

Investigating the Nutrition Dashboard's ability to identify malnutrition in a large rural hospital

BACKGROUND

Malnutrition is a highly prevalent, burdensome, and costly health issue that is under identified and therefore under managed, especially in the acute health care setting. Furthermore, even though rural populations experience poorer health and healthcare access, research on malnutrition in rural inpatient settings is limited. The Nutrition Dashboard is a unique interactive nutrition technology platform that presents comprehensive food provision and intake data from patients admitted in at least 48 NSW Health inpatient sites. The Nutrition Dashboard utilises this data to categorise patients' nutrition risk. To the authors knowledge the Nutrition Dashboard has not been researched to date. This study aims to identify the ability of the Nutrition Dashboard to identify malnutrition compared to the validated Malnutrition Screening Tool (MST).

METHODS

A retrospective observational study (June 2020 to August 2020) was conducted at the 99-bed Armidale Rural Referral Hospital, utilising demographic and clinical data extracted from medical notes and food intake data presented via the Nutrition Dashboard. The Inter-Rater Reliability (IRR) of food intake estimation (proportion consumed) was assessed. Default nutritional adequacy thresholds of 4500kJ and 50g protein were applied for daily food intake. Generalised estimating equation regression models were used to identify the association between the Nutrition Dashboard risk categories and the MST, with and without controlling for patient demographics.

RESULTS

The pre-audit IRR assessment showed there was good agreement between raters across 912 meal items for the amount of food consumed ($\kappa = 0.69$, 95% CI .65-.72, $p < 0.001$). Analyses of data from 216 individuals for 1783 hospital admission days found that those in the highest risk Nutrition Dashboard Category were 1.93 times more likely to have a MST score indicating malnutrition risk compared to the lowest risk Nutrition Dashboard Category (unadjusted odds ratio 1.93, 95% CI, 1.17-3.19, $p < 0.01$). However, when patient weight was added to the model, the relationship between Nutrition Dashboard and MST malnutrition risk categories was no longer significant. A higher body weight reduced the likelihood of malnutrition risk as measured by the MST (adjusted OR 0.97, 95% CI 0.96-0.99, $p = 0.006$).

CONCLUSION

This preliminary investigation of the Nutrition Dashboard confirms the complexity of investigating a nutrition intake technology but suggests that it can play a role in improving malnutrition identification. The Nutrition Dashboard has potential clinical applications that extend beyond food service scope. Further adaptations could improve the use of the Nutrition Dashboard to support identification of malnutrition and therefore improve the care of patients within NSW Health Facilities.

KEYWORDS

hospital malnutrition; technology; food intake monitoring; informatics; health information technology



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