Oral Nutritional Supplements to Tackle Malnutrition

SUMMARY BOOKLET

Medical Nutrition International Industry

FOREWORD

Malnutrition, specifically under-nutrition which is typically associated with disease, is a widespread problem affecting the lives of millions of people across Europe each year. The consequences of malnutrition have detrimental effects on both individuals and society. Malnutrition leads to increased healthcare resource use. The costs associated with malnutrition can amount to a staggering €170 billion in Europe alone.

Whilst most commonly identified in institutions, particularly amongst patients in hospitals and care homes, the majority of people who are malnourished or who are at risk of malnutrition live in the community. Across all these settings, the problem of malnutrition is often overlooked, undetected and untreated. With an increasingly ageing population across Europe, interventions to prevent, identify and treat malnutrition are vital.

The dossier 'Oral Nutritional Supplements to Tackle Malnutrition' draws on a wide range of independent evidence and research and contains a collection of the latest data, including key insights and facts relating to malnutrition's causes, prevalence, and consequences. The dossier highlights the need for routine screening and verifies the importance of nutritional intervention, in particular focusing on oral nutritional supplements (ONS), as a clinically effective and a potential cost-saving method for healthcare systems.

This summary booklet provides an accessible, practical and condensed compilation of the research presented in the full dossier. The booklet also highlights key facts and figures relating to the implications of malnutrition, and showcases best practice examples and statements from independent experts.

The Medical Nutrition International Industry (MNI) aims to increase awareness about malnutrition and hopes you will join the fight against malnutrition.

Dr. Meike Engfer and
Dr. Ceri Green
On behalf of the MNI

Use the QR code below to access the dossier on 'Oral Nutritional Supplements to Tackle Malnutrition', or visit **www.medicalnutritionindustry.com**

ABOUT THE MEDICAL NUTRITION INTERNATIONAL INDUSTRY (MNI)

Medical Nutrition International Industry

The Medical Nutrition International Industry (MNI) is the international trade association of companies providing products and services that support patient management and rehabilitation by the appropriate use of specialised nutritional support, including enteral and parenteral nutrition. MNI is comprised of leading international companies in the development, manufacture and provision of Medical Nutrition and supporting services, namely: Abbott, Baxter, B. Braun, Fresenius Kabi, Nestlé Health Science and Nutricia.

MNI supports research into exploring the potential of Medical Nutrition in improving the health of patients, and promotes the transition of clinical nutrition research into standard practice through dissemination and implementation of best practices and clinical guidelines.

MNI is committed to the fight against disease-related malnutrition and supports nutritional screening with validated tools in all relevant settings, followed by appropriate nutritional care of patients identified as being at nutritional risk.

Acutely aware of the pressures faced by healthcare organisations and that nutritional care is not always considered as an integral part of patient care, MNI aims to ensure that the evidence base for the causes, prevalence and consequences of malnutrition is robust and available to decision-makers and practitioners. Oral nutritional supplements (ONS) are one of a spectrum of nutritional support strategies that can be used to tackle malnutrition, improve patient outcomes and lower the significant financial costs associated with malnutrition.

For further information contact the secretariat@medicalnutrition-industry.com or visit **www.medicalnutritionindustry.com**

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Malnutrition as a health concern

'Malnutrition' includes both over-nutrition (overweight and obesity) as well as under-nutrition, but in the context of this booklet 'malnutrition' (also known as disease-related malnutrition) is used to mean under-nutrition and nutritional risk. Malnutrition is widespread in Europe and it is estimated that 33 million people are at risk.[1,2]

Malnutrition is caused by poor food intake with disability and disease at the heart of the problem.[3] Despite the availability of reliable screening tools, malnutrition still goes undetected and untreated in hospitals, care homes and amongst people living in the community. Often less than 50% of patients identified as malnourished receive nutritional intervention.[4,5] The opportunity for early identification and appropriate management of malnutrition or risk of malnutrition is therefore a necessity to tackle the impact it has on patients.

