Nurses' views and practices regarding use of validated nutrition screening tools

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KEY WORDS

nutrition screening, nurses, nutrition assessment, malnutrition, hospitalisation, Australia

ABSTRACT

Objective
To explore nurses' views and practices regarding use of the Malnutrition Screening Tool (MST) and the Malnutrition Universal Screening Tool (MUST) in acute hospital wards.

Design
The study used a combined methods design with both qualitative and quantitative techniques including focus groups and survey of patient records.

Setting
Four medical or surgical wards in three hospitals within a single health service in Melbourne, Victoria, Australia.

Subjects
Registered nurses (n=54).

Main outcome measures
Audit results and themes from narrative data.

Results
The initial screening rate was 25% and 61% on spot audit of two wards using the MUST, with only 4% (2/47) of patients screened in two wards using the MST. Application of screening was limited by priority of other nursing duties, a nurse's skill in use of a tool, and interpretation of patients' weight status. Some nurses applied individual judgment rather than a tool to assess malnutrition risk. After nurse education and support over four months in wards using the MUST, compliance improved to 46% and 70%, Barriers were identified in use of either tool.

Conclusions
Implementation of evidence-based screening tools within patient admission procedures does not automatically translate into nursing practice. Nurses' time and nutrition screening knowledge were the main barriers to efficient screening. This suggests a need for induction programs for new staff and increased feedback to nurses regarding screening practice. A nutrition screening team might provide leadership and advocate for such screening practice and enable development of an audit cycle, including regular performance reporting, to increase compliance.

INTRODUCTION

Evidence of malnutrition amongst Australian hospitalised patients shows that up to half may be malnourished (Banks et al 2007; Lazarus and Hamlyn 2005).

Malnutrition increases the risk of complications during hospitalisation and prolongs recovery (Alberda et al 2006; Covinsky et al 1999) and therefore should be treated with intensive nutritional therapy (Kruizenga et al 2005). However as Elia et al (2005) found, 60-85% of hospital patients at risk of malnutrition are not identified in the absence of a screening program. Nutrition screening is important to help locate these patients.

An increased focus on evidence-based practice has seen the introduction of validated tools, management pathways and plans in recent years. However such tools with high validity are of little use if health professionals are unaware of their context. Little information is available about how clinicians actually implement 'best evidence' or, for example, what impact nutrition screening has on nursing practices especially in those settings where nurses are responsible for screening patients as part of routine nursing care (Bailey 2006). Nutrition screening tools should comply with several criteria to be effective (Elia et al 2005; Bond 1998; Green and McLaren 1998). A tool should be quick and easy for nurses to use, be easy to interpret, and acceptable to patients. Ferguson et al (1997) suggest that a lack of information regarding implementation of such tools limits their use and further development.

Background

Routine nutrition screening by nurses had been implemented since 2005 in some acute wards within a single Melbourne health service using either the FBBC-Malnutrition Screening Tool (MST) developed in Australia (Ferguson et al 1999), or the Malnutrition Universal Screening Tool (MUST) developed in Britain (Todorovic et al 2003). The MST was incorporated as the eighth section of eleven in a multi-disciplinary referral and discharge-planning chart which nurses completed as part of normal admission duties. This was a nursing initiative in two wards. The tool is based on two questions regarding recent weight loss and about current food intake related to appetite. Results are scored between 0 to 5. Patients who are scored ≥ 2 are considered at nutrition risk and are referred to a dietitian for further assessment.

The MUST was selected and introduced in two other wards by dietitians as a five-step flow-chart which forms part of nurses' admission documentation. It scores risk from low (score of 0) to high (a score of 2 or more). It requires a record of anthropometry, that is, body measurements to use as an index of physiological development and nutritional status (Oxford Dictionary 2005), followed by a documented management plan for all patients based on the scores obtained. Both tools are expected to prompt dietetic referrals for further assessment. The time taken for screening may be between two to ten minutes.

