



BAPEN

Advancing Clinical Nutrition

Nutritional risks in older patients and Strategies for intervention

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Multi-disciplinary charity committed to raising awareness of malnutrition and options for nutritional treatment, along with consequent impacts on health outcomes, resource utilization and health & social care budgets.

Content

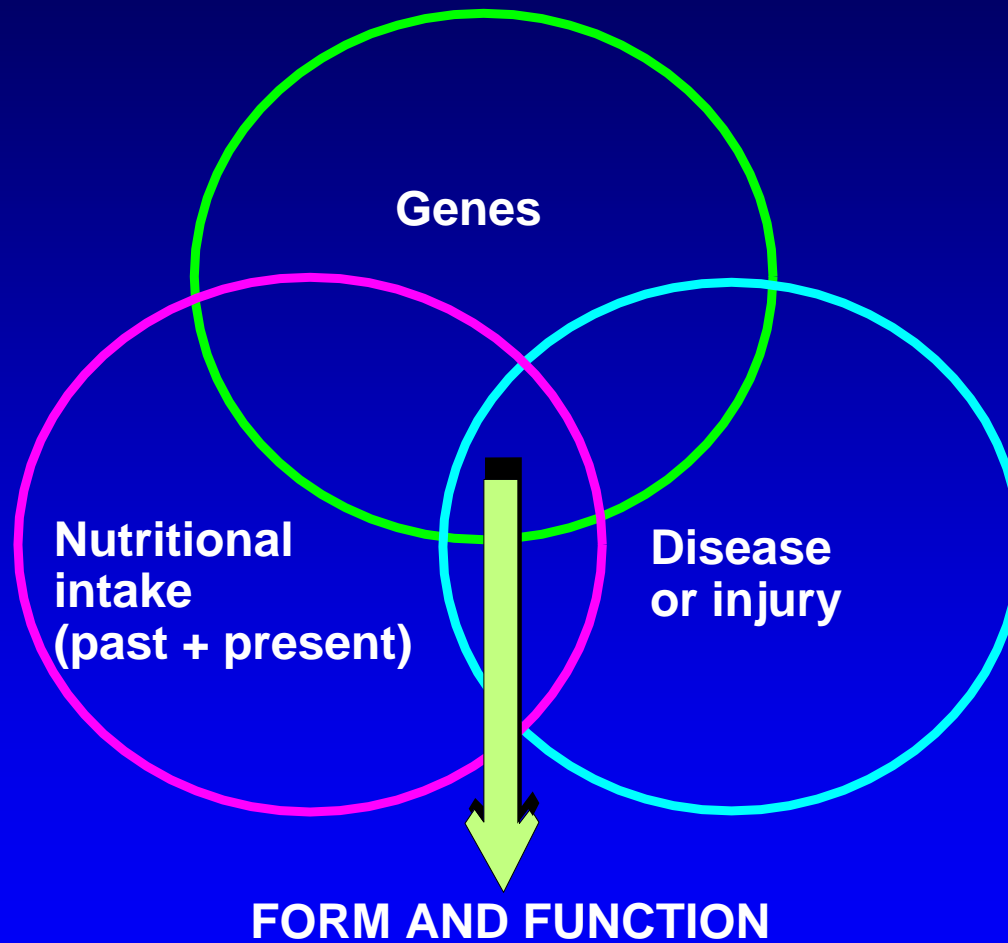
- Preconceptions
- Principles
- Problems
- Prevalence
- Prescription
- Price
- Quality

Preconceptions

- *There isn't much malnutrition in the modern World, (well only in late cancer and a few hospital patients)*
- *The evidence for nutrition support is poor and the cost unjustified*
- *Lengths of stay in hospital are so short, malnutrition isn't a problem (and even if it were there would be no time for nutritional care to help)*
- *Nutritional supplements stop people eating food*

Principles

You are what you eat

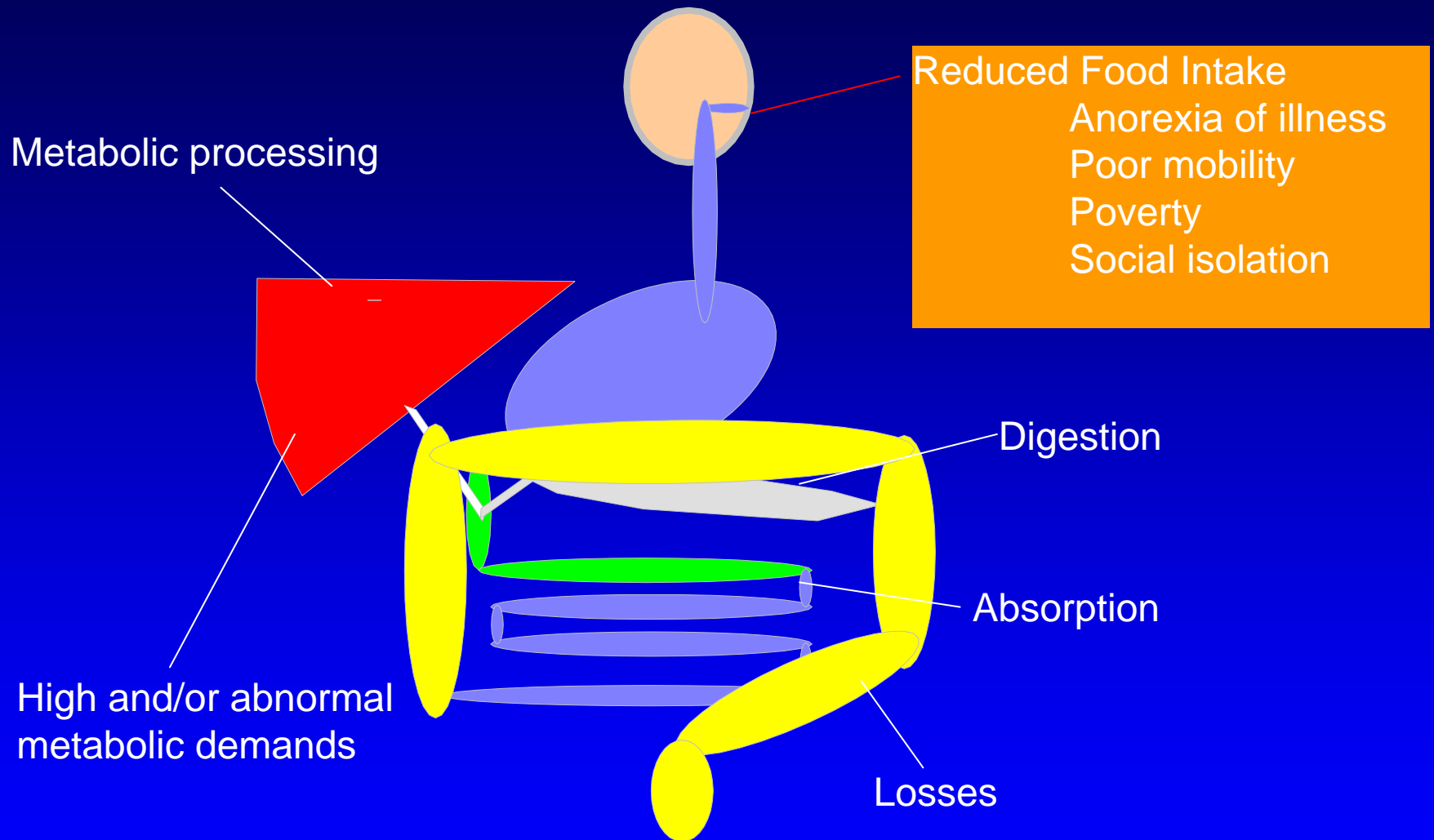


Good nutrition = health and resistance to disease

Poor nutrition = ill health and susceptibility

Principles

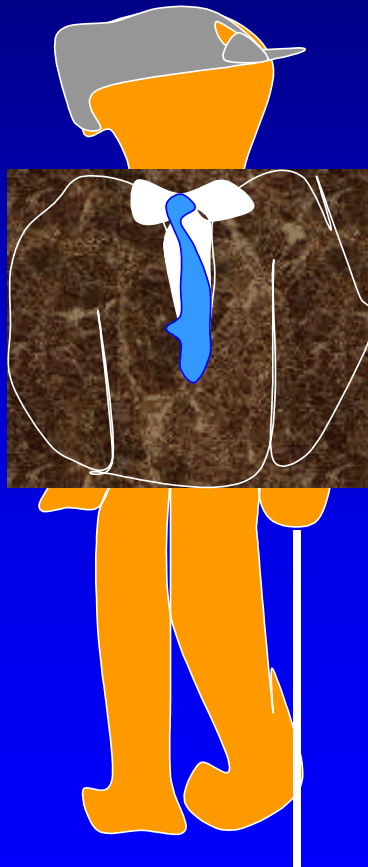
Malnutrition is common



NUTRITIONAL PROBLEMS IN THE ELDERLY

PHYSICAL

Mobility
Feeding
Swallowing
Low activity
Decreased
organ reserve
Specific
disease
Multiple drugs
(taste)
Alcohol