Malnutrition is most commonly found in association with disease and can affect all age groups, from older adults to young children. Older people are particularly at risk – hospitalised patients over the age of 65 years have a 30% greater chance of becoming malnourished.[6] Malnutrition is widespread in hospitals and care homes.

Malnutrition has both clinical and financial consequences, for both the individual and society as a whole. Most notably, malnourished hospital patients experience significantly higher complication rates and the risk of infection is more than three times greater than in well-nourished counterparts.[7,8]

Malnutrition has a particularly adverse impact for the older person living in the community, by impairing function, mobility and independence. In the community, malnourished patients visit family doctors more often and have more frequent hospital admissions than well-nourished patients.[9]

Based on figures from the UK, the costs associated with malnutrition in Europe are estimated to amount to €170 billion each year - more than double the amount spent on obesity.[1,2,10] A growing body of evidence demonstrates the value of appropriate nutritional intervention in reducing adverse health outcomes.[2,11]

Prevalence of malnutrition

Malnutrition is not a new problem. Malnutrition is widespread across all healthcare settings. However, a lack of routine screening for risk of malnutrition has often meant that the opportunity for early intervention and prevention is missed.

Malnutrition is prevalent across various settings, patients and age groups:

- Large scale studies show that about 1 in 4 adult patients in hospital are at risk of malnutrition or already malnourished [6,12-14]
- More than 1 in 3 people in care homes are at risk of malnutrition or already malnourished[15-18]
- 1 in 3 older people living independently are at risk of malnutrition[15]
- Almost 1 in 5 children admitted to Dutch hospitals have acute or chronic malnutrition[19]

Malnutrition is common across a variety of hospital wards and is especially prevalent in geriatric and oncology wards (see **Fig. 1**). Despite the high prevalence of the risk of malnutrition in institutions, the greatest numbers of patients at nutritional risk are found in the community – an estimated 93% of the people who are malnourished or at risk of malnutrition live at home.[24]

WHAT THE EXPERTS SAY

Dr Ailsa Brotherton works in the UK Department of Health's QIPP Safe Care workstream and is Honorary Secretary of the British Association for Parenteral and Enteral Nutrition (BAPEN) Executive Team:

"We need to improve the nutritional care that patients receive. This means identifying malnutrition early and ensuring that patients in all care settings, especially those who are vulnerable, are screened for malnutrition and then have a personal care plan and appropriate monitoring thereafter, if they are at risk."

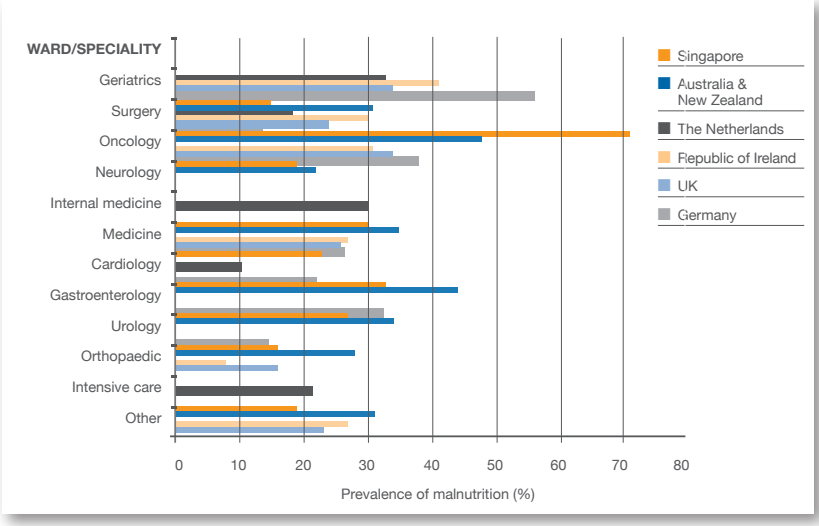


Figure 1 Prevalence of malnutrition and risk of malnutrition according to hospital ward/primary admitting speciality[14, 20-23]