Both tools offer alternate ways to score the patient if weight information is not available. The MST has been validated for Australian populations with a sensitivity and specificity of 93% and good convergent and predictive validity (Ferguson et al 1999). MUST has been shown to have a sensitivity of 61%, a specificity of 76% (Kyle et al 2006), concurrent validity with other tools, and good predictive validity overseas (Stratton et al 2004; Kondrup et al 2003).

From 2005-2006, routine audits of patient records regarding nutrition screening in the wards mentioned showed low compliance. These results led to questions about the impact of the two nutrition screening tools on nursing practice and the barriers or enabling factors experienced by nursing staff. The aim of this study was to explore nurses' views and practices regarding use of the Malnutrition Screening Tool (MST) and the Malnutrition Universal Screening Tool (MUST) in acute hospital wards.

METHODS

Both quantitative and qualitative data collection and analysis formed the research design (Creswell 2003). Screening was examined in two wards using MST (Wards A and B) and two wards using MUST (Wards C and D). Dietitians undertook audits of all

inpatients' nutrition screening records in each ward on one day. They assessed tool completion rates and also identified patients that would be categorised as at-risk using the respective ward's screening tool. Patients were excluded if they had not been admitted for at least 24 hours. Following this, a convenience sample of nursing staff participated in a focus group in each ward. Each group was convened by a dietitian independent of the respective ward staff and trained to conduct focus groups. A prepared schedule included initiating questions about nurses' screening training, ward policy on screening, and the nurses' experience of the relevant nutrition screening tool. Each discussion of up to one hour was audio recorded and transcribed verbatim. The narratives were open-coded using NVIVO software (QSR International 2000) for data management and the identified themes examined for deviant cases by several of the authors (Minichiello et al 1995).

To track possible changes in screening completion rates, the audits of inpatients' records over 24 hours were repeated for each ward four months later. During the four months in wards using the MUST, as part of a clinical audit cycle, dietitians had reported on the audit results to ward managers, provided ward nurses with informal support and encouragement and additional education sessions to assist with increasing compliance. Further, clinical nurse educators had provided supervision and also education for nurses. During the four-month evaluation period, quality assurance staff commenced regular audits on all nursing screening paperwork in Ward C including the MUST. However in wards using MST, there was no focused feedback or nurse education about nutrition screening.

RESULTS AND DISCUSSION

The characteristics of wards surveyed and their patients are given in table 1.

Table 1: Characteristics of hospital wards and patient admissions over one month

	Hospital ward characteristics			Patient demographics		
	Unit	Ward capacity (beds)	Principal admission categories	No. of admissions	Length of stay (days) (SD)	Age Years (mean) (SD)
MST						
Ward A	General medical	26	Investigation /treatment of medical conditions requiring short stay; outliers	144	6.0 ±5.5	67.8 ±19.1 (range 27-96)
Ward B	General medical	32	Infections, diabetes-related disorders, stroke	106	7.7±7.1	66.2 ±18.0 (range 17-97)
MUST						
Ward C	Neurology/ Gastroenterology	51	Stroke/head injuries/ elective gastro-surgeries/ liver and gallbladder disease, treatment of gastrointestinal complaints	319	3.8 ±4.6	59.7 ±17.9 (range 18-96)
Ward D	Gastroenterology-	23	Elective gastro-surgeries/ liver and gallbladder disease, treatment of gastrointestinal complaints	89	5.0 ±6.0	57.3 ±21.3 (range 19-93)

Participants

Thirty-five nurses from wards using the MST and 19 from wards using the MUST participated in one of five focus groups. Almost all nurses were female (89%) and were registered nurses, except for four who were enrolled nurses. Each was rostered through team nursing, which aimed at one nurse to every four patients. Their professional experience ranged from

six months to over 20 years and almost all nurses (85-89%) had attended a nutrition screening training session at least once, although some had learned informally from other staff. As all the nurses reported having used the respective nutrition screening tools, this qualified them to give their views.

