Improving the Performance of Nutrition Screening Through a Series of Quality Singapore Healthcare Management 2014



Dr Lim Su Lin, National University Hospital Ng Sow Chun, National University Hospital

BACKGROUND

- Malnutrition occurs in 20%–50% of hospital inpatients and adversely affects patients' outcomes.^{1,2}
- 2. Nutrition screening identifies patients at risk of malnutrition to facilitate early nutritional intervention.
- Early nutritional intervention is crucial in reducing readmission, length of hospital stay, mortality and healthcare cost.
- 4. Overseas studies have reported incompletion and error rates of 30-90% for a range of commonly-used screening tools.³
- 5. In 2008 and 2009, audits involving a total of 1,133 patients in NUH revealed nutrition screening error rates of 33% and 31% respectively, while turnaround time (TAT) from screening to referral to dietetics took up to 7.5 days, with 10% not referred at all.

AIMS

The objectives of the project were to achieve reductions in :

1.
nutrition screening error rates from 33% to 15% (better than world benchmark), and

2.turnaround time (TAT) for referral to dietetics from an average of 4 days to 1 day.

METHODOLGY

The Plan Do Check Act (PDCA) cycle was applied in this project. Performance gaps were identified and addressed through a combination of these 'Lean' tools:

- 1.Root cause analysis (RCA) Figure 1
- 2. Value stream mapping (VSM) Figure 2a



Following the RCA and VSM, specific strategies were identified to address the performance gaps in a hospital-wide implementation plan as shown in Table 1.

Table 1: Hospital-wide Implementation Plan

- a Refresher courses were conducted for nurses currently employed by the hospital. Nutrition screening training was incorporated into the compulsory orientation programme held for all nurses and dietitians newly employed by the hospital.
- b Nutrition Screening Protocol was made standard work, and accessible to all staff via the hospital intranet. (Standardisation)
- c Closed-loop feedback system was implemented to inform nurses of any errors committed during the nutrition screening process. Details of the errors were sent to the nursing manager of the respective ward, who would then alert the nurse in question. The acknowledgement of errors is submitted back to the dietetics department by a certain deadline. (Behavioural modification)
- d
 With approval from the medical board, the nurses were empowered to make direct online referrals to the dietitians for patients screened as at risk of malnutrition. (Safety)

 e
 Omission of a component of the nutrition screening tool that was responsible for the
- most error following a validation study which showed that this omission did not compromise the sensitivity and specificity of the nutrition screening tool. (Scrap)

RESULTS

- 1. After the direct online referral system was established for nurses, the maximum TAT time from nutrition screening to referral to dietetics for nutritional intervention was reduced by 92% from 7.5 days to 14 hours, and mean TAT improved significantly from 4.3 ±1.8 days to 0.3 ± 0.4 days (p < 0.001), with a reduction in drop-referral rate from 10% to 3%. The post-implementation VSM is presented in Figure 2b.
- Nutrition screening error rates were reduced from 33% (2008) to 15% (2011) and subsequently to 7% and 5% in 2012 and 2013 (Figure 3).
- The proportion of blank or missing forms decreased from 5% and 8% in 2008 and 2009 respectively, to 1% in 2010 - with the 1% rate sustained for the last 3 years (Figure 3).



Figure 2b: After





Implementation a, b & c



CONCLUSION & FOLLOW-UP

Quality improvement initiatives were effective in reducing the incompletion and error rates of nutrition screening and led to sustainable improvements in the referral process of patients at nutritional risk. The hospital continues to conduct annual audits to track screening errors. To sustain the results, the nutrition screening protocol, closed-loop feedback and ongoing orientation and training has been incorporated into hospital policy.

REFERENCES

- Lim SL, et al. Malnutrition and its impact on cost of hospitalization, length of stay, readmission and 3-year mortality. Clin Nutr. 2012 Jun;31(3):345-50.
- Barker LA, et al. Hospital malnutrition: prevalence, identification and impact on patients and the healthcare system. Int J Environ Res Public Health. 2011 Feb;8(2):514-27.
- Neelemaat F, et al. Comparison of five malnutrition screening tools in one hospital inpatient sample. J Clin Nurs. 2011 Aug;20(15-16):2144-52.