KEY ASPECTS

- Even when identified, malnutrition is not always treated
- Malnutrition is a widespread public health problem in Europe where 33 million people are estimated to be at risk
- Malnutrition affects all demographics and is most prevalent in the community amongst older adults
- Malnutrition causes disability, loss of independence and is associated with increased healthcare use

Causes of malnutrition

Malnutrition is primarily caused by insufficient dietary intake, with disease and its treatment being the underlying factors for decreased food intake.[3,25]

Food intake can decline for a variety of reasons, such as poor appetite, swallowing problems and the side effects of drugs.[3] Especially affected are patients with cancer, who may have taste changes or nausea due to treatment, and those with neurological conditions who may not be able to swallow or feed themselves. More than 50% of hospital patients don't eat the full meal they are given and 30% of nursing home residents eat less than half their lunch, meaning that patients often fail to meet their nutritional needs.[26,27]

But there is more to malnutrition than poor food intake (see **Fig 2**). Lack of a clear description of responsibilities for health authorities, institutions, and healthcare workers, and inadequate training and equipment for screening exacerbates the problem of malnutrition. Therefore a multi-disciplinary approach is needed to identify and implement appropriate and effective solutions.

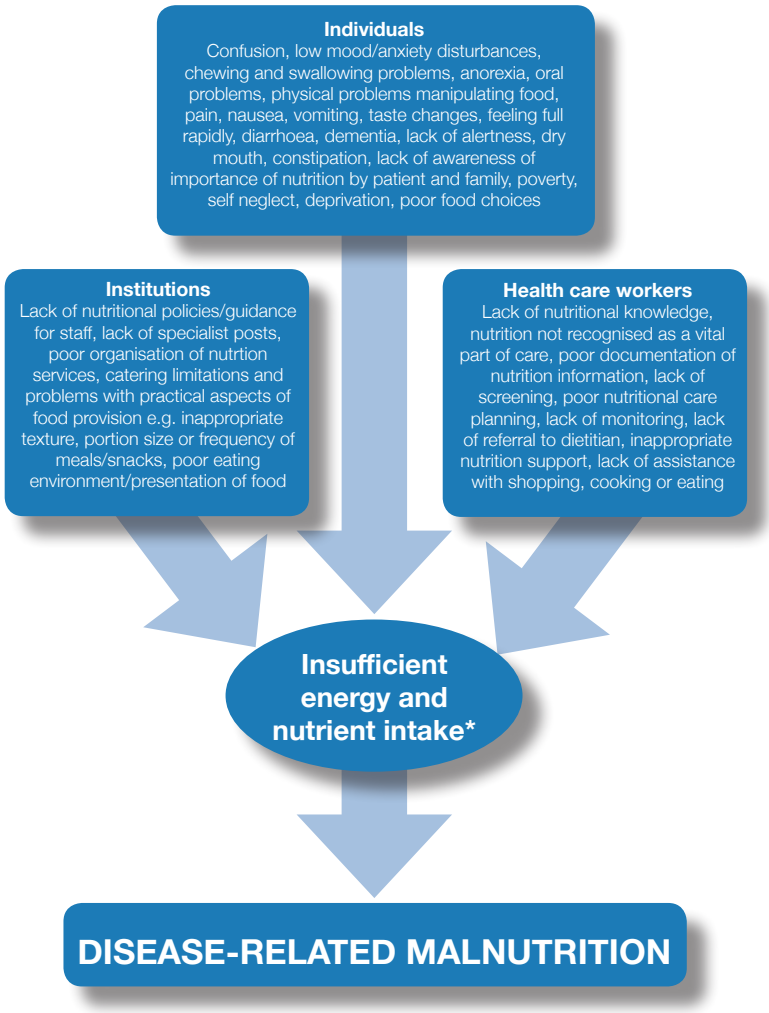


Figure 2 **Factors leading to insufficient energy and nutrient intake in adults as a cause of disease-related malnutrition** (adapted from Stratton et al. 2003)[3]