Extent of use of screening tools

Although ward policy required nutrition screening forms to be included in every patient's record and screening of all patients within 24 hours, there was a wide range of compliance, as shown in table 2.

In wards which used the integrated MST, almost all patients' records held a screening tool in both audits, however in the MUST wards, initially only 75-83% of patients had the screening tool included in their patient record. This limited screening practice, because the form was a prompt necessary for nurses to screen a patient. By the second audit, the 'MUST' wards also showed excellent compliance with the incorporation of the tool in the patient record (90-100%).

Table 2: Nutrition screening instrument forms (MST and MUST) filed as part of patient record and completion rates†

	Nutrition screen form included in patient record		Nutrition screen form completed	
	Audit 1 n (%)	**Audit 2 n (%)**	**Audit 1 n (%)**	**Audit 2 N (%)**
MST				
Ward A	24/24 (100%)	26/26 (100%)	1/24 (4%)	1/26 (4%)
Ward B	22/23 (96%)	29/32 (91%)	1/23 (4%)	1/32 (3%)
MUST				
Ward C	36/48 (75%)	37/41 (90%)	12/48 (25%)	*19/41 (46%)
Ward D	19/23 (83%)	23/23 (100%)	14/23 (61%)	*16/23 (70%)

†Spot audits of all inpatients' records (admitted for at least 24 hours) in each ward. Audits were undertaken at intervals of >4 months, between November 2006 and August 2007.

*Significant increase in screening rate between audits: Ward C: x^2= 39.130; p<0.001; Ward D: x^2= 67.033; p<0. 001. No significant change in Wards A or B.

Screening application was poor in the initial audits on wards using the MST, with only one (4%) in each ward fully completed. Screening remained negligible in the second audit. In wards using MUST, mean initial screening rates improved significantly by 9-21% but remained less than expected at 46% and 70%. Bailey (2006) reported good initial screening rates in a stroke ward (87%) and in a gastro-surgical ward (73%) soon after implementation of MUST. After refresher training sessions were provided, the screening rates for the stroke ward improved to (94%) but had fallen for the gastro-surgical ward (16%), possibly due to staffing pressures. One reason for the changes demonstrated in the current study could be the ongoing education and support provided to the MUST wards between the two audits.

Results of reassessment of all patients in the audits by dietitians using the wards' relevant screening tool are shown in table 3.

Table 3: Identification of patients at nutrition risk

Tool used for screening	Patients identified by nurses		Patients identified by dietitians	
	Audit 1 n (%)	**Audit 2 n (%)**	**Audit 1 n (%)**	**Audit 2 n (%)**
MST				
Wards A and B	2/47 (4%)	1/58 (2%)	26/47 (55%)	25/58 (43%)
MUST Wards				
Wards C and D	9/71 (13%)	8/64 (13%)	17/71 (24%)	17/ 64 (27%)

These results indicate that the actual proportion of at-risk or malnourished patients was far greater than that identified by the nurses' nutrition screens. For example in the second audit, 27% of patients in Wards C and D were found to be at risk when all patients were assessed by a dietitian compared with the results of nurses' nutritional screening (13%). This concurs with other research which has shown that nutrition screening practice rates were less than expected and incomplete (Bailey 2006; Cooper 1998). Our study indicates that patients at risk were being missed because of low compliance with a process of nutrition screening by nurses using either of two tools.

Screening practices

Themes identified from the narrative data provided some explanations for low screening rates. The main reasons were competing nursing duties; a lack of awareness of the evidence-based practice of nutrition screening; and nurses' perception that professional judgement was just as useful as the screening tools in identifying patients at risk. In table 4, actual quotations are given to summarise nurses' perceptions of issues as they applied to the use of both the MST and MUST.