PSYCHOLOGICAL

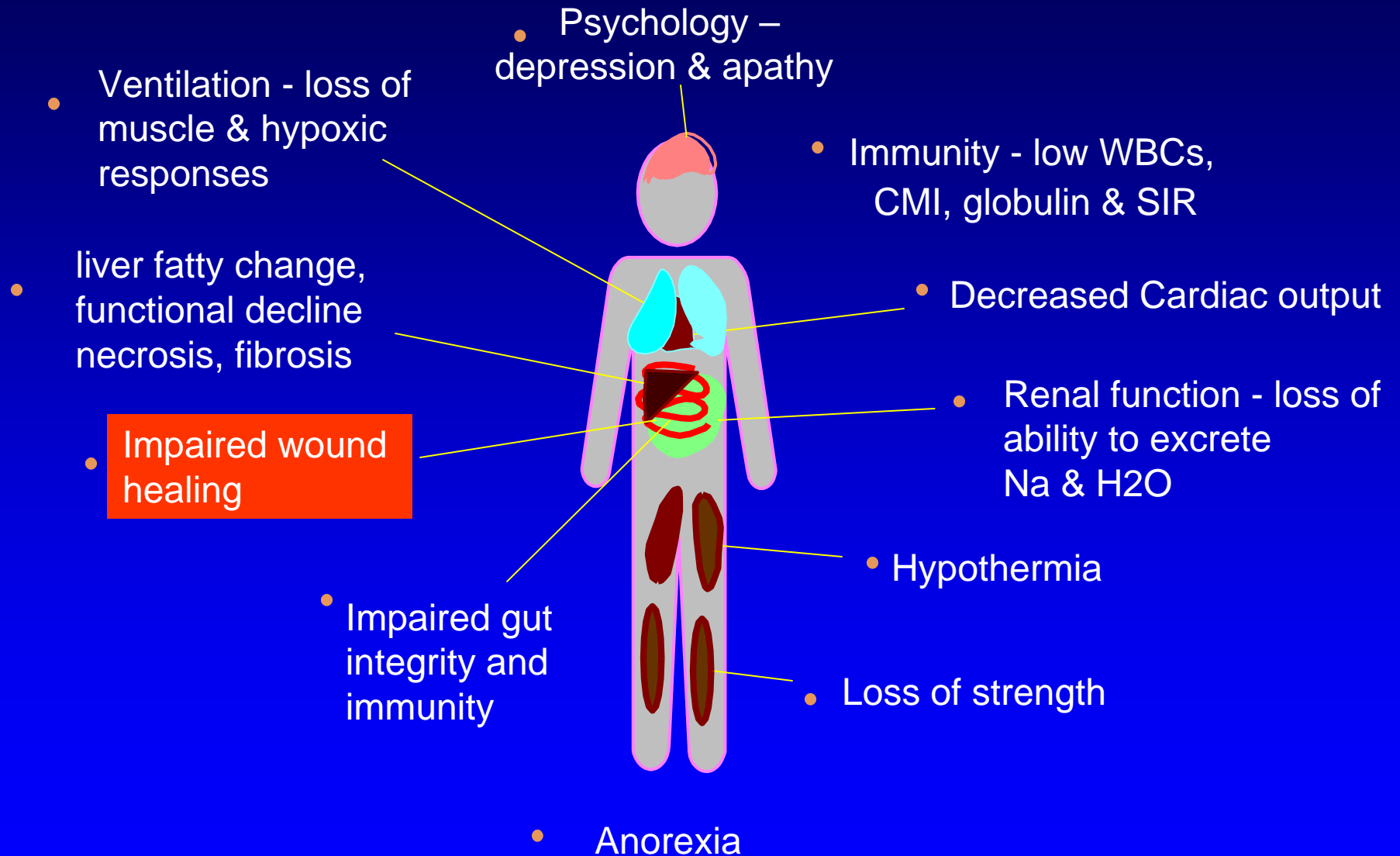
Depression/bereavement
Dementia

SOCIAL

Isolation
Poverty

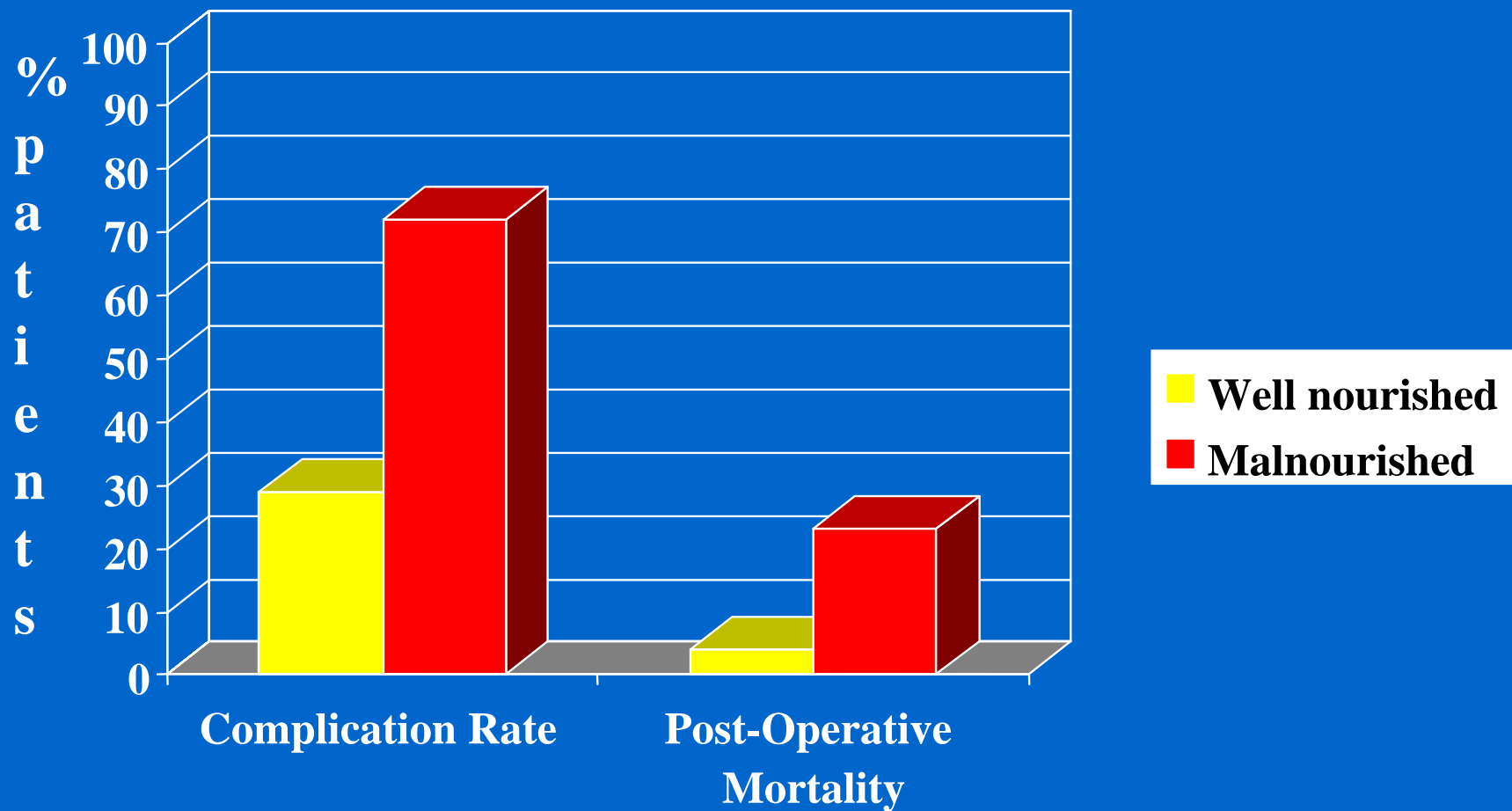
Principles

Effects of malnutrition



Complications of abdominal operations for malignant disease

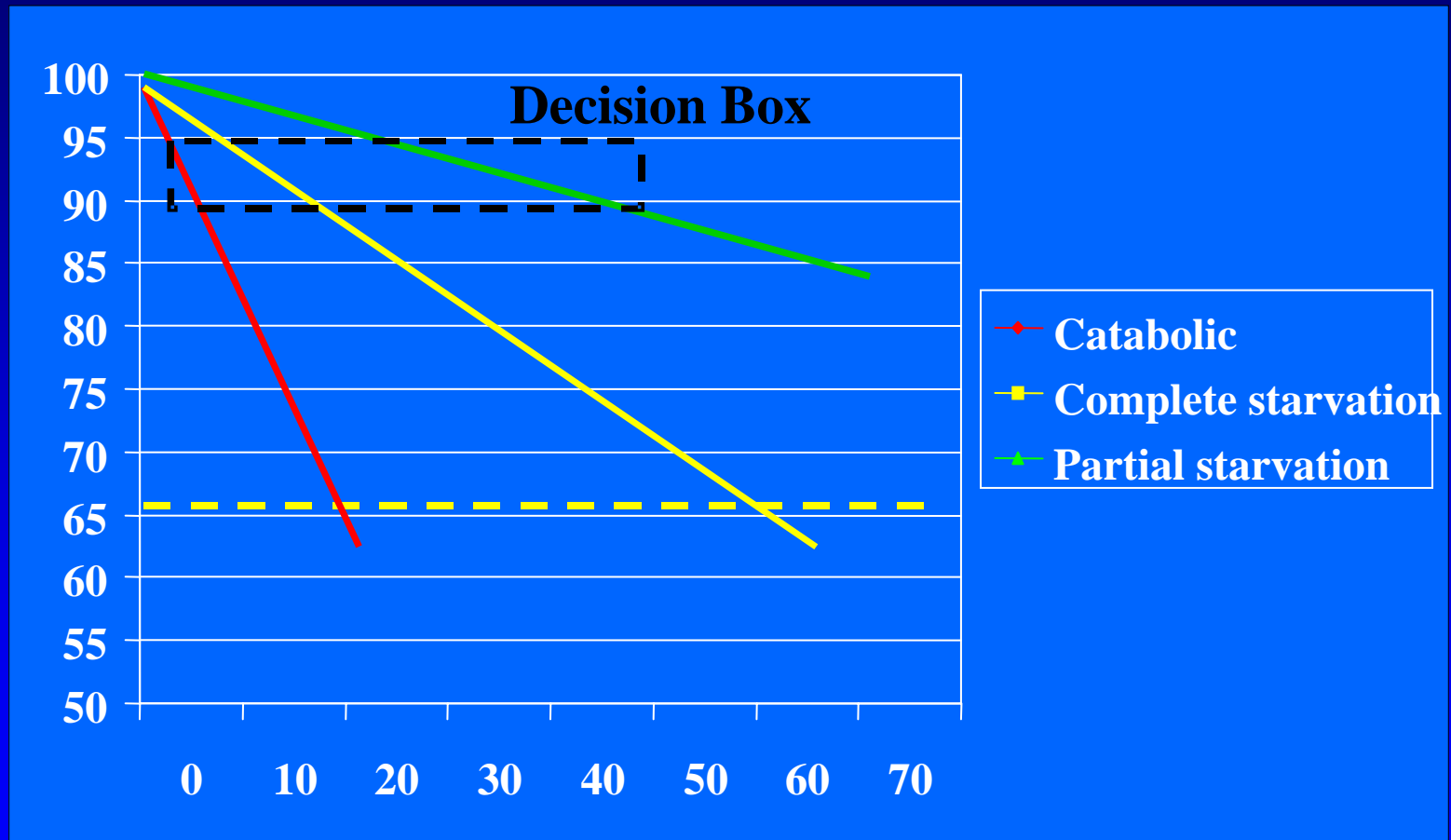
Meguid et al., Am J Surg 156, 1988



Starvation & Weight loss

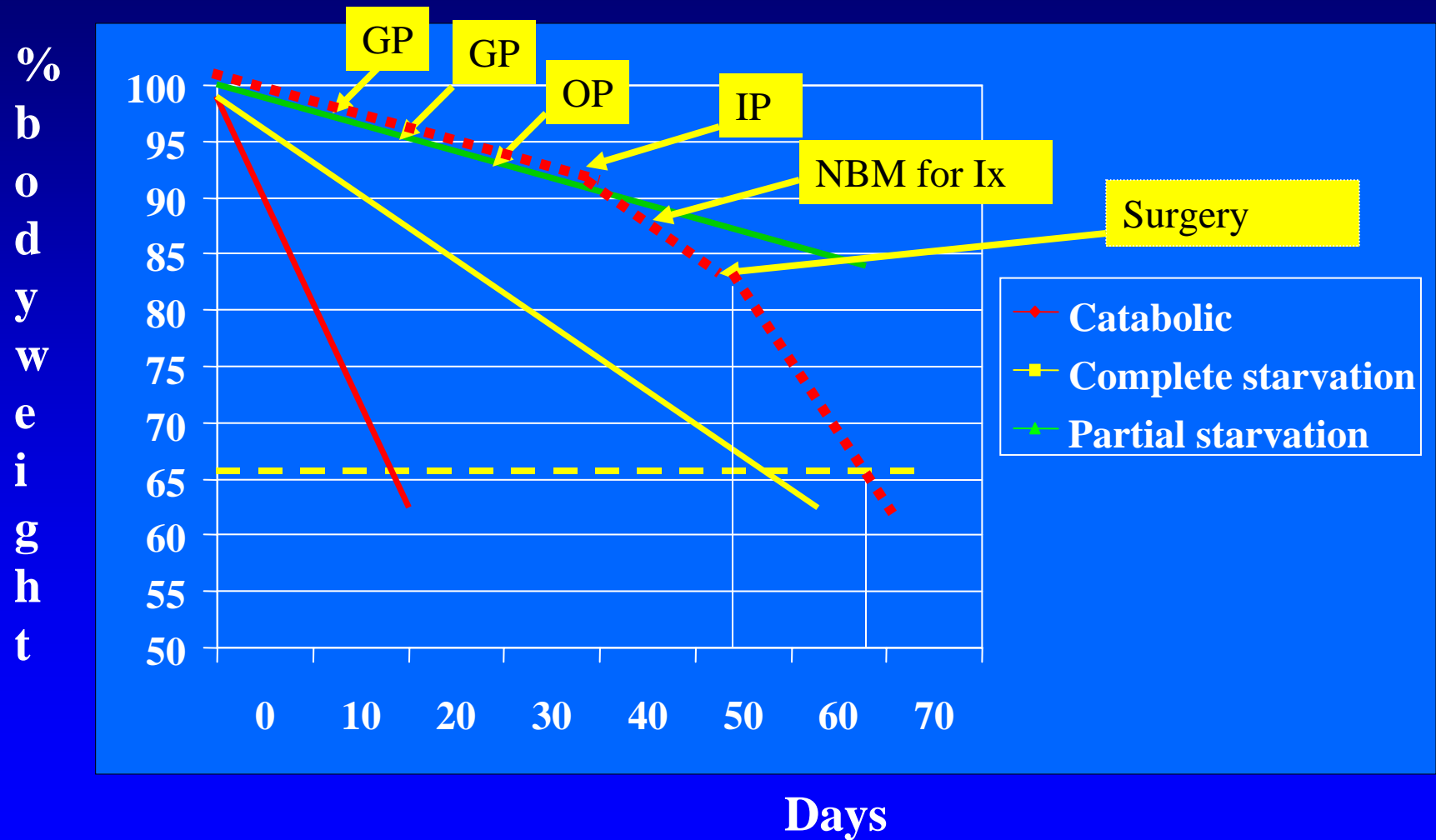
(After Allison)