*Requirements for some nutrients may be increased due to malabsorption, altered metabolism and excess losses

KEY ASPECTS

- **Disease and its treatment, resulting in decreased food intake, are the major causes of malnutrition**
- **Especially vulnerable are patients suffering from cancer and patients with neurological conditions**
- **To tackle malnutrition most effectively a multi-disciplinary approach is needed involving healthcare workers, institutions and health authorities.**

Consequences of malnutrition

Malnutrition can adversely affect every organ in the body, and can lead to far-reaching physical and psycho-social consequences, such as impaired immune response, impaired wound healing, reduced muscle strength and fatigue, inactivity, apathy, depression and self-neglect.[24] For older adults, especially for those living in the community, it can severely impair function, mobility and independence. Overall malnutrition can result in a poorer quality of life.[3]

Malnutrition has a number of clinical consequences (see **Fig. 3**).[28] Malnourished hospital patients experience significantly higher complication rates than well-nourished patients (30.6% vs 11.3%). Mortality rates are considerably greater - up to 24% - in 'at-risk' hospital patients compared with 'not-at-risk' patients.[3]

In turn, malnutrition can lead to adverse financial implications for national healthcare budgets, with increased healthcare resource use such as increases in length of hospital stay and increased readmissions. The average length of hospital stay may be increased by 30% in malnourished patients.[29]

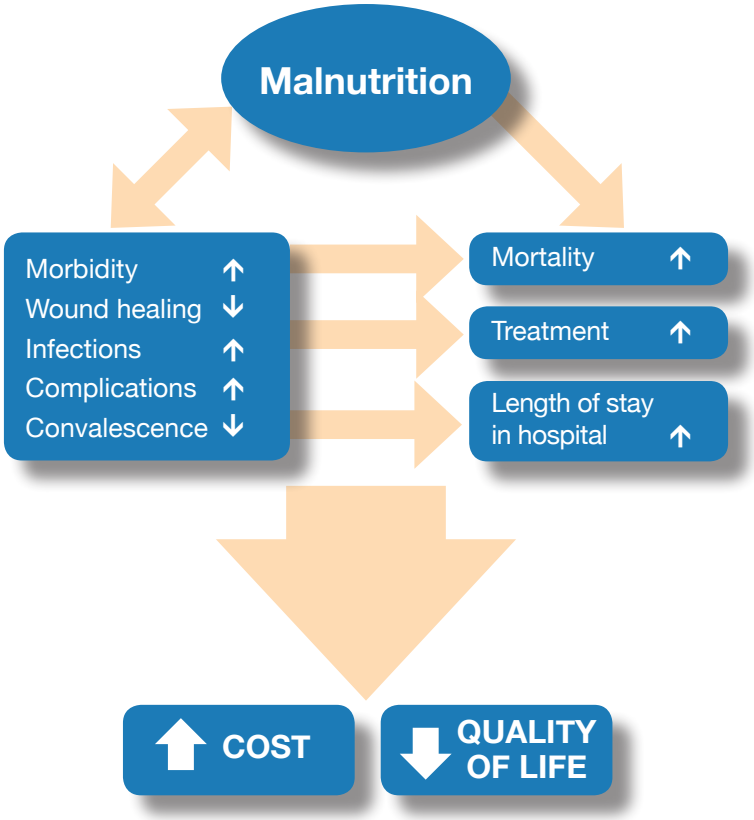


Figure 3 **Prognostic impact of malnutrition** (adapted from Norman et al. 2008)[28]

WHAT THE EXPERTS SAY

Professor Alessandro Laviano is Associate Professor of Internal Medicine at the Department of Clinical Medicine, Sapienza University of Rome, Italy and Chairman of the Educational and Clinical Practice Committee of the European Society of Clinical Nutrition and Metabolism (ESPEN):

"Malnutrition is not seen as a priority in patients; their underlying pathologies take priority. We need to realise that without proper nutrition, malnutrition will lead to increased complications and longer recovery times amongst patients. In every other walk of life, the emphasis is placed on losing weight, but here it is our intention to get patients to maintain or increase their weight. This is not always a popular intervention."

