Malnutrition in context

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Objectives

- Define malnutrition
- Outline prevalence, causes and consequences
- Point out policies and guidelines relating to malnutrition
- Outline approach to implementation of nutritional guidelines in clinical practice
- Acknowledge barriers to implementation of guidelines
Defining malnutrition

- The term ‘malnutrition’ encompasses disorders of macronutrient balance, such as undernutrition and overnutrition; and disorders of micronutrient balance
- Protein-energy malnutrition (undernutrition)
  - Food deprivation (starvation)
  - Disease-related (acute or chronic)
- Obesity (overnutrition)
- Co-existence of apparent opposites in sarcopenic obesity
Defining risk of malnutrition

• ‘Risk of malnutrition’ is detectable when nutritional status is deteriorating but before frank malnutrition becomes evident.

• Some indicators of increased malnutrition risk include
  – Decreased food intake, anorexia, dysphagia, dementia
  – Significant loss of body weight loss, BMI, muscle mass
  – Anaemia, low serum albumin, etc

• Screening tools have been designed and validated to detect risk of malnutrition (e.g. MUST, MNA, etc)
How many are affected?

Malnutrition / at risk in Europe is:

- 5% of the entire population
- 10% in those over 65 years
- 15% in ages 75-80 living at home
- 35-40% of all hospital admissions
- up to 60% in care homes

According to Sieber
Prevalence of malnutrition in Ireland

It has been estimated that

- **140,000 adults** are at medium to high risk of DRM
- **Over 50%** of these ($n=70,000$) are aged 65 years or more, despite this age group representing only 11% of the population

Rice N (2010), *unpublished data*
Table 1. Malnutrition Prevalence in a Variety of Conditions

<table>
<thead>
<tr>
<th>Disease or Condition</th>
<th>Rate of Malnutrition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pancreatic cancer$^6$</td>
<td>85%</td>
</tr>
<tr>
<td>Lung cancer$^7,8$</td>
<td>13%-50%$^a$</td>
</tr>
<tr>
<td>Head and neck cancer$^8,9$</td>
<td>24%-88%$^a$</td>
</tr>
<tr>
<td>Gastrointestinal cancer$^8,10,11$</td>
<td>55%-80%$^a$</td>
</tr>
<tr>
<td>Cerebrovascular accident (stroke)$^{12,13}$</td>
<td>16%-49%$^a$</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease$^{14}$</td>
<td>25%</td>
</tr>
</tbody>
</table>

$^a$Varies depending on specific population studied and advancement of disease.

*National Alliance for Infusion Therapy and the American Society for Parenteral and Enteral Nutrition*  
Nutrition in Clinical Practice (October 2010) **25**, 548-554
Malnutrition in hospital patients
The German hospital malnutrition study

According to Sieber

Risk of malnutrition in hospital patients

NSW 2010

Elia M (2010), *personal communication*
HOSPITAL: ‘MUST 2’ by age*

*Over 60% of malnutrition on admission to hospitals involves older people (≥65 y)

N= 9208

Age categories (y)

% at risk

20-29 30-39 40-49 50-59 60-69 70-79 80-89 90+

NSW (2008) data, courtesy of Elia
HOSPITAL: ‘MUST 2’ by type of ward

(N = 8973) P<0.001

Oncology
Care of Elderly/Stroke
Medical
Surgical
Orthopaedic/Trauma

% at risk

NSW (2008) data, courtesy of Elia
‘MUST 2’ malnutrition risk by diagnostic category

N=9110  P<0.001

% at risk

GI disease  CNS  Respiratory  GU/renal  CVS  Musculoskeletal

NSW (2008) data, courtesy of Elia
Distribution of undernutrition in the UK

- hospital
- outside hospital
Malnutrition in the community (UK)

Stratton & Elia, 2010
Risk of malnutrition in nursing homes

NSW 2010 malnutrition risk care home patients

Elia M (2010), personal communication
Causes of DRM

• Reduced ability to eat
  – Feeding or swallowing problems
  – significant dietary restrictions imposed during the treatment
• Reduced ability to digest or absorb nutrients
• Increased energy needs
  – Infection
  – Inflammation
  – Cancer
• Increased nutrient losses
Some consequences of disease-related malnutrition

• Increased mortality

• Increased morbidity
  – Increased infection, reduced immune function
  – Reduced muscle strength, less mobility
  – Delayed healing of wounds, more pressure sores

• Increased healthcare needs (and costs)
  – Longer hospital stay
  – More GP visits
  – More frequent re-admissions to hospital
Cost of disease-related malnutrition in Ireland

- The cost of malnutrition (together with associated disease) for 2007 was estimated at €1.5billion.