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Days

A Patient Journey

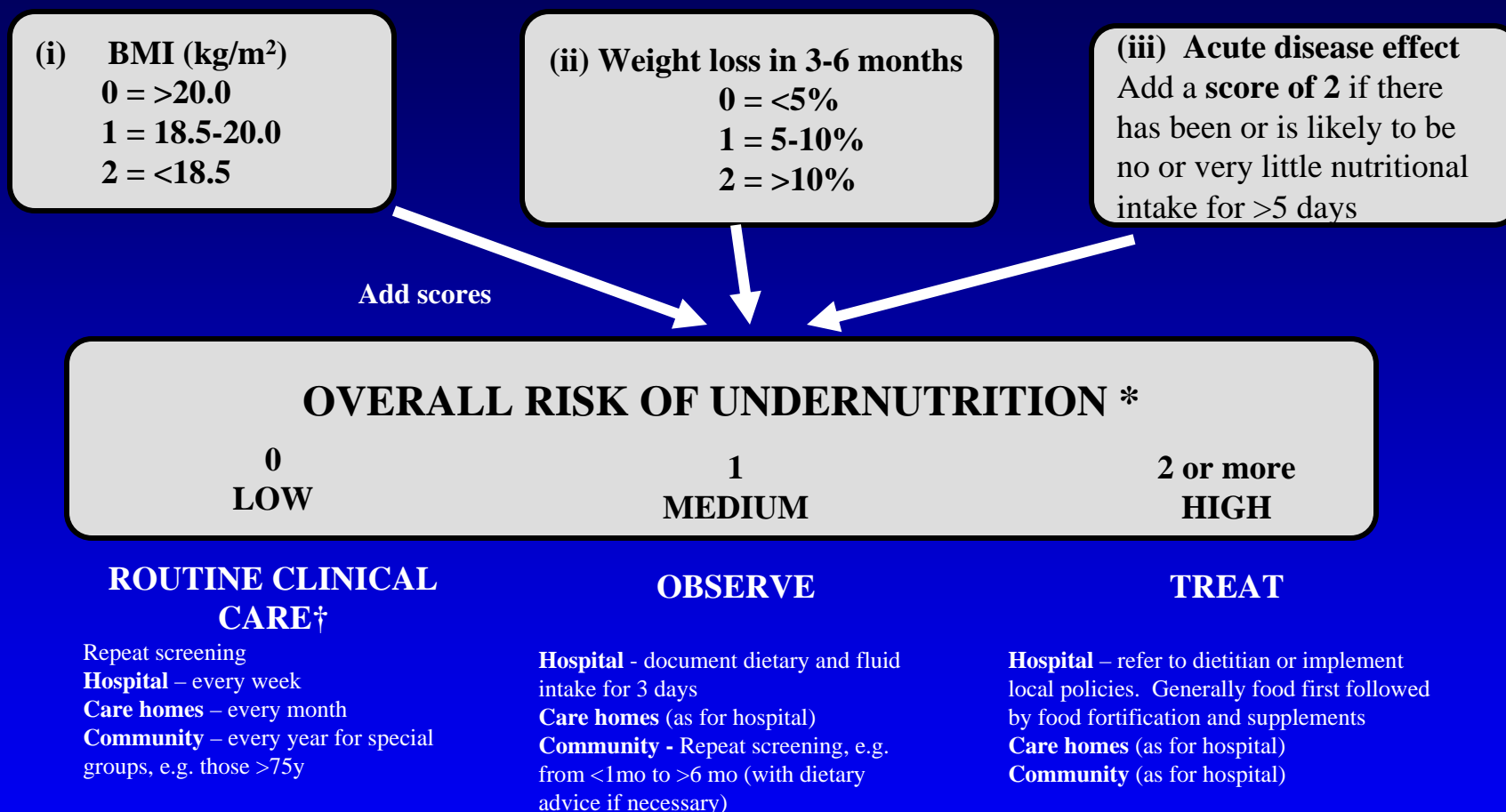


Prevalence ?



GP research database covering approx 5% of population: '183 patients malnourished
i.e UK total approx 3600

The Malnutrition Universal Screening (MUST) Tool



* If height, weight or weight loss cannot be established, use documented or recalled values (if considered reliable). When measured or recalled height cannot be obtained, use knee height as surrogate measure.

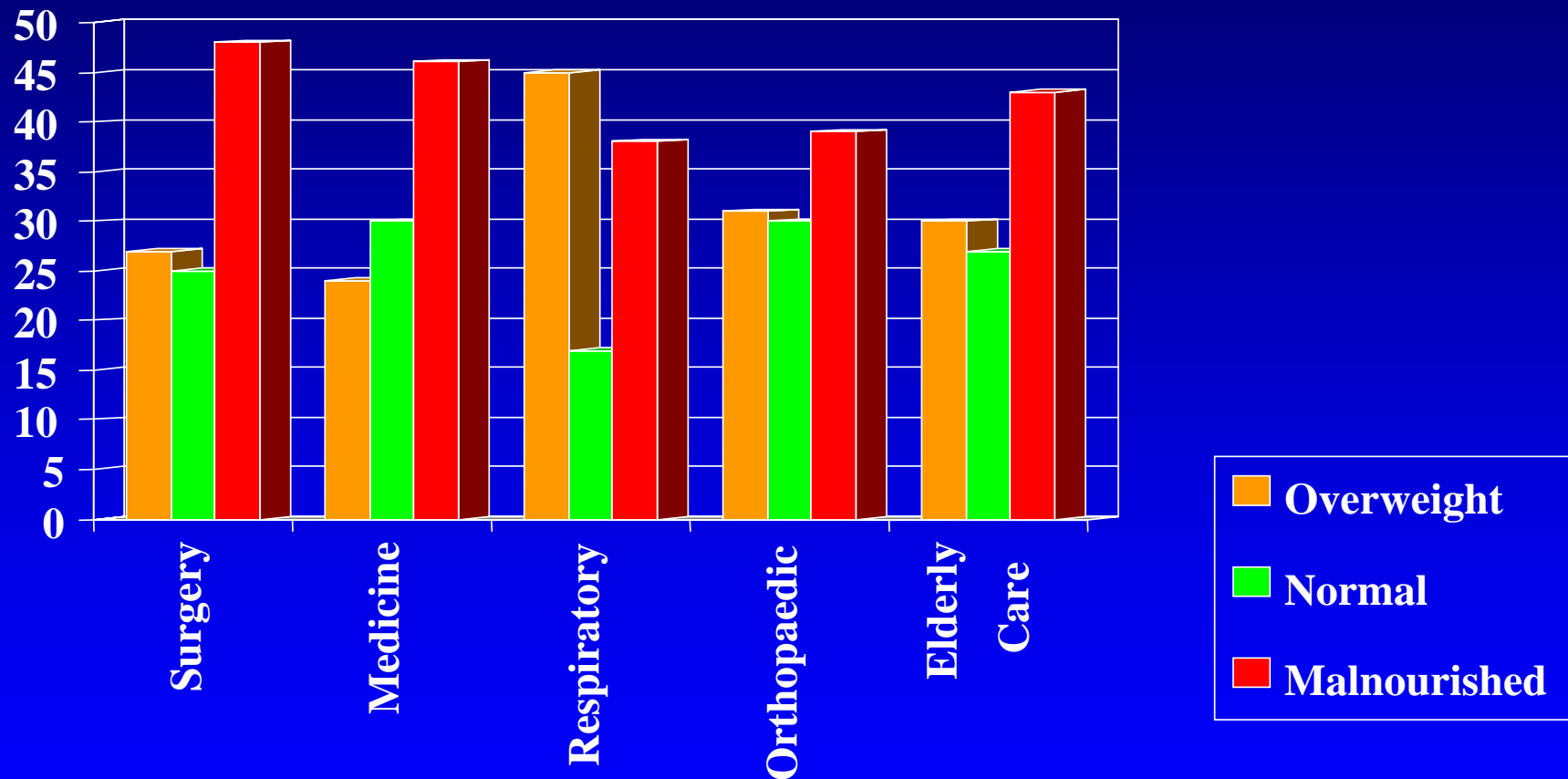
If neither can be calculated, obtain an overall impression of malnutrition risk (low, medium, high) using the following:

- (i) Clinical impression (very thin, thin, average, overweight)
- (ii) a) Clothes and/or jewellery have become loose fitting
- (ii) b) History of decreased food intake, loss of appetite or dysphagia up to 3-6 months
- (iii) c) Disease (underlying cause) and psychosocial/physical disabilities likely to cause weight loss

† Involves treatment of underlying condition, and help with food choice and eating when necessary (also applies to other categories).

Nutritional status of 500 consecutive hospital admissions to five Departments

McWhirter & Pennington. BMJ 1994, 15.



66% of patients lost further weight during admission, under-nourished lost more weight BUT patients referred to dietitians gained weight



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NSW Nutrition Screening Week

Hospitals

Data on individual patients

- 9722 individual patients
- 9460 with 'MUST' scores
- 9338 with 'MUST' scores in patients 18 y and over

Number of Hospitals

- 175

Proportion at risk of malnutrition

- 28% (6% medium risk; 22% high risk)



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Mental Health Units

- Overall 19% (12% high risk, 7% medium risk)
- Acute units 31%
- Long stay/rehab. 21%



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NSW Nutrition Screening Week

Care Homes

Data on individual residents

- 1610 individual residents
- 1610 with 'MUST' scores
- 1610 with 'MUST' scores in residents 18 y and over

Number of Care Homes

- 173

Proportion at risk of malnutrition

- ~30% (10% medium risk; 20% high risk)



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Malnutrition in Sheltered Housing