KEY ASPECTS

- The risk of complications is more than 3 times greater among hospitalised malnourished patients
- Malnutrition can lead to longer hospital stays for patients
- Malnutrition is associated with higher mortality rates for 'at-risk' hospital patients

Costs of malnutrition

Based on the fact that malnutrition is associated with increased use of healthcare resource as a result of longer stays in hospital, increased readmissions and greater levels of complications amongst patients, it is estimated that the costs associated with malnutrition and risk of malnutrition in Europe is €170 billion.[2]

KEY ASPECTS

- The costs associated with malnutrition and risk of malnutrition are estimated to be €170 billion in Europe
- Spending related to the management of malnutrition is as high as 10% of the annual health and social care budget in Ireland
- Costs related to malnutrition are expected to rise in the years to come

	Country	Population (approx.)	Estimated financial cost implications of malnutrition
	United Kingdom	60.8 million	**€15 billion** - total cost of issues related to malnutrition in 2007[10]
	Germany	82.4 million	**€9 billion**, rising to 11 billion Euro by 2020 - costs relating to malnutrition[30]
	Netherlands	16.8 million	**€1.9 billion** - total additional costs in 2011 of disease-related malnutrition, which equals 2.1% of the total Dutch national health expenditure and 4.9% of the total costs of the healthcare sectors[31]
	Ireland	4.1 million	**€1.4 billion** - in 2007, 10% of the annual health and social care budget was spent on managing malnutrition in Ireland[32]
	Europe	738.2 million	**€170 billion** - the estimated cost associated with disease-related malnutrition in Europe[2]

Table 1 Examples of estimated financial cost implications of malnutrition across Europe

Nutritional care as therapeutic target

Nutritional support is a necessary part of patient care. It starts with ensuring that people have access to appetising and nutritious food that meets their nutritional, cultural and religious needs. Good nutritional care includes nutritional screening to identify patients at nutritional risk, and care planning to ensure that patients receive the appropriate nutrition, at the right time.

The issue of malnutrition cannot be tackled in isolation. Efforts are being made to bring stakeholders together to raise awareness of the issue of malnutrition and to provide a coordinated approach to tackle the problem of malnutrition across healthcare settings.

In June 2009, in cooperation with the Czech Republic European Presidency, representatives of health ministries from the EU member states and several other stakeholder groups met and issued the 'Prague Declaration' under the banner 'Stop disease-related malnutrition and diseases due to malnutrition!' The declaration called for the following actions to fight malnutrition:

- Public awareness and education
- Guideline development and implementation
- Mandatory screening
- Research on malnutrition
- Training in nutritional care for health and social care professionals
- National nutritional care plans endorsed, and their implemen tation and funding across all care settings endorsed
- Consideration of malnutrition as a key topic for forthcoming EU Presidencies

In the declaration of Warsaw from October 2011, issued during the Polish Presidency of the European Union, key areas have been reinforced to counter the wide range of adverse effects that malnutrition can have on patients and healthcare systems:

- Implementation of routine nutrition-risk screening across the EU
- Public awareness
- Reimbursement policies
- Medical education

For patients identified as malnourished or at risk of malnutrition adequate nutritional support should be provided. Starting with dietary counselling and the enrichment of conventional food, the introduction of Medical Nutrition such as ONS into the nutritional care plan is an evidence-based option that has been shown to effectively manage vulnerable patients.

