dietitian connection
The Essential Link for Nutrition Leaders

Malnutrition screening and next steps

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Overview

- My background
- Malnutrition
- Nutrition screening vs assessment
- Criteria for selection of a malnutrition screening tool
- Overview of malnutrition screening tools
- Development of MST
- Implementation of malnutrition screening tools
- What next?
- Evaluation of outcomes

Objectives

- List four adverse outcomes of malnutrition
- Describe the difference between nutrition screening and nutrition assessment
- Identify three characteristics of an effective nutrition screening tool that identifies patients at risk of malnutrition
- Develop a nutrition screening implementation plan, including nutrition intervention and evaluation of outcomes

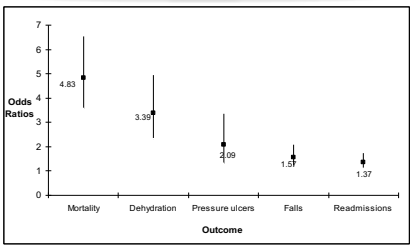
My background

- Director, Dietitian Connection, 2012 -
- Director Dietetics, Princess Alexandra Hospital, Brisbane, 2007- 2014
- Abbott Nutrition USA, 1999-2007
- Clinical, industry, marketing, management and research experience
- Malnutrition screening tool (MST) used throughout the world
- Leadership positions DAA and AND (USA)
- International speaker and author

Malnutrition – definition

- "Skeleton in the hospital closet" (Butterworth et al 1974)
- "the state induced by alterations in dietary intake resulting in changes in subcellular, cellular and/or organ function which exposes the individual to increased risks of morbidity and mortality and which *can be reversed* by adequate nutritional support" (Windsor and Hill, 1991)

Malnutrition - outcomes



(Ferguson et al 2007 unpublished data)

Malnutrition – outcomes

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Contents lists available at SciVerse ScienceDirect

Clinical Nutrition

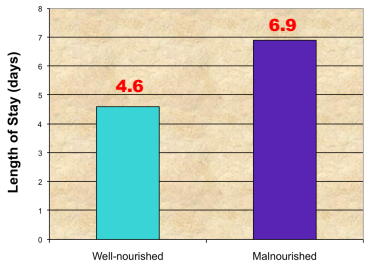
journal homepage: http://www.elsevier.com/locate/clnu

Original article

Malnutrition and its impact on cost of hospitalization, length of stay, readmission and 3-year mortality☆

Su Lin Lim [a,f,g,*], Kian Chung Benjamin Ong [b,h], Yiong Huak Chan [c,i], Wai Chiong Loke [d,j], Maree Ferguson [e,g,k], Lynne Daniels [f,g,l]

Malnutrition increases length of stay (LOS)

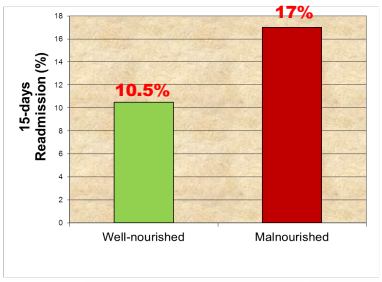


***n* = 818**
***p* < 0.001**

Adjusted for age, gender, race and matched for DRG

(Lim et al 2012)

Malnutrition increases readmission rates

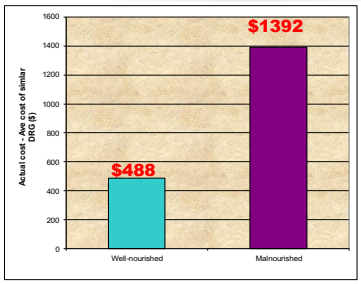


***n* = 818**
***p* = 0.025**

Adjusted for age, gender, race and matched for DRG

(Lim et al 2012)

Malnutrition increases costs

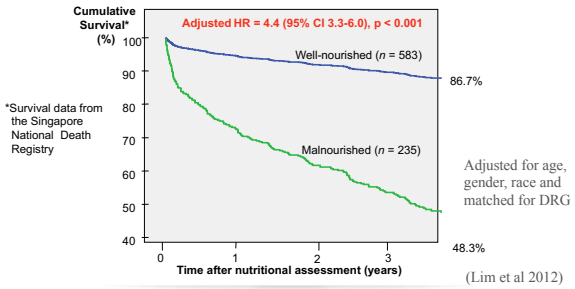


***n* = 818**
***p* = 0.014**

Adjusted for age, gender, race and matched for DRG

(Lim et al 2012)