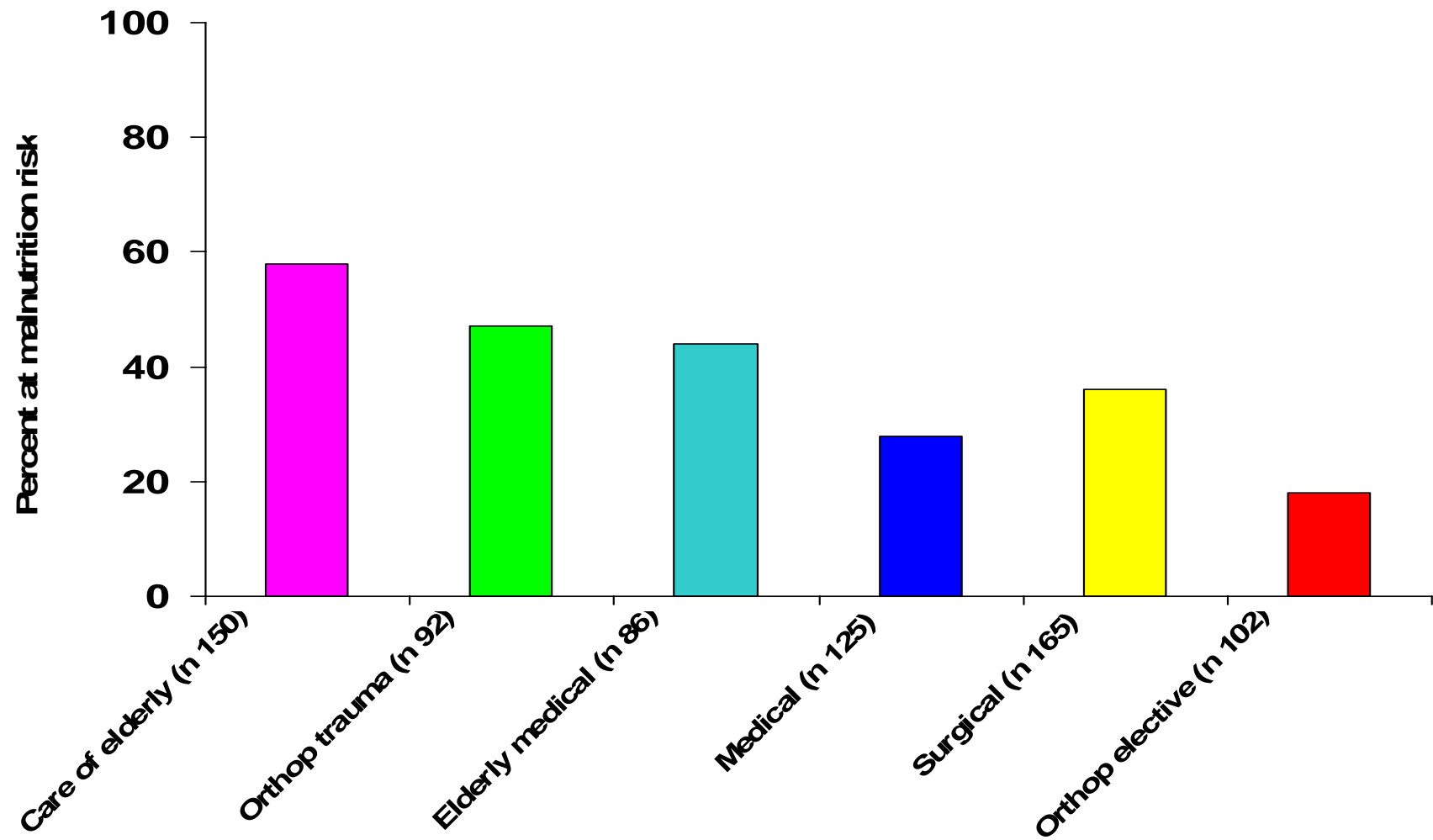
- More people live in sheltered housing there than in care homes (~700,000)
- Prevalence of malnutrition (medium + high risk **10-15%**)
- More malnutrition than in hospitals

MALNOURISHMENT IN THE COMMUNITY

- Incidence of low body weight ($\text{BMI} < 20$)
 - $>5\%$ of the 'healthy' UK adult population over 65 yrs
 - $>10\%$ of the chronically sick (higher for those suffering from cancer, lung disease, GI problems, neurological and psychiatric illness).

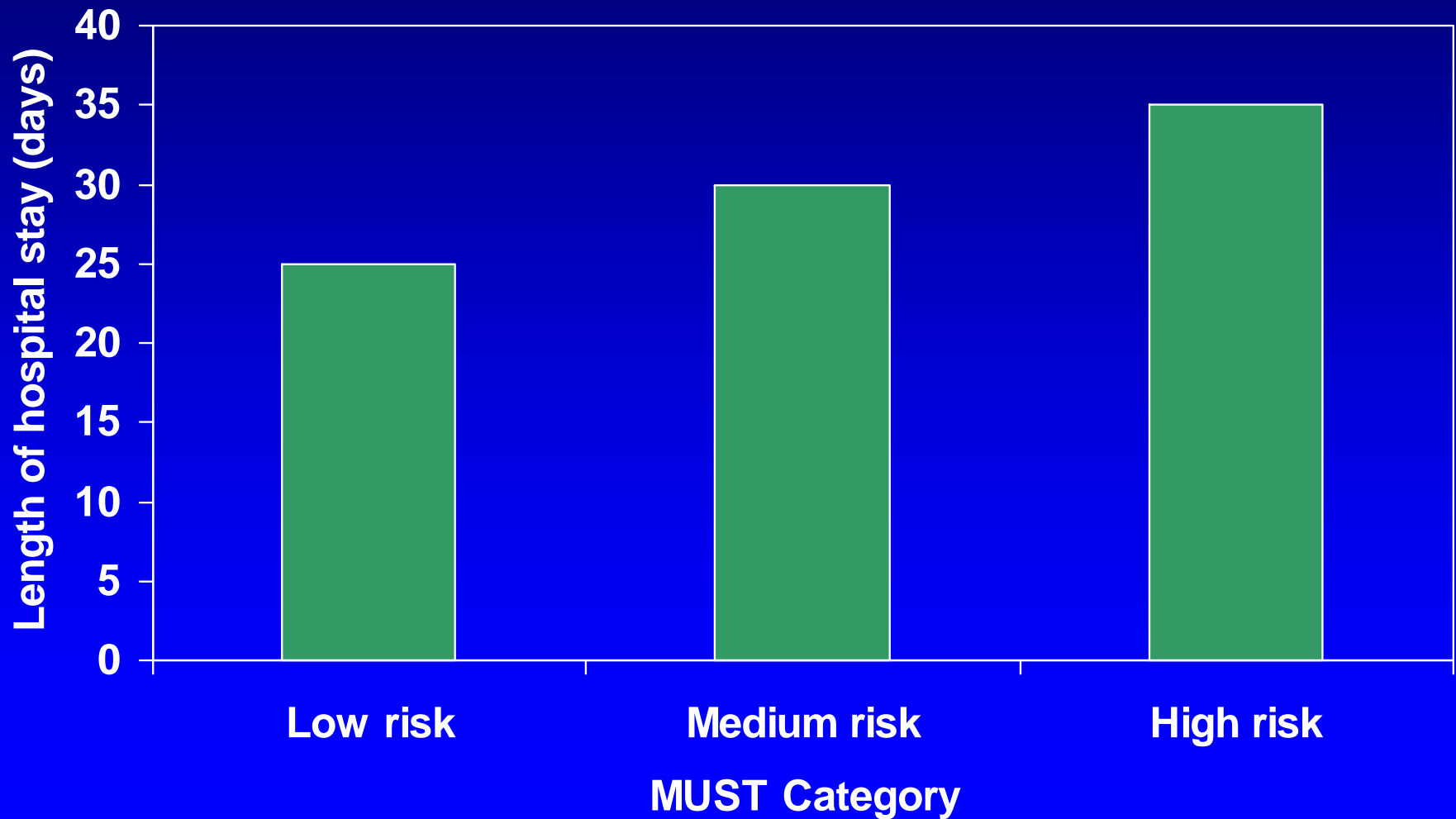
Southampton CNRD

Patients at risk of malnutrition using 'MUST'