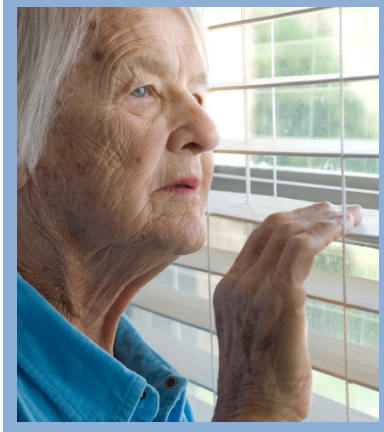
WHAT THE EXPERTS SAY

Professor Koen Joosten, Paediatric - Intensivist at Erasmus MC - Sophia Children's Hospital in the Netherlands and Treasurer of the Dutch Society of Parenteral and Enteral Nutrition (NESPEN), comments on the importance of a multi-disciplinary approach:

"Collaboration within the whole hospital system is of paramount importance when fostering a new programme. Assigning responsibilities, defining goals and building awareness and good lines of communication between doctors, nurses, senior management and information systems are all essential elements to success when introducing a new way of working."

CASE STUDY

Malnutrition should not be an inevitable part of illness and ageing. It is everyone's responsibility to demand that malnutrition is recognised through screening and that action is taken to make sure the right nutritional care is given at the right time.



Here is Anne's story – an example of a personal care plan to aid a patient's recovery.

Anne's Background

Anne is an elderly lady who lives alone. Her husband died two years ago. Previously, Anne was very sociable and attended many events, but now she is rarely seen around town. She is unable to leave the house and relies on occasional visits from distant family for help. Her health is poor, and she has a respiratory condition.

Anne can't shop for food or cook her own meals. She may not see the importance of preparing nutritious meals for herself. She may be depressed. Respiratory disease can make it difficult to breathe and eat.

Anne's Nutritional Care

Anne's healthcare team should:

- **Check for malnutrition risk using a validated screening tool**
- **Treat her underlying respiratory disease and depression**
- **Arrange support to help with shopping and cooking**
- **Provide oral nutritional supplements until Anne can eat enough to meet her needs**
- **Monitor her progress to ensure her nutritional care reaches the goals set**

WHAT THE EXPERTS SAY

Professor Jean-Pierre Michel is Honorary Professor of Medicine, Geneva University, Switzerland, and President of the European Union Geriatric Medicine Society (EUGMS):

"Multiple beneficial clinical outcomes can be expected from the prescription of ONS including body weight increase, gain in muscle strength and mobility as well as improvement of respiratory function that will contribute to ease activities of daily living and enhance quality of life."

Clinical benefits of ONS

ONS are a clinically effective solution to tackling malnutrition. There is extensive and robust evidence to show that ONS are a successful nutritional support strategy that can be used to combat malnutrition and improve outcomes amongst patients who are able to consume food, but not enough to meet their nutritional requirements.

ONS have proven nutritional, functional and clinical benefits in both hospital and community settings in a wide variety of patient groups.

Key findings show that ONS have distinct outcome benefits:

- Reduction in mortality of up to 24% vs. standard care[4]
- Reduction in complication rates vs. routine care [3,33,34] (see **Fig. 4**)
- ONS lead to weight gain in hospital patients and in those transferred to the community, including older people[33]

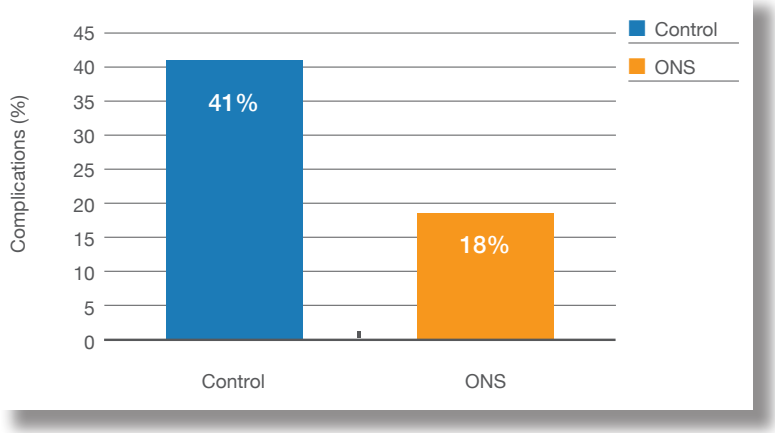


Figure 4 Lower complication rates in supplemented vs control patients in hospital (adapted from Stratton et al. 2003)[3]

KEY ASPECTS

- **ONS are an effective and non-invasive solution to tackling malnutrition**
- **ONS lead to weight gain and prevention of weight loss in patients who are malnourished or at risk of malnutrition**
- **ONS use is consistently linked to lower mortality and complication rates for malnourished patients, when compared to standard care**

WHAT THE EXPERTS SAY

Professor Jean-Pierre Michel:

"The use of ONS is important because it can decrease complications, ensure quicker recovery leading to decreased length of stay in hospital, which in turn means decreased costs."