- The majority of cost is incurred by DRM patients in **acute care settings**. This is because:
  - Average cost of a bed day in Irish hospitals (case-mix data taken from 39 hospitals) was €844 in 2007 (€889 in 2009)
  - A patient with DRM has an average length of stay 30-70% longer than a non-malnourished patient with a similar primary diagnosis (30% used for above cost estimate)

Rice N & Normand C (2010), *unpublished data*
The Malnutrition Carousel

15-60% of patients admitted to hospital are malnourished

HOME
More GP visits
More hospital admissions

HOSPITAL
More deaths
Longer stay
More support post-discharge
More deaths post-discharge

Up to 70% of patients discharged from hospitals weigh less than on admission

IFH report, 2009
The context

• Malnutrition
  – is a common clinical and public health problem
  – has adverse effects on physical and psychological function

• Undernutrition
  – is under-recognised and under-treated
  – is more common in the elderly and in patients with chronic disease or cancer

• Disease-related undernutrition
  – increases disease burden and delays recovery from illness
  – has significant adverse medical, economic and social impact
Calls for action (politics)
The Prague Declaration, 2009: STOP Disease Related Malnutrition

On 11\textsuperscript{th} June 2009, the European Nutrition for Health Alliance (ENHA) joined with the Czech Presidency of the EU, EU health ministries, the European Society for Clinical Nutrition and Metabolism (ESPEN), health care professionals and health insurance groups to call for an end to malnutrition.
EU Nutrition Day Conference 2010

• Leading policy-makers and nutrition experts call for EU-wide mandatory nutritional risk screening
  – 20 million EU citizens suffer from malnutrition
  – The health-related costs of malnutrition in the EU are estimated to be as high as **€120 billion per year**

*Conference held in EU Parliament, Tuesday 9 November 2010*
Guidelines
Guidelines express strong support for use of ‘MUST’ screening in Irish Hospitals

(DoHC, 2008)
The NICE clinical guideline on nutrition support in adults (2006) covers the care of patients with malnutrition or at risk of malnutrition, whether they are in hospital or at home.

www.nice.org.uk/nicemedia/live/10978/29981/29981.pdf
Implementation of guidelines
Malnutrition evident in this case
Outline of process

• Screen for nutrition risk (inpatient, outpatient)
• Observe, treat or refer
  – Assess nutritional status and set goals
  – Estimate nutritional requirements
  – Formulate / prescribe nutrition management plan
• Review
• Consider nutrition on discharge
Screening – the reality

• Not routinely done
  – In hospitals
  – In nursing homes
  – In primary care
• Several tools, used inconsistently
  – MUST, MNA, SGA, NRS, local adaptations
• 4512 (1753 doctors, 2759 nurses) returned questionnaires, of which 1155 were from internal medicine (IM) and 193 from gastroenterology (MG).

• Concerning **basic nutritional education**, 46% in MG and 48% in IM considered it insufficient (not significant). When comparing all doctors with all nurses, 60% and 39% respectively considered their basic nutritional education insufficient ($p < 0.001$).

• Concerning **prescription of parenteral nutrition**, 65% of the internists and 92% of the gastroenterologists had sufficient knowledge ($p < 0.001$).

• **Lack of interest** was more pronounced in the internists than in the gastroenterologists, 42% vs. 32% ($p < 0.05$), and more pronounced in doctors when comparing all doctors with all nurses (47 vs. 36%, $p < 0.001$).
Questions for you

• Are your patients weighed routinely (ward, OPD)?
• Are patients screened for malnutrition risk on admission to your wards?
• How many of your patients lose weight in hospital?
• Do you have adequate access to a dietetic service (inpatient and outpatient)?