Southampton CNRD Elderly care wards

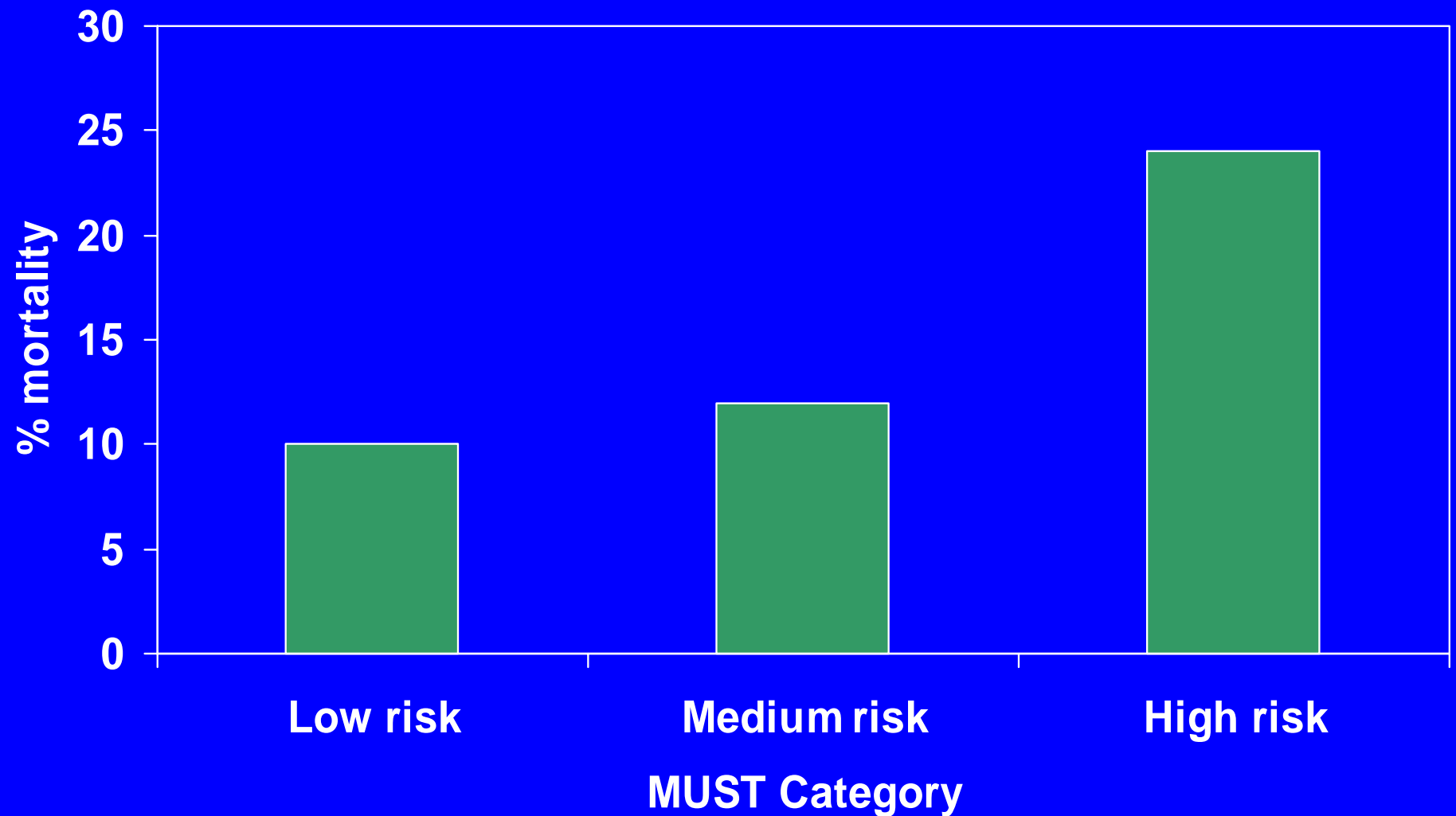
$P < 0.009$



Southampton CNRD

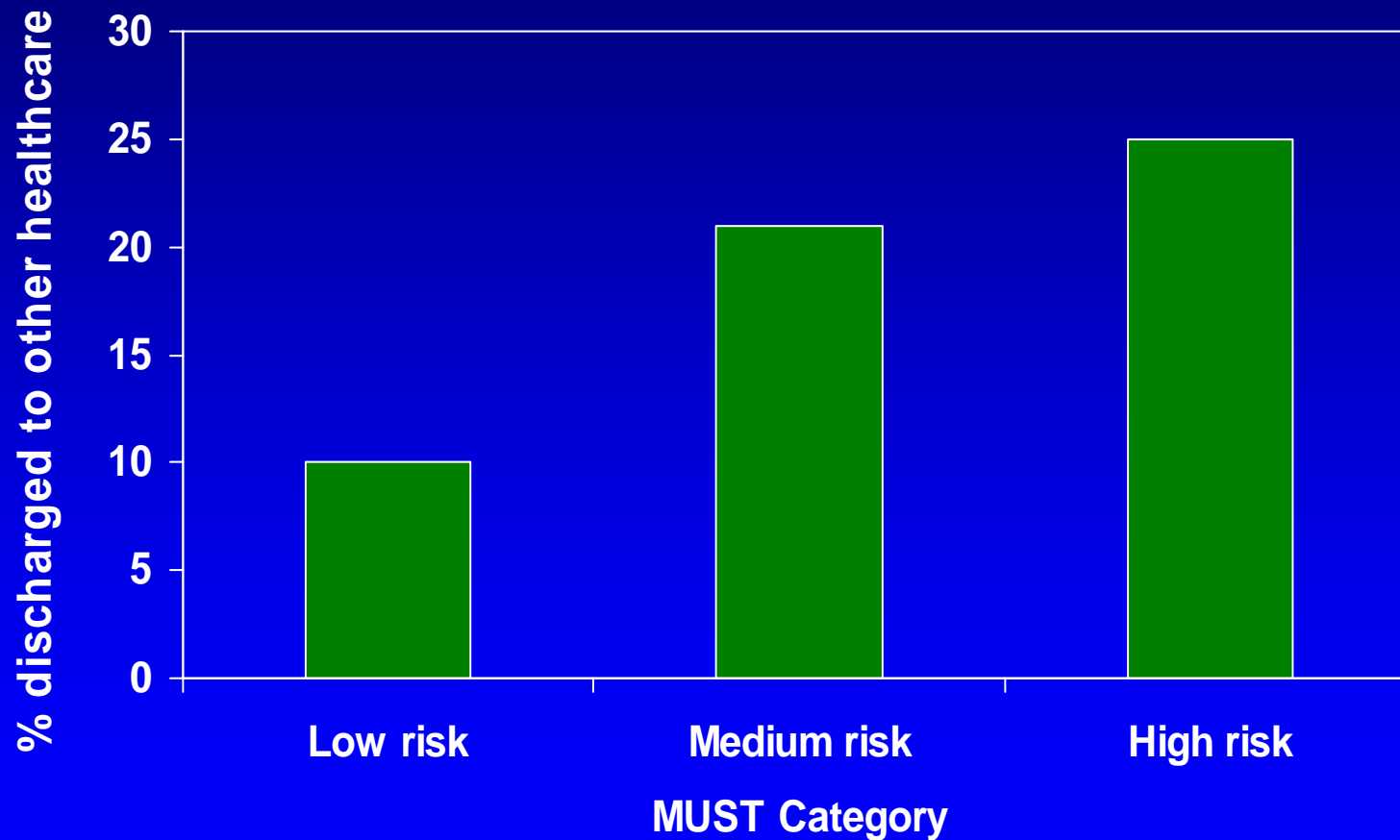
Elderly care wards

$P < 0.002$



Southampton CNRD

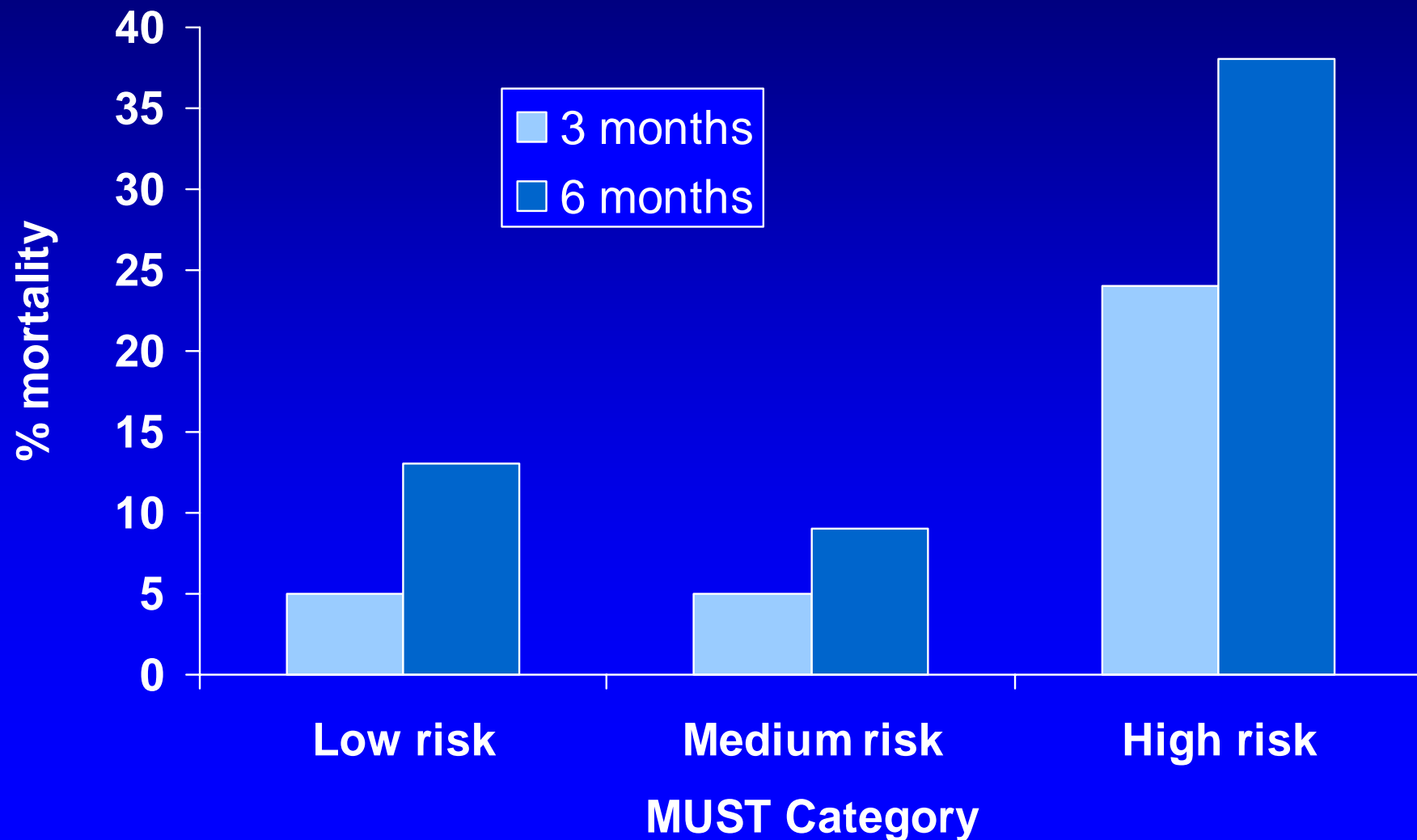
Increased need for elderly health care after discharge ($P<0.03$)



Southampton CNRD

Increased elderly mortality post-discharge

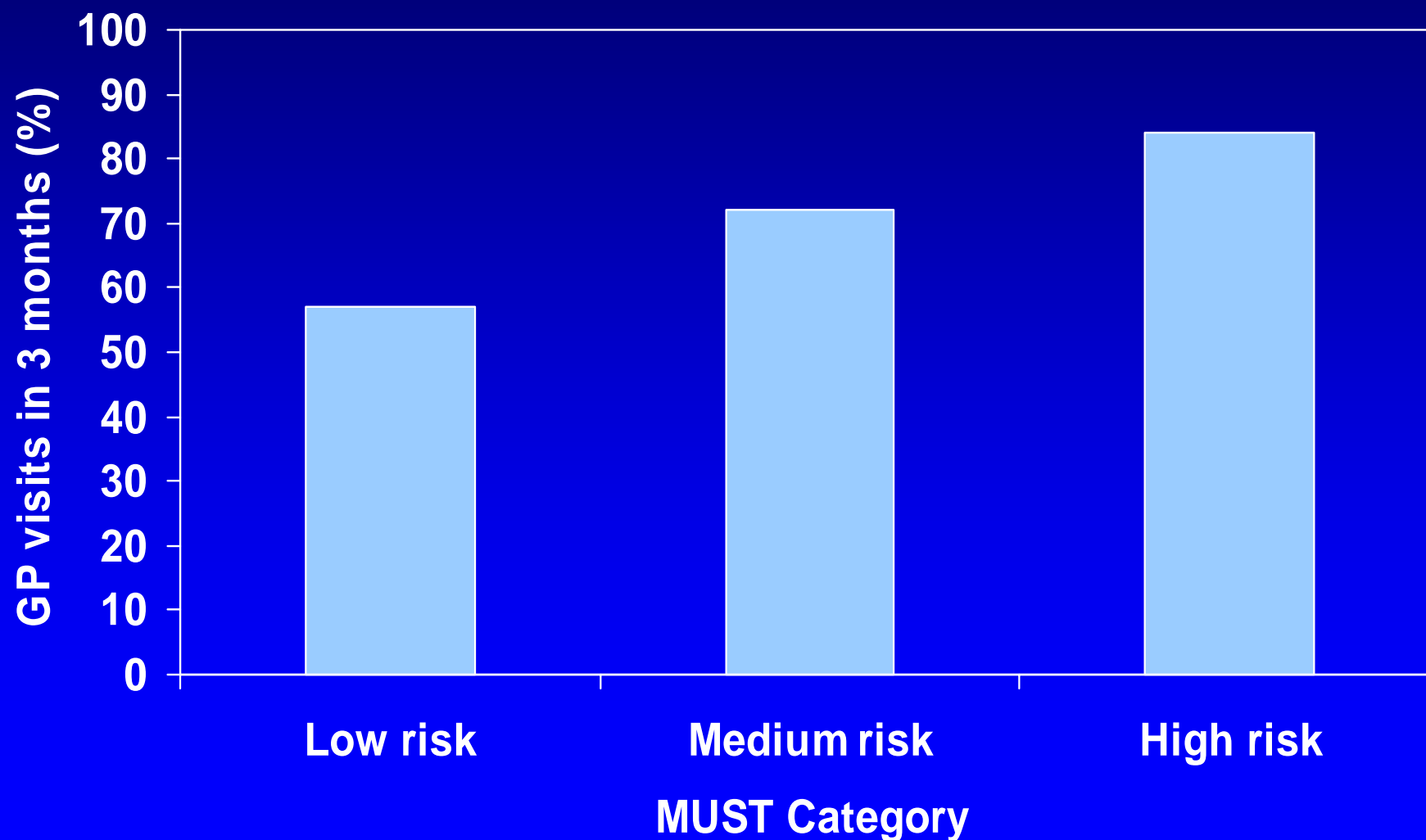
($P < 0.01$)