Cumulative survival in well-nourished and malnourished patients (*n* = 818)



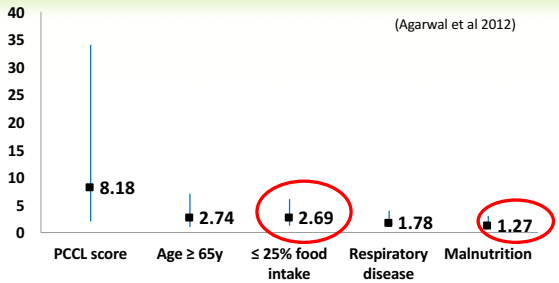
Adjusted for age, gender, race and matched for DRG

(Lim et al 2012)

LOGISTIC REGRESSION ANALYSES: 30DAY IN-HOSPITAL MORTALITY

Australasian Nutrition Care Day Survey

(Agarwal et al 2012)



Nutrition screening vs assessment

- Tier system
  - Nutrition screening
    - Process of identifying patients at risk for malnutrition
  - Nutrition assessment
    - Process of confirming that a patient has malnutrition

Traditional nutrition screening parameters

- Weight loss over time
- % desirable body weight
- Diagnosis
- Diet
- Oral intake
- Food allergies/ intolerances
- Laboratory data (eg, hemoglobin, albumin)
- Nausea, vomiting, diarrhea, constipation
- NPO/clear fluids
- Difficulty chewing or swallowing

An effective nutrition screening tool should be:

- Quick and simple
- Inexpensive/cost-effective
- Implementation possible in any setting
- Easily administered with minimal nutritional expertise (can be completed by family or patient)
- Designed with routine parameters that are immediately available at admission
- Valid and reliable

(Handbook of Clinical Dietetics, ADA, 1992; Elmore et al, 1994)

Malnutrition screening tools

	Recent Unintentional Weight Loss	Appetite	BMI	Disease Severity
MNA-SF	X	X		X
MUST	X		X	X
Simple Two-Part Tool	X			
MST	X	X		
NRS-2002	X		X	X
SNAQ	X	X		
NRS	X	X	X	X
3-MinNS	X			

APPLIED NUTRITIONAL INVESTIGATION Nutrition Vol. 15, No. 6, 1999

Development of a Valid and Reliable Malnutrition Screening Tool for Adult Acute Hospital Patients

MAREE FERGUSON, PHD,*† SANDRA CAPRA, PHD,* JUDY BAUER, M HLTH SC,† AND MERRILYN BANKS, M HLTH SC‡

1. Have you lost weight recently without trying?

No	0
Unsure	2

If yes, how much weight have you lost?

2–13 lb	1
14–23 lb	2
24–33 lb	3
>33 lb	4
Unsure	2

Weight Loss Score ☐

2. Have you been eating poorly because of a decreased appetite?

No	0
Yes	1

Appetite Score ☐

MST Score (Weight Loss and Appetite Score) ☐

Malnutrition Screening Tool (MST)

- **Total score 0-5**
- **MST score ≥2 at risk of malnutrition**

(Ferguson, 1999)

Benefits of MST

- Published, valid and reliable tool
- Proven to be simple, quick, and easy
- Devotes more time to those patients who need it most
- Decreases inappropriate consults
- Accurately predicts malnutrition (SGA)
- Correlates with objective nutrition parameters and LOS
- Used around the world
- Can be used in acute care, home care, long-term care, outpatient, community setting

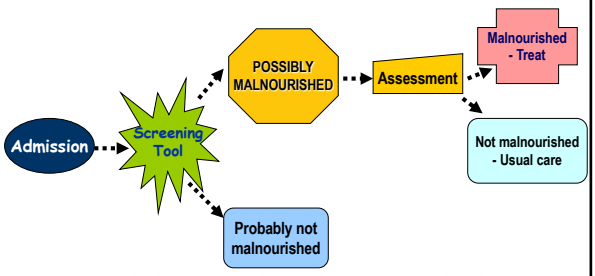
MST Implementation

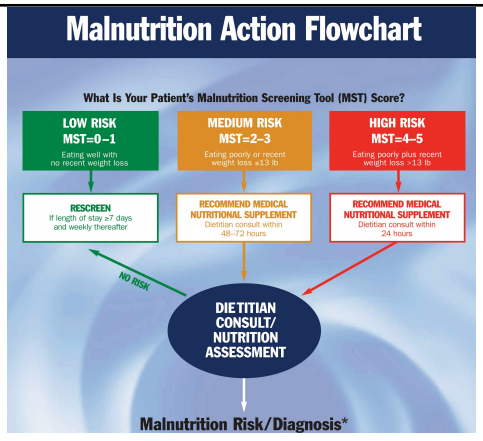
- When to screen?
- Who will screen?
- What will be done with the information?

