Malnutrition

The skeleton in the hospital closet
What is malnutrition?

- Malnutrition is a state in which a deficiency of nutrients such as energy, protein, vitamins and minerals causes measurable adverse effects on body composition, function or clinical outcome\(^1\).
- Malnutrition is both a cause and a consequence of ill health\(^1\).
- Not limited to “third world countries” – it is common in Australian hospitals and in some community groups\(^1\).

Malnutrition in public hospitals

• In Queensland (2002-2003), the prevalence of malnutrition in public hospitals was 30-40%\(^1\)
  – Approximately 20% of these patients were severely malnourished\(^1\).
• Other Australian studies have found similar rates of malnutrition in acute hospitals at between 30 – 50%\(^2\)
• Studies show that the prevalence of malnutrition increases as the length of stay increases\(^{\text{cited in 1}}\).
• Approximately 50% of nursing home residents are malnourished\(^3\).

Effects of malnutrition

- Increases infection rate
- Increases risk of complications – pressure injuries (at least doubled), sepsis, declining mental health
- Decreases response and/or tolerance to treatment
- Decreases quality of life
- Decreases life expectancy
- Negatively effects treatment outcomes

ALL EQUAL INCREASED HEALTH CARE COSTS

Increased use of medication, increased length of stay due to complications, readmissions, etc. 

Malnutrition results from...

**Decreased intake**
- Poor appetite
- Needing assistance with meals
- Lack of access to food
- Dysphagia
- Alcohol dependence
- Depression

**Increased requirements**
- Infection
- Post-surgical
- Wound healing
- Pressure injury
- Cancer
- Trauma

**Malabsorption/nutrient losses**
- GI diseases
- Bowel resection
- Wounds/drains
### Associated factors that may lead to malnutrition

#### Physiological
- Disease
- Dysphagia
- Delirium and dementia
- Medication – smell, taste, diarrhoea
- Surgery (e.g. NBM)
- Losses – vomiting; skin losses e.g. burns; fistula losses; peritoneal losses e.g. ascites tap

#### Social
- Financial constraints
- Lack of support
- Lack of food access
- Alcohol
- Drugs

#### Psychological
- Depression
- Long hospital admissions
Signs/symptoms of malnutrition

- Loss of appetite
- Decreased food intake
- Unintentional weight loss
- Loss of lean body mass
- Loss of fat stores

*Malnutrition can also occur in overweight or obese people – not just those with an obviously wasted appearance.*
Pressure injuries

- Patients with malnutrition are twice as likely to develop a pressure injury compared to well-nourished patients\(^1\).
- Patients with infections often have poor appetites, resulting in lower nutritional intake.
- Patients with pressure injuries and wounds have higher protein and energy needs in order to promote wound healing\(^2\).
- Refer to the dietitian as early as possible for nutritional intervention.

\(^1\) Banks M, Bauer J, Graves N, Ash S. Malnutrition and pressure ulcer risk in adults in Australian health care facilities. 2010. Nutrition. 26:896-901
How to screen for malnutrition?

- All staff can screen (e.g. medical staff, nursing staff, dietetic assistants, therapy assistants, and foodservice staff) using a nutritional screening tool called the **Malnutrition Screening Tool (MST)**.
- MST is usually found on the Waterlow tool.
- Dietitians use this tool to assist with prioritising patients.

### Malnutrition Screening Tool
(Ferguson, Capra, Bauer, Banks 1999)

<table>
<thead>
<tr>
<th>Question</th>
<th>No</th>
<th>Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you lost weight recently without trying?</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>If yes, how much weight have you lost? (kilograms)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.0 - 5.0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6.0 - 10.0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>11.0 - 15.0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>&gt;15.0</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Unsure</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you been eating poorly because of a decreased appetite?</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total Score**

If score 2 or more – at risk of malnutrition
How is malnutrition assessed?

- Dietitians use nutrition assessment tools, e.g.
  - Subjective Global Assessment (SGA)
  - Patient-Generated Subjective Global Assessment (PG-SGA)
  - Mini Nutritional Assessment (MNA)
How is malnutrition assessed?

- These nutrition assessment tools explore:
  - Weight changes/loss
  - Dietary intake changes
  - Nutrition impact symptoms
  - Physical assessment

- To make a complete nutritional diagnosis, the assessment is completed using a tool \textit{PLUS} other information collected e.g. dietary habits, biochemistry, clinical condition/disease
What can we all do?¹

- Screen patients using a validated screening tool
  - On admission
  - Weekly throughout hospital stay
- Refer patients to a dietitian who:
  - Have an MST score of >2
  - Have a high Waterlow score
  - Have pressure injuries or wounds
  - Have experienced unintentional weight loss
  - Are eating poorly at meal times
- Encourage and provide assistance to patients at meal times
- Encourage patients with prescribed supplements and extras
- Advise the dietitian if patients are not eating well at meals or drinking supplements
- Weigh patients on admission, and at least weekly.

Improving nutrition via meals

• Encourage patients to...
  ➢ Drink nutritious drinks (e.g. nutritional supplements, milk, juice) before non-nutritious drinks (e.g. tea, coffee or water)
  ➢ Eat meat and dairy desserts before vegetables
  ➢ Eat small meals frequently
Improving nutrition via meals

• Identify and address possible reasons for poor intake
  ➢ Nausea
  ➢ Poor appetite
  ➢ Problems chewing or swallowing
  ➢ Dislike of menu choices
  ➢ Pain
  ➢ Anxiety, depression
Improving nutrition via meals

• Make eating easier by setting the patient up for meals
  ➢ Consider proximity of table to patient.
  ➢ Is your patient sitting in their chair?
  ➢ Do they need assistance opening packaging?