Economic benefits of ONS

Potential cost savings, as a result of reduced healthcare use have been demonstrated in patients supplemented with ONS and can be realised in both the hospital and the community setting (see Table 2). Economic modelling undertaken by NICE (2006) showed ONS to be cost-effective as part of a screening programme.[33] NICE classifies ONS as 'a treatment deemed to be good value for money'.

Besides improving the well-being of patients, fighting malnutrition with ONS is an opportunity for healthcare providers to control costs. This is especially relevant in light of the ageing population and the high prevalence of chronic disease that adversely impact nutritional status, which in turn contributes to an increased cost burden. Controlling and managing malnutrition can contribute to the solution. Even though costs might occur in one setting and beneficial effects might be measurable in another, effective prevention and management of malnutrition will realise cost savings across the social and healthcare system. For example, the use of high-protein ONS is associated with a reduction of overall hospital readmissions by 30%.[38]

Country	Patient group	Cost-saving per patient
HOSPITAL		
Netherlands[35]	Abdominal surgery patients	€252
UK[10]	Pooled results from analysis in surgical, elderly and stroke patients	€1002 (£849) (bed day costs) €352 (£298) (complication costs)
COMMUNITY		
France[36]	Malnourished older people (>70 years of age)	€195
Germany[37]	Patients eligible for ONS due to risk of DRM*	€234-€257

* DRM:disease-related malnutrition

Table 2 Examples of studies demonstrating cost-savings by use of ONS[10, 35-37]

KEY ASPECTS

- The use of ONS in the UK has been found to save €1000 per patient based on length of stay
- Community patients given ONS have fewer healthcare visits at home
- Reduction of overall hospital readmissions by 30% with high-protein ONS

ONS as part of good nutritional care

ONS are increasingly recognised as an integral part of the overall patient management strategy for malnutrition in hospitals and in the community, supported by the solid evidence that ONS lead to improvements in nutritional intake, clinical, functional and economic outcomes.

In many countries evidence-based guidelines on the management of malnutrition have been developed by national authorities, government agencies, health departments, clinical experts and professional organisations and in many cases through collaboration and joint working by these stakeholders.

Good practice in nutritional care in social and healthcare settings should incorporate a range of strategies and activities designed to ensure that each patient receives the most appropriate, individually tailored and timely nutrition intervention to optimise nutritional intake and status with a view to improving outcome.

There are many good examples of where implementation of nutritional guidelines can have positive effects for patients and healthcare providers. However, it is often difficult to identify examples either because gaps still exist between guidelines that are in place but are not yet fully implemented, or because good practice has not been documented and shared. Clearly, a coordinated multi-disciplinary approach must be undertaken to translate 'academic guidelines' into a practical approach for healthcare professionals.

Since 2008, MNI has awarded an annual grant for the best national initiative demonstrating translation of evidence into practical approaches to fight malnutrition. More information on these projects can be found at **www.medicalnutritionindustry.com**.

WHAT THE EXPERTS SAY

Dr Ailsa Brotherton:

"There is enough evidence that demonstrates that nutrition does have a significant impact on patient care and improves health outcomes whilst delivering financial savings."