Southampton CNRD

Community from NDNS reanalysis

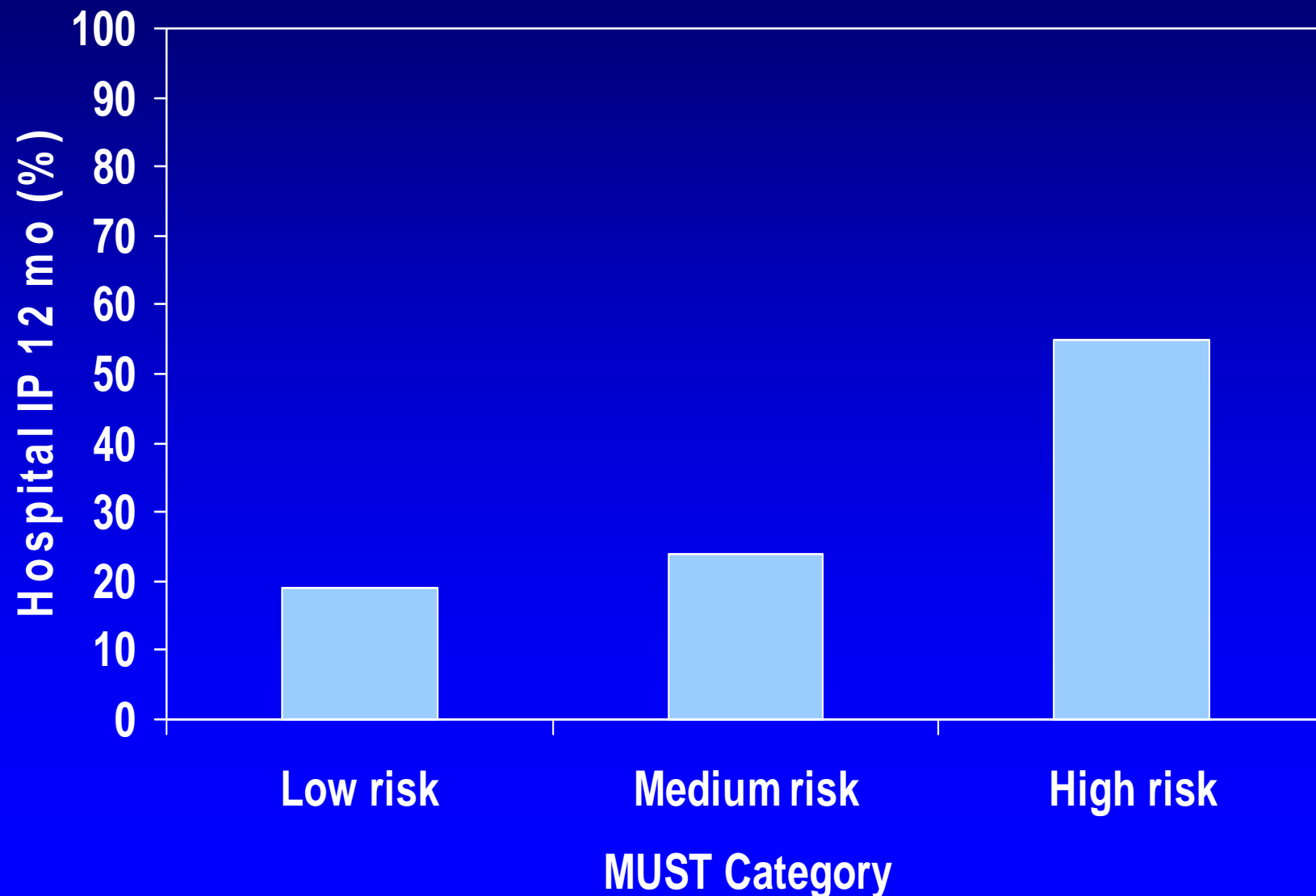
$P < 0.001$



Southampton CNRD

Community from NDNS reanalysis

$P < 0.001$



The 'healthcare' consequences of disease-related malnutrition

Compared with non-malnourished patients, those with disease-related malnutrition and a BMI <20kg/m²:

- had a 6% higher GP consultation rate
- required 9% more prescriptions
- had a 25% higher hospital admission rate

Prescription

NHS
National Institute for
Health and Clinical Excellence

Nutrition support in adults (version 5.0)



NUTRITIONAL SUPPORT SHOULD:

- Improve general status
 - Immunity
 - Wound healing
 - Ventilation
 - Mobility
 - Psychology

The Problems of EBM in Nutrition Support

- Small trials use different
 - Indications for intervention and exclusion
 - Levels of feeding
 - Controls
 - Starting times
 - Routes of support
 - Duration of support
 - Outcome measures

in very heterogenous populations

The Evidence



Wanted – volunteers for randomized,
placebo controlled trial

Patients with an undoubted need for nutrition
support cannot be randomized

Nutrition Support and Death

- Recommendation:
 - You should not let your patients go without any form of nutrition whatsoever for 3 months

Grade: D(GPP)

Grade: IBO

Why does nutrition support help ?

- Correction of macronutrient benefits ?
 - Jeejeebhoy KN. *'The benefits of nutritional support are evident when too little nutrition is given for too short a time to have any noticeable influence on lean body mass or circulating proteins*
 - Jeejeebhoy KN. 'Bulk or bounce – the object of nutritional support. JPEN 1988; 12(6): 539 – 546.
 - Jeejeebhoy KN. 'Total parenteral nutrition: potion or poison? Am J Clin Nutr 2001 Aug;74(2):160-3

2. ?? Correction of micronutrients

- Many of the detrimental effects attributed to undernourishment are more easily ascribable to micronutrient rather than macronutrient shortages.

3. ?? Metabolic switching

- 400g carbohydrate pre-op alters insulin resistance and L.O.S. decreased by 20%*

*Nygren J, Thorell A, Ljungqvist O. Preoperative oral carbohydrate nutrition: an update. Curr Opin Clin Nutr Metab Care. 2001; 4(4):255-259

Evidence for oral nutrition supplements and tube feeds

RCT of sip-feed supplements (approx 2/day) in 501 elderly patients. Larsson et al 1990. Clin Nutr 1990

- ONS group ate more hospital food
- ONS mortality 8.6 % vs 18.6% in controls

RCT overnight NG feeding in underweight females with fractured NOF. Bastow et al. BMJ 1983

ONS group mobilised at 16 days vs 23 days
8% mortality vs 22% in controls

(Normally nourished mobile at 10 days with 5% mortality)

Short term benefits of post-operative oral dietary supplements in surgical patients

Rana et al - Clin Nutr 1992

- **Randomised controlled trial in 54 GI surgery patients of Oral dietary supplements ad lib when on "free fluids"**
- **Fed group 1833 kcals (1200 from food) vs 1108 kcal in control**
- **No wt change vs 4.5 kg loss**
- **Hand grip - 2.8 kg vs -14.6 kg**
- **3 episodes of pneumonia vs 2 pneumonia and 8 wound infection**
- **Discharge 3.3 days earlier**

Improvements in function in hospital and community patients with ONS and ETF

COPD	Elderly	HIV / AIDS	Liver disease	Surgery
<ul style="list-style-type: none"> • improved respiratory function • increased hand-grip strength • increased walking distance 	<ul style="list-style-type: none"> • reduced number of falls • increased activities of daily living and mobility • improved immune function • increased well being 	<ul style="list-style-type: none"> • improved cognitive function • immune function changes 	<ul style="list-style-type: none"> • lower incidence of severe infections • improved liver function 	<ul style="list-style-type: none"> • greater wound healing • less fatigue • less loss of muscle strength

Routine protein energy supplementation in adults: systematic review

Potter et al., BMJ 317 (1998)

- Review of 32 RCTs of oral or enteral supplements vs. no supplements
- Full data available on 1670 patients
- Consistently improved anthropometry
 - Body weight +2.06% (1.63 - 2.49)
 - Anthropometry + 3.16(2.43 - 3.89)
- Pooled odds mortality data 0.66 (0.48 - 0.91, 2P<0.01)

Systematic review

287 trials 11,720 patients

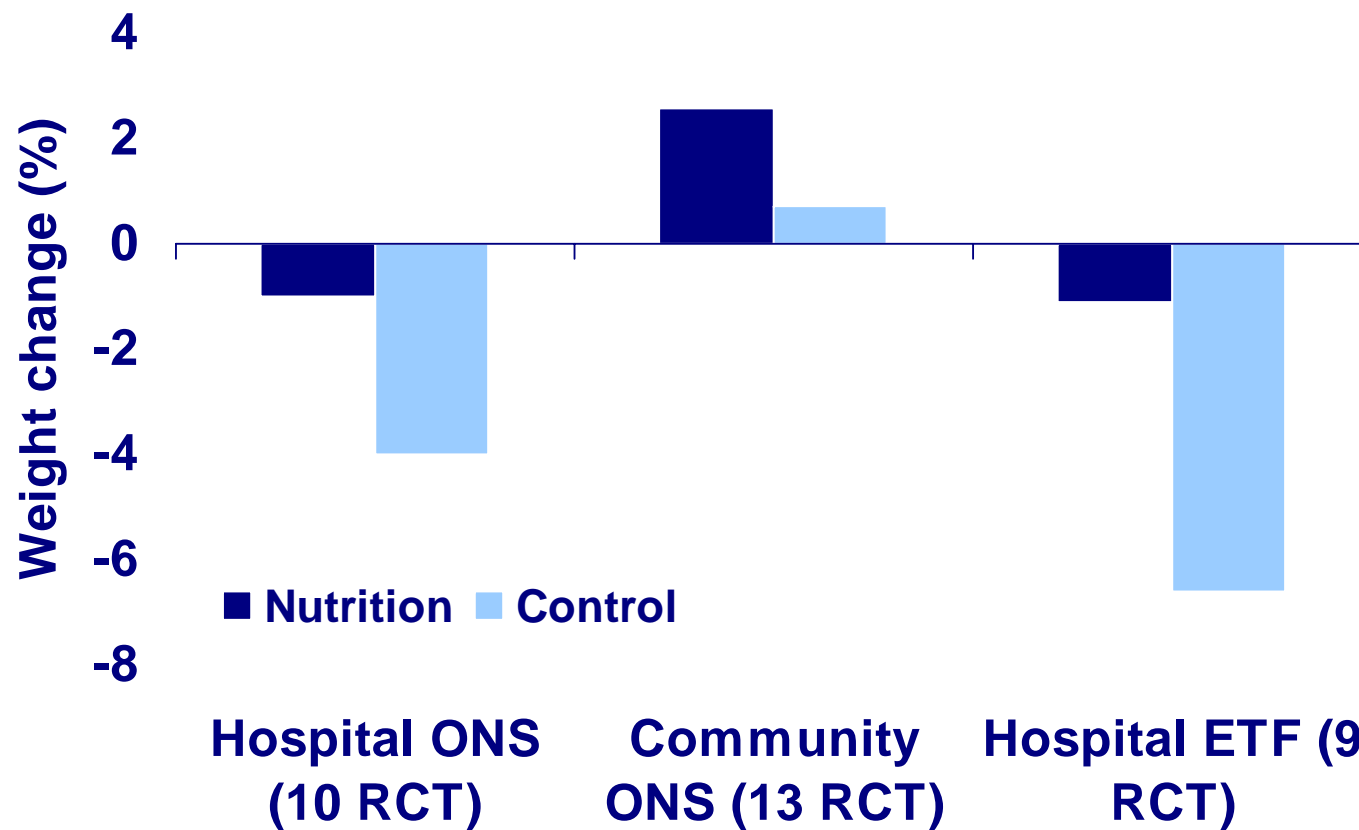
ONS

- **Hospital:**
58 trials (34 randomised)
3883 patients
- **Community**
108 trials (44
randomised)
3747 patients

ETF

- **Hospital:**
74 trials (33 randomised)
2769 patients
- **Community:**
47 trials (3 randomised)
1321 patients