Table 4: Nurses' views of nutrition screening practice using the MUST and MST

THEME	Malnutrition Screening Tool (MST)	Malnutrition Universal Screening Tool (MUST)
(a) Competing nursing duties: priority given to nutritional screening task	[For] new admissions [it] needs to be filled out straight away. ...Yes because you can't write notes without that. [Our] nurse unit manager completes the form. I didn't know that you fill it out for everyone.	Patient care and documentation of your patient care is the highest [priority]. ...it kind of determines what is happening with that patient. And it's just hard. We already have got the [falls] risk screen and the continence screen and the pressure area screen and it's just more...
(b) Use of professional judgement to assess nutrition status	Most of our patients are elderly, you can automatically tell straight away. You can just look at people and know if they are at risk of malnutrition. You just look at their body and what they are eating. And if they're a bit thin too, I tend to do it... Especially if they live alone.	Do you use it for every patient? No, not every patient. Oh, if there doesn't seem to have been a nutritional problem, I haven't seen the need for it.

Priority of nursing tasks

Although most nurses considered that nutrition care was important, due to time constraints and a patient's needs, they prioritised nursing admission and care tasks as shown in table 4 (a). Tasks required by the medical staff in treating patients were rated as high priority. For example, observation charts and medication charts were more important, requiring priority over all risk screening tasks (eg falls, wounds and nutrition). Thus, workplace pressures operated to make nutrition screening a lower priority.

Professional judgment

There was a lack of recognition that the concept of screening requires the inclusion of all patients. As described in table 4 (b), some applied judgment based on weight status to exclude patients who 'looked healthy'. If a patient appeared underweight they were more likely to question them about recent weight change and undertake a nutrition screen using the prescribed form. If a patient appeared obese, many nurses were reluctant to discuss or measure their weight. Nurses had not considered that obese

patients might also be at risk of malnutrition. Thus, there was little shared expectation of routine nutrition screening for all patients using either tool.

There was a large difference between the number of patients perceived to be at risk of malnutrition by nurses and those identified by dietitians when every patient was screened using the relevant tool. Other researchers have also reported nutrition screening tools as being more reliable than personal judgment in identifying hospital patients at risk (Davison 1996) and that only half malnourished hospital patients were identified by nursing and medical staff in the absence of routine screening (Elia et al 2005; Kruizenga et al 2005).

The current results indicate a need for further nursing staff education about the purpose and correct use of nutrition screening tools.

Barriers to nutrition screening

When asked about the ease of use of the screening tools, nurses suggested there were additional barriers (see table 5).

Table 5: Nurses' views of barriers to nutrition screening

THEME	Malnutrition Screening Tool (MST)	Malnutrition Universal Screening Tool (MUST)
(a) Ease of use of form	It doesn't take long at all. Just a few seconds. [commenting about the tools' questions] They are simple. They are good.	It looks a bit daunting when you first get it. ...you open it up and five steps, and that. Well, it was just generally when I went through it that you just get stuck.
(b) Communication with patient	....you have to interview the patient, you have talk to the patient. [yeah] You know ... it's just the time, you know? ...a lot of the times we can't fill any - a lot of this out ... until we speak to the relatives, or we sometimes get an interpreter.	Well, if this needs doing and all the information is not there...Yeah, so you have to chase it. You try to ask them questions, like what was your weight before you came in, and they might not even know what that is.
(c) Need for training	This is quite straight forward, so it's a sore point. ... So I don't think we need like, intensive training. We know what we are reading; you don't have to do training to do that.	...it takes a while to understand the whole concept of it. Personally, I had to do the training twice to get it. It took me a good month to get used to it, and like, I've been here 3-4 months.

Ease of use of forms

The timing of completion of the two tools differed and this seemed to relate to the extent of assessments required by either tool as shown in table 5 (a). The shorter MST was viewed as being easy to use by simply questioning a patient about their weight change and appetite. More of the nurses using the MUST initially did not find it easy to complete. The MUST was often left for subsequent nursing shifts to complete. Participants indicated that the need for measurement and estimation of body mass index seemed onerous. Notwithstanding this, the audit data showed that higher screening rates were achieved using the MUST. This suggests that factors other than perceived ease of use are involved. There was no overall agreement about whether a stand-alone tool such as the MUST, or an integrated tool such as MST, was preferable.