BEST PRACTICE EXAMPLES

- Implementation of screening using 'MUST' improved nutritional care, improved appropriate use of care plans and reduced hospital stay and costs[39]
- Use of dietetic assistants to provide intensive feeding support, including ONS (as recommended by the Welsh Assembly Government guidelines) in older women with hip fracture significantly increased energy intake and reduced mortality both in the acute trauma ward and at 4-month follow-up[40]
- Implementation of a nutritional care protocol for patients with cancer in a Spanish hospital led to attenuation of weight loss in 60% of patients and weight gain in 17% of patients[41]
- Implementation of a nutritional care programme for older people in a Belgian hospital led to a significant reduction in length of hospital stay[42]

RECOMMENDATIONS

In all aspects in the fight against malnutrition, from identification through to delivering the best care for patients in a cost-effective way, several key themes emerge:

- there must be **multi-stake-holder** involvement at all levels
- **awareness, training and education** are central to success
- **audit and quality improvement** activities are mandatory
- opportunities for sharing **good practice** need to be created

MNI is committed to increasing the awareness of malnutrition and supporting efforts to encourage the introduction of routine screening, assessment and appropriate nutrition support across healthcare and community environments. To achieve these aims, MNI makes the following recommendations:

Identifying malnutrition	• National nutrition policies should be in place that address malnutrition, as well as obesity and overweight • Routine screening for vulnerable groups should be built into national nutrition policies • Validated screening tools should be used to identify patients with or at risk of malnutrition • Agreement is needed on who is responsible for performing screening for malnutrition
Prevalence	• A commitment should be made to systematically measure the prevalence of malnutrition and risk of malnutrition and to share the results
Causes	• Evidence based approaches for nutritional care plans should be used, taking into account the causes of malnutrition, the objectives of intervention but also environmental and practical constraints
Consequences	• Awareness should be raised about the wide ranging negative consequences of malnutrition for patients, for healthcare providers and for society in general
Nutritional Care Plan	• Examples of good practice should be widely shared to facilitate the implementation of nutritional guidelines and ensure best use of resources
Benefits of ONS	• A wealth of evidence demonstrates the benefits of ONS. This should be translated into practice to ensure that patients who need nutritional intervention receive it
Guidance	• Guidance on managing malnourished patients or patients at risk of malnutrition should reflect current evidence regarding nutritional intervention, such as ONS and provide clear and practical advice about how and when to use nutritional interventions
Good Practice	• Examples of good practice should be shared widely to facilitate the implementation of nutritional guidelines and ensure best use of resources

ACKNOWLEDGEMENTS

The MNI would like to thank and gratefully acknowledge the input of the following experts who contributed their knowledge and expertise:

Dr. Ailsa Brotherton works in the Department of Health's QIPP Safe Care workstream which has delivered a national improvement programme with a focus on nutrition and hydration. Ailsa is Honorary Secretary of BAPENs Executive Team, is a member of BAPEN's quality group and is the Director of Clinical Engagement and Leadership at NHS QUEST in England.

Professor Koen Joosten is a Paediatric-Intensivist at Erasmus MC - Sophia Children's Hospital in the Netherlands. He is a member of several nutritional committees; he is chairman of the feeding group of the Dutch Paediatric Association, a member of the Dutch steering committee on malnutrition, and is treasurer of NESPEN.

Professor Alessandro Laviano, is Associate Professor of Internal Medicine at the Department of Clinical Medicine, Sapienza University of Rome, Italy and Chairman of the Educational and Clinical Practice Committee of ESPEN.

Professor Jean-Pierre Michel is Honorary Professor of Medicine, Geneva University, Switzerland. He is the EUGMS President (2012-3) and WHO expert of the "Ageing and Life course" program. He co-founded the European Academy for Medicine of Aging (EAMA), the Middle East Academy of Medicine of Ageing (MEAMA) and the IAGG Master Classes on Ageing in Asia.

Fionna Page BSc (Hons), RD, collated and wrote the full dossier on behalf of MNI. Fionna is a registered dietitian with many years of experience spanning both clinical practice (in particular nutrition support in hospital and community care settings) and the medical food industry.

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For further details and a full list of references please refer to the dossier “Oral Nutritional Supplements to Tackle Malnutrition”.
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