• Discuss with the patient the importance of good nutrition.

• Use “HPHE in Hospital” guide on NEMO to assist patients with improving food intake.
Improving nutrition via meals

Safe feeding tips for staff and families:
- Wash hands.
- Seat patient upright.
- Reduce distractions – close the curtain if needed.
- Cut into small pieces.
- Offer protein/dessert first.
- Alternate mouthfuls of food and drink.
- Encourage independence - help the patient hold cup/cutlery.
- Model and cue the patient e.g. “open mouth” “chew” or “swallow”
- Check patient has swallowed before offering more.
- Keep it positive!

If concerned with intake: Please call Dietitian.
If concerned with swallowing: Please call Speech Pathologist.

EAT MEAT/PROTEIN + DESSERT 1ST

EAT VEGETABLES LAST

EAT SOUP + RICE/ PASTA/ POTATO 2ND

DRINK TEA AND WATER LAST

DRINK JUICE, CORDIAL, MILK 2ND

IF AVAILABLE, SIP ON SUPPLEMENTS BETWEEN MOUTHFULS (ESPECIALLY IF UNABLE TO EAT ALL YOUR PROTEIN)
## Sample HPHE meal plan

### Standard Meal

<table>
<thead>
<tr>
<th>Provides 8400kJ and 55g protein</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Breakfast</strong></td>
</tr>
<tr>
<td>Rice bubbles (+ 2 sugar) + low fat milk</td>
</tr>
<tr>
<td>White bread with margarine + vegemite</td>
</tr>
<tr>
<td>Apple juice + tea with 2 sugars</td>
</tr>
<tr>
<td><strong>Morning Tea</strong></td>
</tr>
<tr>
<td>Instant coffee (+ 2 sugar) + 2 sweet biscuits</td>
</tr>
<tr>
<td><strong>Lunch</strong></td>
</tr>
<tr>
<td>Carrot soup</td>
</tr>
<tr>
<td>Garden salad (no meat)</td>
</tr>
<tr>
<td>Slice of white bread + margarine</td>
</tr>
<tr>
<td>Apple Juice</td>
</tr>
<tr>
<td>Banana</td>
</tr>
<tr>
<td><strong>Afternoon Tea</strong></td>
</tr>
<tr>
<td>Instant coffee (+ 2 sugar) + 2 sweet biscuits</td>
</tr>
<tr>
<td><strong>Dinner</strong></td>
</tr>
<tr>
<td>Spaghetti bolognaise</td>
</tr>
<tr>
<td>Pumpkin + beans</td>
</tr>
<tr>
<td>Fruit salad</td>
</tr>
<tr>
<td>Orange Juice</td>
</tr>
<tr>
<td><strong>Supper</strong></td>
</tr>
<tr>
<td>Tea (+ 2 sugar) + 2 sweet biscuits</td>
</tr>
</tbody>
</table>

### High Protein; High Energy Meal

<table>
<thead>
<tr>
<th>Provides 14000kJ and 105g protein</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Breakfast</strong></td>
</tr>
<tr>
<td>Porridge (+2 sugar) + full cream milk + cream</td>
</tr>
<tr>
<td>White bread with margarine + jam</td>
</tr>
<tr>
<td>Apple Juice + Tea (+ 2 sugar)</td>
</tr>
<tr>
<td><strong>Morning Tea</strong></td>
</tr>
<tr>
<td>Iced coffee + cheese and crackers</td>
</tr>
<tr>
<td><strong>Lunch</strong></td>
</tr>
<tr>
<td>High protein soup</td>
</tr>
<tr>
<td>Quiche or meat + salad</td>
</tr>
<tr>
<td>Slice of white bread + margarine</td>
</tr>
<tr>
<td>Banana + custard</td>
</tr>
<tr>
<td>Flavoured milk</td>
</tr>
<tr>
<td><strong>Afternoon Tea</strong></td>
</tr>
<tr>
<td>Flavoured milk + yoghurt + fruit</td>
</tr>
<tr>
<td><strong>Dinner</strong></td>
</tr>
<tr>
<td>Spaghetti bolognaise</td>
</tr>
<tr>
<td>Pumpkin + beans</td>
</tr>
<tr>
<td>Dairy dessert / pudding</td>
</tr>
<tr>
<td>Orange Juice</td>
</tr>
<tr>
<td><strong>Supper</strong></td>
</tr>
<tr>
<td>Milk milo + fruit cake</td>
</tr>
</tbody>
</table>
High protein, high energy food/ extras*

- Flavoured milk (250mL) (950kJ, 9g protein)
- Cheese (20g) and 3 crackers (500kJ, 6g protein)
- Yoghurt (200g) (800kJ, 8g protein)
- Custard (150g) (560kJ, 5g protein)
- Enriched milk (full cream milk + milk powder)
- Commercial nutritional supplements,
  - e.g., Sustagen, Resource Plus, Ensure, Novasource

*Refer to High Protein High Energy resources on NEMO for more information.
Take home messages

• Weigh patients on admission, and at least weekly
• Screen and re-screen your patients (e.g. using MST)
• Ensure your patient is set up to eat
• Encourage and provide assistance to patients at meal times when required
• Encourage patients with prescribed supplements and extras
• Advise the dietitian if patients are not eating well at meals or drinking supplements
Any questions?