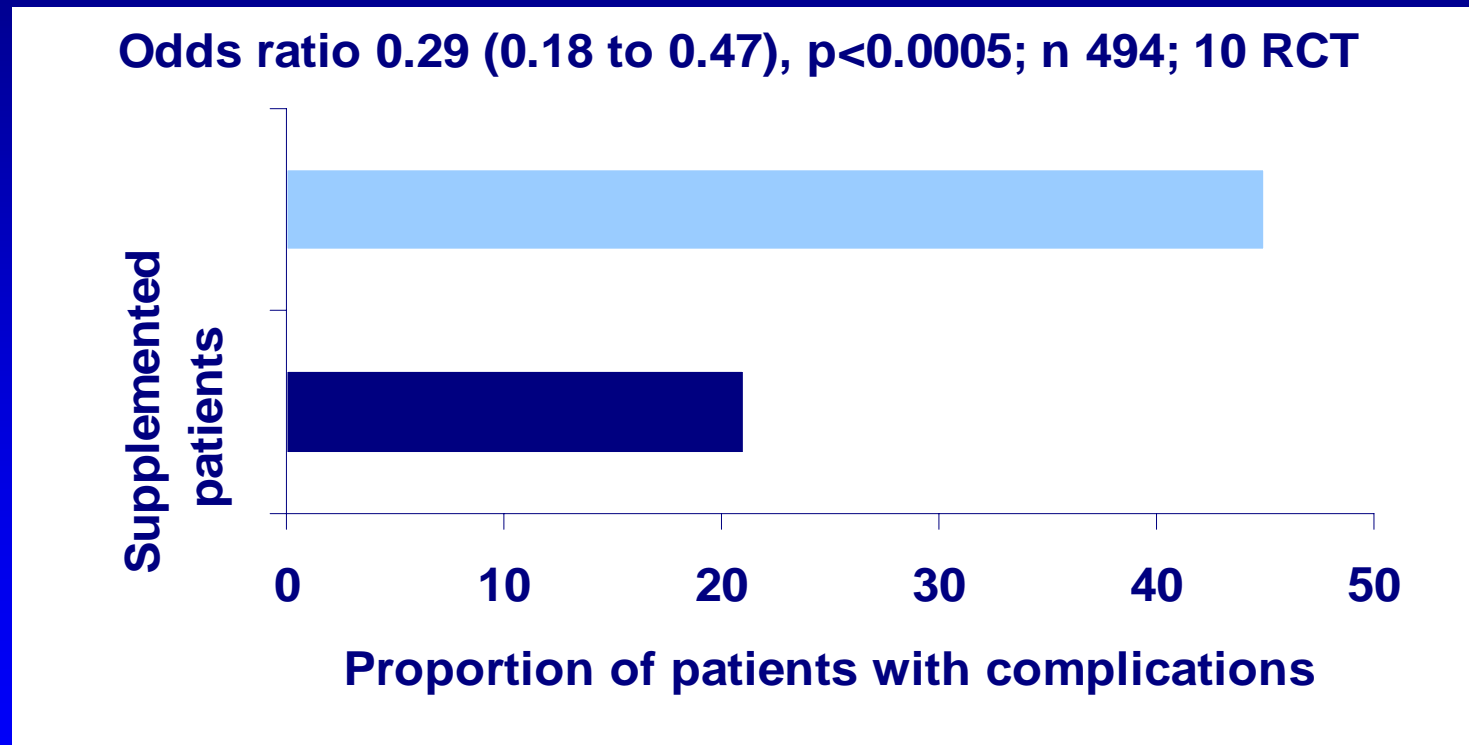
Weight change with ONS and ETF



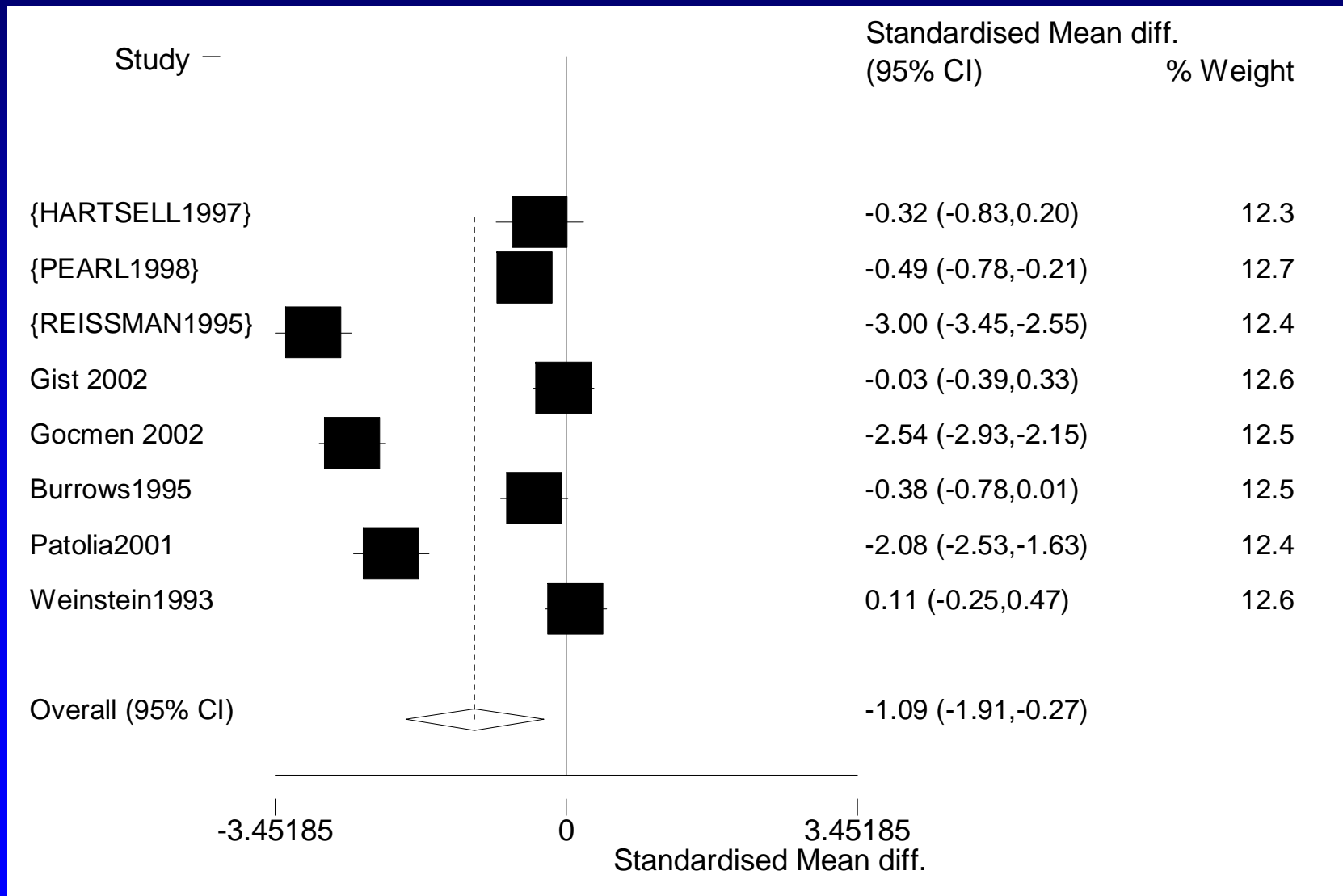
Stratton et al 2003

ONS can reduce complication rates

(Stratton et al 2003)



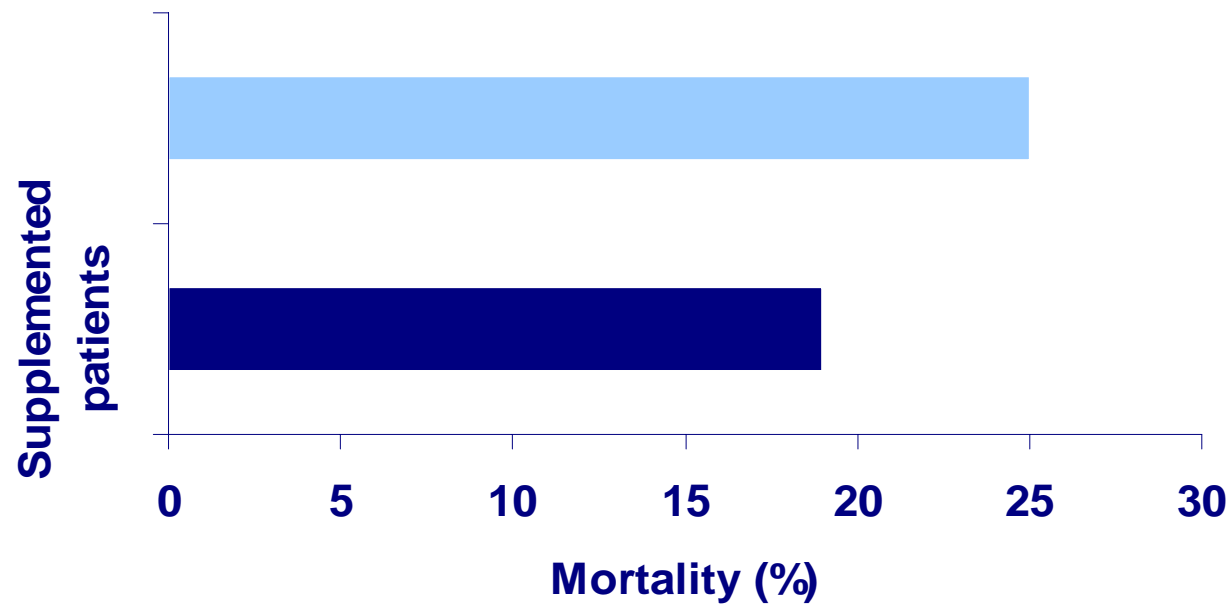
NICE ONS and length of stay



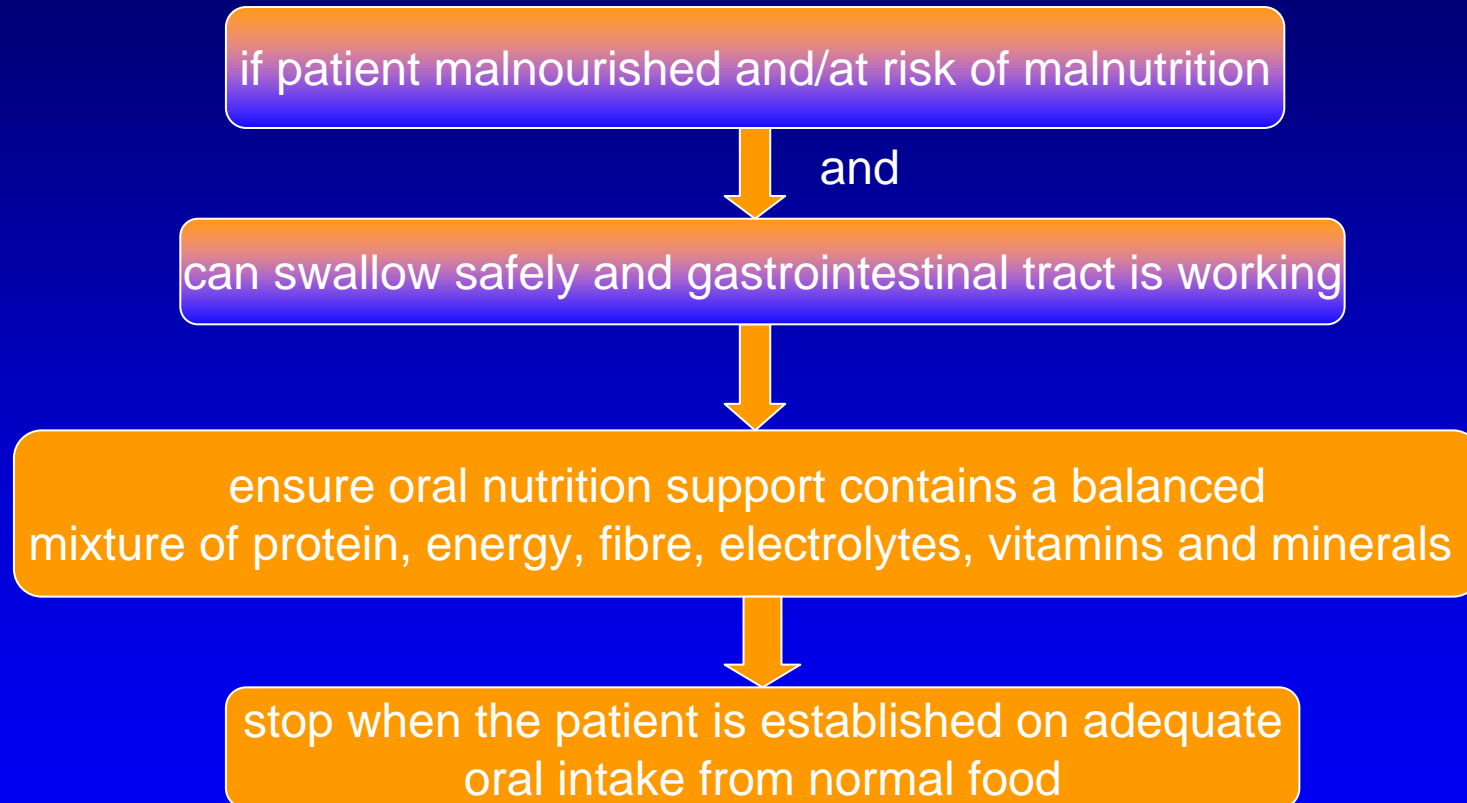
ONS can reduce mortality

(Stratton et al 2003)