MST FAQ

- Will screening increase my workload as a dietitian?
- What do I do if I can't speak with the patient?
- What time frame should I use for the questions?
- Can I use the tool in other settings?
- Do I need to get permission to use the tool?

Nutrition screening pathway





AND/ASPEN etiology-based malnutrition definitions

- Starvation-related malnutrition
- Chronic disease-related malnutrition
- Acute disease or injury-related malnutrition

(White et al. J Acad Nutr Diet 2012, 112, 730-8 ; Jensen et al. JPEN 2009, 33, 710-6)

AND/ASPEN characteristics to support diagnosis of malnutrition

At least 2 of the following:
- Energy intake < estimated energy requirements
- Unintentional weight loss
- Changes in body composition
  - Loss of subcutaneous fat
  - Muscle wasting
  - Fluid accumulation (edema/ascites)
- Reduced handgrip strength

- Non-severe (moderate)
- Severe

(White et al. 2012)

Subjective global assessment (SGA)

Medical history
- Weight change
  - 6 months; 2 weeks
- Dietary intake change
  - 1 month; 2 weeks
- Gastrointestinal symptoms persisting > 2 weeks
  - Nausea, vomiting, diarrhea, anorexia
- Functional capacity (nutrition-related)
  - Overall impairment; past 2 weeks

(Detsky et al 1987)

Subjective global assessment (SGA)

Physical examination
- Loss of subcutaneous fat
  - Under eye (hollow eye)
  - Triceps (back of upper arm)
  - Ribs apparent
- Muscle wasting
  - Hollowing of temples
  - Prominence of clavicle and scapula
  - Squaring of shoulders
  - Quadriceps (upper leg) and calf
- Edema (e.g. ankle)
- Ascites (fluid in abdominal cavity)

(Detsky et al 1987)

What to do next?

- Referral to dietitian
- Food chart
- Provision of high protein and energy diet +/- supplements
- Feeding assistance
- Midmeal trolley
- Medpass program
- Protected mealtimes

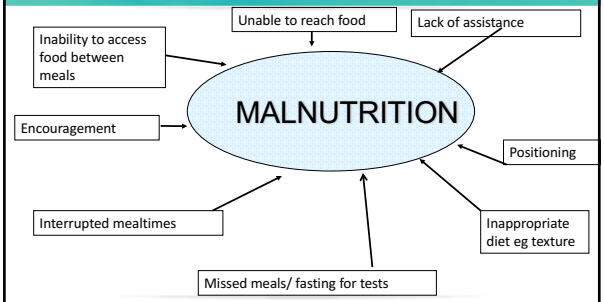
Selective midmeal trolley

- Snacks eg cake, tim tams, nuts, biscuit and cheese, chips, custard, yoghurt
- Drinks eg flavoured milk, soft drink
- Patients could choose up to 4 items
- Providing up to 480 kcal 24 g protein
- Offered at morning and afternoon tea by nutrition assistant staff

Medpass program

- Treats nutrition like medication
- 60mL of two calorie supplement QID with medication round (475 kcal, 20g protein/day)
- Administered by nursing staff
- Documented in medication chart

Hospital based system contributors to malnutrition



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Barriers to adequate food intake – Royal Brisbane Womens Hospital (A. Young)

- 30% of patients experienced non urgent interruptions (Doctors, Nurses, Allied Health)
- 30% of patients were not positioned adequately to promote eating
- 23% of patients meals were not in reach
- 56% of patients had cluttered tables (20% with urinal bottles)
- 68% of patients did not have their intake monitored by staff

Inadequate mealtime assistance

Frequent interruptions during mealtimes

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Protected Mealtimes

- Protected mealtimes are periods on a hospital ward when all non-urgent clinical activity stops. During these times patients are able to eat without being interrupted and staff can offer assistance (NHS)

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Protected Mealtimes

Not a new concept……

'Nothing shall be done in the ward while the patients are having their meals'

(Florence Nightingale 1859)

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What does protected mealtimes mean?

Activity is focused on the meal and the patient

- Making sure the patient is ready to eat
- Making sure the environment encourages eating
- Providing assistance
- Observation/monitoring
- Making sure that patients are eating

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What does protected mealtimes mean?