Communication with patients

A lack of verbal communication with patients was identified as a further factor limiting completion of both tools as demonstrated in table 5 (b). The two tools differed here. For the MUST, alternative methods of

anthropometric measurements or subjective criteria could be used to complete nutrition screening and so comprehension of English, while advisable, was not mandatory. However, for MST verbal communication about weight change was important in order to accurately score the patient. Nurses described their frustration in frequently being dependent on family members or interpreters to provide this information. Nurses regarded communication difficulty with patients, including confused patients, as a delaying factor in completion of both tools.

Need for nurse training

As reported in table 5 (c), nurses stated they found the MUST difficult to use until they gained competence through training and experience. Conversely, some nurses did not think they required training in use of the MST and yet they poorly understood the essence of an evidence-based assessment. Knowledge and skills were two of 12 key domains identified as enabling behaviour change in implementing evidence-based practice (Michie et al 2005). This highlights the importance of nurses' education about malnutrition and nutrition screening and that ongoing education programs are required to prompt universal screening. Audit results for wards using the MUST which also provided training and support of nurses by senior nurses indicated that screening rates improved over time.

Other barriers

Various other reasons for low screening rates may be drawn from the results, including differences in ward demography, workloads, individual work ethic and values, number of temporary staff, staff supervision, or patterns of staff meetings. The level of feedback provided by a dietitian for completion of a tool also varied by ward or according to staff levels. Some nurses felt that, rather than screening patients and referring by risk score screening, a verbal referral to a dietitian based on individual assessment was preferable because this alerted the dietitian to a need for intervention more quickly. In essence, nurses deemed filling in forms as less important where there were other mechanisms in place for referral to dietitians.

Accountability for screening

Both of the evidence-based tools in use produce a nutrition risk score. Although obtaining objective data and scoring nutrition risk was part of the time constraint explained by some nurses using the MUST, the MST, which was less involved, still resulted in low completion rates. This suggests that implementation of an evidence-based screening tool as a patient admission procedure does not automatically translate into efficient nursing practice, no matter how simple the tool. Individual nurses' competence in nutrition screening needs to be developed within the parameters of the local context.

Elia et al (2005) recommend health care facilities should have a transparent policy about nutrition screening to routinely recognise and treat malnutrition. A solution to low screening rates might be offered by a properly implemented and supported organisational policy to enforce screening by delegating accountability to a nutrition screening team who could act as leaders. A team comprising nursing, dietetics and quality department staff might arrange a cycle of training together with regular audit and feedback (such as is required for other organisational benchmarks) to inform nurses of compliance and to build capacity to incorporate nutrition screening into everyday nursing practice. Data collected as part of a cycle of improvement might demonstrate greater accountability for patient care. Bailey (2006) concluded that use of such a team to provide training, support, practical help and leadership assisted implementation of the MUST in wards in Britain.

STUDY LIMITATIONS

The authors were unable to evaluate whether at risk patients were referred independently of screening by nurses. Although a low rate of such referrals was observed, the audits were not designed to collect these data. Secondly, as the focus group participants were self-selected it could be argued that this would limit the generalisability of the results, particularly as the views of non-participant nursing staff were unable to be accessed. However these results do

enable discussion of the barriers to and enablers of the use of screening tools.

CONCLUSIONS

Many factors were identified as influencing rates of nurse screening for malnutrition risk. Nutrition screening knowledge and skills were the main barriers to efficient screening. It appeared that the level of support and education offered to nursing staff (rather than characteristics of the individual screening tools) were the main influences on tool completion rates. This illustrates a necessity for induction programs for new staff, continuing education and increased feedback to nurses regarding screening practices to ensure all patients with malnutrition are identified. The use of a nutrition screening team to act as leader and also advocate for screening practice and to develop a cycle of audit and feedback (including regular performance reporting) is recommended to achieve evidence-based practice. More research is needed to identify the effect of screening on patient outcomes. Nursing and dietetics departments need to develop and maintain open communication about these topics.

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