Odds ratio 0.62 (95% CI 0.49 to 0.76), $P < 0.001$; n 2096; 17 RCT



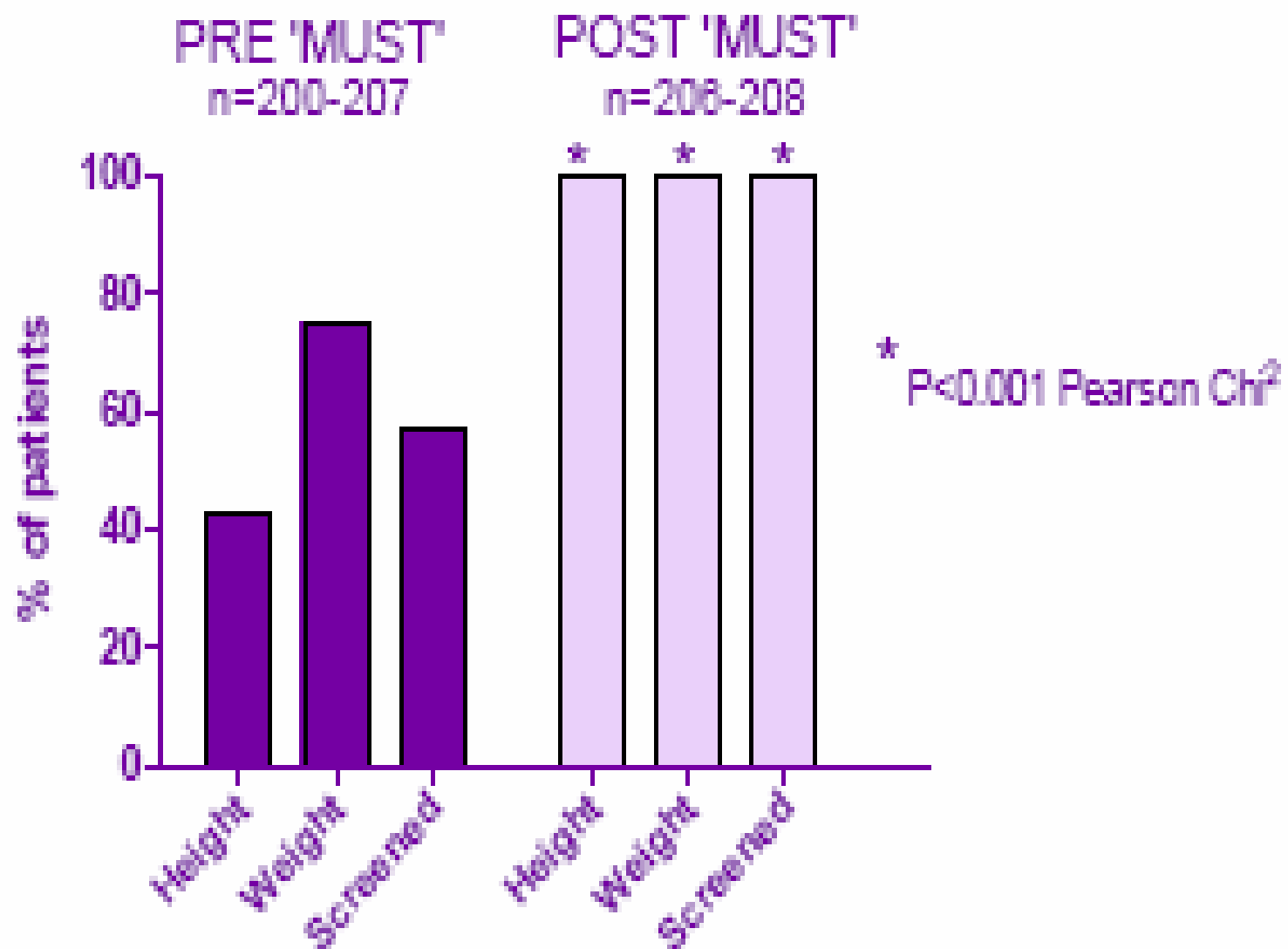
Consider oral nutrition support



Effectiveness of implementing 'MUST' into care homes within Peterborough Primary Care Trust, England.

*A. L. Cawood, A. Smith, S. Pickles, S. Church,
J. Dalrymple-Smith, M. Elia, R. J. Stratton¹.*

- Implementation of MUST + care pathways in 6 care homes
 - (n=208 residents; median age 86 (37-105) years; 75% female)
- Education on malnutrition + management + practical sessions on 'MUST' + development of record charts, care plans and follow up
- Information on same residents for 3 mo before and after implementation
 - Nutritional documentation: weight, height, MUST + care plans
 - number and duration of hospital admissions.



Results

- 31% reduction in hospital admissions
 - 13% vs. 9%, NS
- 58% reduction in length of hospital stay
 - 2.67 SD 11.48 vs. 1.13 SD 4.74, $p < 0.005$
- Decreased hospital costs
 - mean saving £599 per resident over 3 months.
 - 95% CI £65-£1441, $P < 0.05$

Price

The economic impact of malnutrition: A model system for hospitalised patients

Reilly et al. JPEN 1987

- Retrospective analysis of 771 patients in both medicine and surgery
 - 2 x minor complications
 - 3 x major complications
 - 4 x mortality
- Average 50% increased costs

Costs associated with malnutrition

‘the 2003 UK health care cost of malnutrition and associated disease was estimated to be **>£7.3 billion.**’

- hospital treatment ~£3.8B
- long-term care ~£2.6 B
- GP visits ~£0.49 B
- outpatient visits £0.36 B
- HETF and HPN ~£0.15 B



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The cost of disease-related malnutrition in the UK and economic considerations for the use of oral nutritional supplements (ONS) in adults

M. Ellis (Chairman & Editor)
R. Stratton, C. Russell, C. Green, F. Pan



Report From The Advisory Group
On Malnutrition, Led By Bapen

2009 - £13 billion

**Combating Malnutrition:
Recommendations For Action**

Output of a meeting of the Advisory Group on Malnutrition
12 June 2008

Edited by M. Elia and C.A. Russell



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**Obesity 2007 - £4.7 billion,
now probably £8 billion**

Cost Effectiveness

- Reduced vulnerability to other illness
- Reduced hospital admissions
- Reduced complications
- Decreased length of stay

Cost savings with shorter hospital stays

RCT (specialty)	Cost saving per patient with ONS
Potter 2001 (geriatrics)	£314
Gariballa 1998 (neurology)	£5027
Delmi 1990 (orthopaedics)	£4906
Beattie 2000 (surgical)	£861
MacFie 2000 (surgical)	£1183
Rana 1992 (surgical)	£1301
Keele 1997 (surgical)	£946

Stratton et al 2003

National Standards & Clinical Governance in Nutrition Support

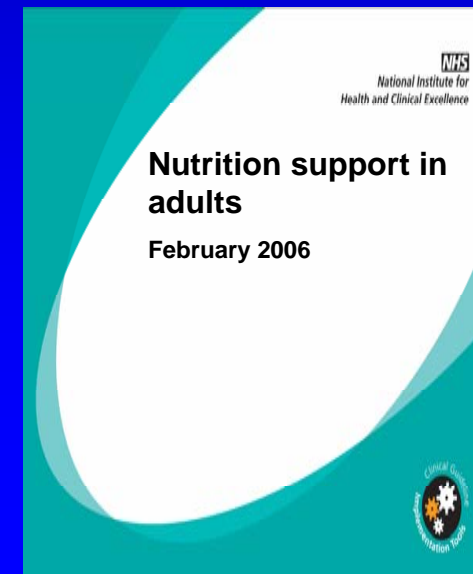
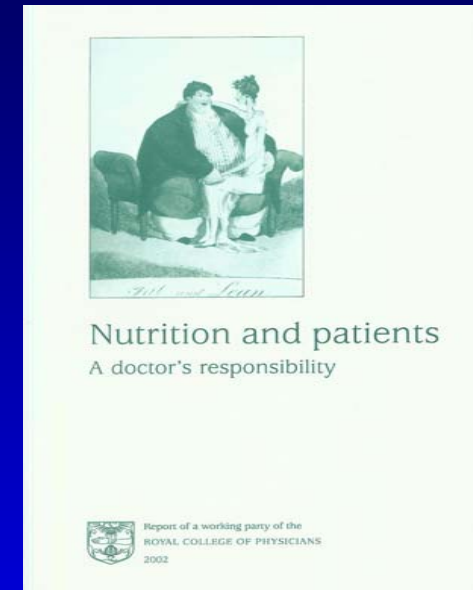
The importance of nutrition in patient care is increasingly recognized Europe wide.

Royal College of Physicians '*every doctor's responsibility*'

NICE Guidelines for Nutritional support 2006.

Scottish Clinical Standards Board
'minimum standards of care'

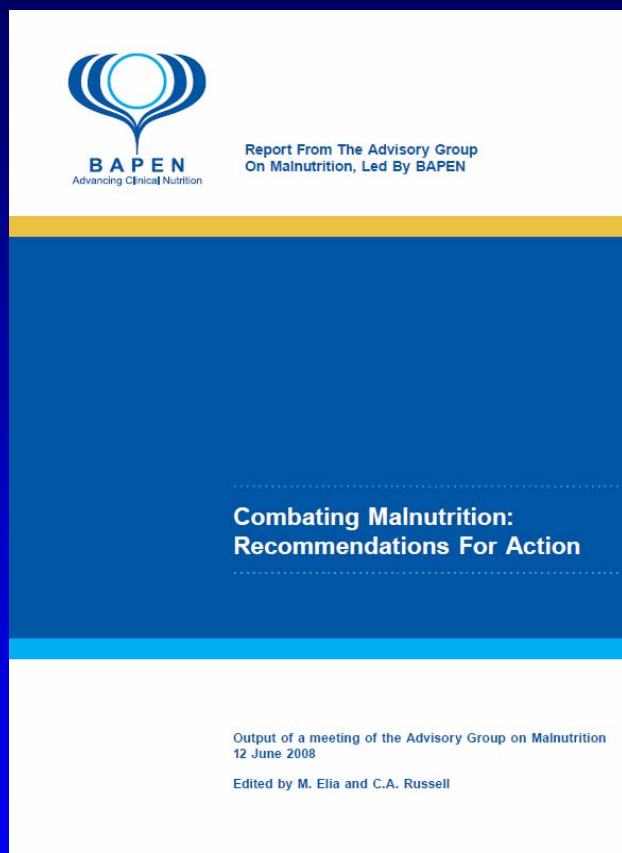
Nutrition Action Plan 2007



Nutrition and Quality

- Safety 
- Effectiveness 
- Equality 
- Patient experience 

BAPEN Key Recommendations



A long- term national strategy - Cabinet Office, Cross-departmental PSA to combat malnutrition, with reconstituted Nutrition Action Plan Delivery Board as standing advisory body

Establishment of DH led programme to audit malnutrition and consequences accurately using common definition set for hospitals, care homes, and GP practices.

Establish Nutrition as Risk - via NPSA to ensure better reporting of nutrition-related incidents as adverse events.

Educate the healthcare workforce and public

Establish incentives and effective commissioning – Care Quality Commission CQUIN, QOFs, PbR

A POSITIVE APPROACH TO NUTRITION AS TREATMENT

KINGS FUND STUDY

- People who are ill are often malnourished
- Appropriate nutritional care confers both clinical and financial benefits

How many preventable UK deaths?

- Parliamentary question on number of deaths from malnutrition '263 with 241 in hospital'
- Approx 250,000 hospital deaths per year of which >30% malnourished = malnutrition must be present in >80,000 deaths

- For many it may be 'time to die' and so nutrition support may not be appropriate
 - assume this in 40%
 - 50,000 should be treated
- assume 50% get treated currently
 - 25000 not treated but should be
- In such cases treatment reduces mortality by 40%
 - Conclusion 10,000 avoidable deaths

Misconceptions

- *There isn't much malnutrition in the modern World*
- *The evidence for giving nutritional support is poor*



**malnutrition
matters** 