- Decreasing avoidable interruptions that interfere with the meal and reduce the amount of food eaten
  - Limit ward based activities
    - ward rounds
    - medication rounds
    - allied health visits
    - phlebetomy
    - cleaning
  - Encourage staff breaks to be outside meal times
  - Emergency treatments will obviously continue to occur

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Evaluation - screening process

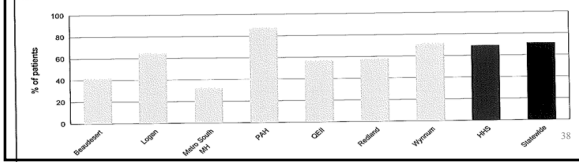
- Audit
  - Compliance with completion
  - Referral to dietitian
  - Dietitian assessment (malnourished Y/N)
  - Intervention
  - Statewide bedside audit

Metro South HHS - Indicator 3: Percentage of patients screened for nutrition risk on admission

Facility	2012 Eligible patients (with exclusions)	2012 Risk screened	2012 % Risk screened	2011 % Risk screened	2011 to 2012
Beaudesert	12	5	42%	56%	-14% ↓
Logan	122	79	65%	59%	6% ↑
Metro South MH	80	26	33%		
PAH	334	292	87%	61%	26% ↑
QEII	106	60	57%	39%	18% ↑
Redland	78	45	58%	21%	37% ↑
Wynnum	14	10	71%	7%	64% ↑
Metro South	746	517	69%	54%	15% ↑
Statewide	*4163*	*2963*	*71%*	*61%*	*10%* ↑

Note:
- PAH collected QBA 2012 data using two different populations. All patients were audited for Pressure Injury Prevalence on one day. For all other indicators, sampling of patients over a two month period was undertaken.
- Metro South Mental Health is a new 'facility' in QBA 2012 which includes mental health patients previously audited in other Metro South facilities.
- Total patients for indicators will vary depending on the number of patients eligible for inclusion.
- The number of wards within a facility that completed each section of the audit may differ.
- 2011 HHS and Statewide totals have been recalculated to exclude RACFs. RACF totals have been reported separately.
- Refer to Limitations/Caveats in Methodology for complete list of data limitations.

Metro South HHS - Indicator 3: Percentage of patients screened for nutrition risk on admission



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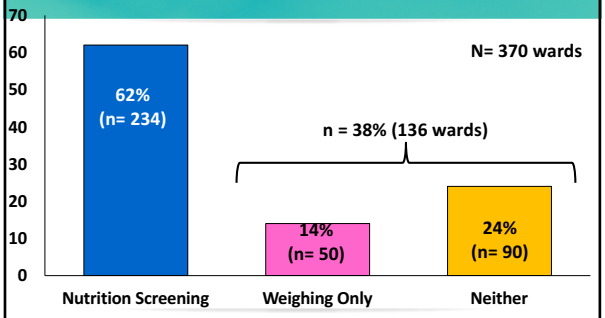
Original article

Nutrition care practices in hospital wards: Results from the Nutrition Care Day Survey 2010

Results: Nutrition Screening



Evaluation - outcomes

- Food intake
- Nutritional status
- Patient satisfaction
- Quality of life

- Pressure ulcers, falls, infections
- Length of stay
- Readmission rate
- Mortality
- Cost

Outcomes of an Effective Nutrition Screening and Intervention Program

- Significant improvement in identification of high-risk patients (from 26% to 86%) and timeliness of initial nutrition intervention (from 6.9 days to 2.4 days)
- ↓ Average length of stay (from 10.8 days to 8.1 days)
- ↓ Incidence of major complications (from 75% to 18%)
- ↓ 30-day readmission rates (from 17% to 7%)

(Brugler et al, 1999)

Oral Nutritional Supplements (ONS) reduce hospital costs

- 2000-2010 Premier database
- > 1 million hospital inpatients
- 44 million episodes and >700,000 ONS episodes (1.6%)
- Each ONS episode matched for demographics and illness acuity

- 21% decrease LOS (2.3 days)
- 21.6% decrease episode cost (~$4,700)
- 6.7% decrease probability of 30 day hospital readmission (2.3%)

(Philipson et al. 2013)

Summary

- Malnutrition results in poor health outcomes and increased healthcare costs
- MST is a quick, simple nutrition screening tool that could be used to identify patients at risk for malnutrition
- Effective nutrition screening, assessment, and intervention can improve health outcomes for hospital patients

Questions

Thank you!

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