female	370 (45%)	114 (48%)
Nutritional screening		
Only primary screening	37 (5%)	0 (0%)
Secondary screening	294 (36%)	237 (100%)
No screening or no score	486 (59%)	0 (0%)
Nutritional status (NRS 2002)		
Nutritional risk (3-7 points)	177 (60%)	154 (65%)
No nutritional risk (0-2 points)	117 (40%)	83 (35%)

NRS score documented versus validation. Comparison of nutritional risk score documented in the EPR and the validated score



NRS score and patients' BMI. Boxplot illustrating that patients at nutritional risk have a lower BMI than patients who are not at risk:



Validation of electronically documented NRS score. In 91 patients, both a record-based score and a validated score were documented. The 2x2 table illustrates the distribution:

Validation	EPR		
	At risk (score 3-7)	No risk (score 0-2)	All
At risk (score 3-7)	50 (75%)	17 (25%)	67 (100%)
No risk (score 0-2)	0 (0%)	24 (100%)	24 (100%)
All	50 (55%)	41 (45%)	91 (100%)

REFERENCES

1. Charlton K, Nichols C, Bowden S, Milosavljevic M, Lambert K, Barone L, et al. Poor nutritional status of older subacute patients predicts clinical outcomes and mortality at 18 months of follow-up. *Eur J Clin Nutr.* 2012;66(11):1224-8.
2. Schuetz P, Fehr R, Baechli V, Geiser M, Deiss M, Gomes F, et al. Individualised nutritional support in medical inpatients at nutritional risk: a randomised clinical trial. *The Lancet.* 2019;393(10188):2312-21.
3. Danish Board of Health (2008). Guidelines for doctors, nurses and clinical dietitians: screening and treatment of patients at nutritional risk.: Danish Board of Health.

ACKNOWLEDGEMENTS

Central Denmark Region supported the study.

The authors declare no conflict of interest.

CONTACT INFORMATION

Tina Krogh Thomsen
 Clinical dietitian
 tiksoe@rm.dk