

A Practical Guide for Lung Cancer Nutritional Care



Endorsed by the
National Lung Cancer Forum
for Nurses



Supported by the
Oncology Group of the British
Dietetic Association



Royal College of
General Practitioners

Endorsed by the
Royal College of General
Practitioners



Royal College
of Nursing

Supported by the
Royal College of Nursing



ROY CASTLE
LUNG CANCER
FOUNDATION

Endorsed by the
Roy Castle Lung Foundation



Endorsed by the
British Pharmaceutical
Nutrition Group



National Nurses Nutrition Group
Supported by the
National Nurses Nutrition
Group



Endorsed by the
British Association for Parenteral
and Enteral Nutrition



Supported by the
British Dietetic Association



Endorsed by the
British Thoracic
Oncology Group



British Oncology Pharmacy Association
Endorsed by the
British Oncology Pharmacy
Association



Endorsed by the
Royal Pharmaceutical
Society

Introduction

The Lung Cancer Nutritional Care Pathway (see page 6) is a practical guide for optimising the nutritional status of patients with lung cancer in order to maximise treatment outcomes. In the absence of a dedicated dietitian, the Pathway provides guidance to enable the multidisciplinary team (e.g. oncologist, radiographer, lung cancer clinical nurse specialist, oncology outpatient nurse, healthcare assistant and community healthcare professionals) to screen and monitor the nutritional status of patients throughout their journey.

Even if there are no apparent symptoms such as weight loss, poor appetite or muscle

wasting, the Lung Cancer Nutritional Care Pathway recommends screening all patients at diagnosis to identify malnutrition risk and monitor those patients likely to become malnourished. Monitoring and regular reviews at each visit are recommended. Guidance is provided for patients at low risk, moderate risk and high risk of malnutrition, with recommendations for nutritional intake and appropriate nutritional support at all stages of the patient journey.

The Lung Cancer Nutritional Care Pathway was developed by a panel of healthcare professionals experienced in working with oncology patients, based on expert opinion and in accordance with the current evidence-base.

Lung cancer overview

Lung cancer is the second most common cancer in the UK accounting for 13% of all new cases¹. In 2012 there were 35,371 deaths from lung cancer in the UK². More than half of all people with lung cancer die within six months of the diagnosis³. Lung cancer currently accounts for 6% of all deaths in the UK and is the most common form of cancer death for both men and women¹. In 2011 there were 43,463 new cases of lung cancer in the UK; 55% in men and 45% in women^{2,4}.

The emergence of highly specialised treatments and new developments in different

therapies to treat lung cancer contribute towards more patients having the opportunity to be treated with potentially curative therapies⁵. However, the impact of treatment together with unintentional weight loss, pain, sickness, changes in appetite and breathlessness all add to the decline in nutritional status of these patients.

There is a lack of studies relating specifically to nutrition and lung cancer but there is an acceptance that nutritional screening should be performed systematically, early and repeatedly.

Discussion panel

Dr Carrie Ashby | General Practitioner | Hampshire and RCGP GP Nutrition Group

Eileen Baldock | Clinical Nurse Specialist | Sussex Cancer Centre | Royal Sussex County Hospital | Brighton

Mhairi Donald | Macmillan Consultant Dietitian | Sussex Cancer Centre | Royal Sussex County Hospital | Brighton

Professor Rosemary Richardson | Dietitian and Researcher | Macmillan Scotland

Fiona Simmons | Macmillan Dietitian | Heart of England NHS Foundation Trust | Heartlands Hospital | Birmingham

Maureen Thomson | Consultant Radiographer | Beatson West of Scotland Cancer Centre | Glasgow

Contributors

Dr Rohit Lal | Consultant Medical Oncologist | Guy's and St. Thomas' NHS Foundation Trust | London

National Lung Cancer Forum for Nurses | www.nlcfn.org.uk

This document has been produced with the assistance of an education grant from Nutricia Advanced Medical Nutrition (www.nutricia.co.uk)

Malnutrition and cancer

Disease-related malnutrition occurs frequently in patients with cancer and is a major cause of morbidity and mortality⁶.

The incidence of malnutrition in cancer patients ranges between 40% and 80%, the prevalence ranges from 50% to 80% depending on the tumour type, tumour location, stage of disease, treatment received and the type of nutritional assessment method used⁷⁻⁹.

A study of almost 1500 patients with cancer who attended the out-patient department found that 32% were at nutritional risk and this was higher than expected for the patient group¹⁰. In addition the nutritional risk was associated with common clinical variables which are usually recorded in the patient records and could easily alert the oncologist to the need for further nutritional assessment and/or nutritional support¹⁰.

Decreased dietary intake, cancer cachexia (characterised mainly by loss of appetite, weight loss and muscle wasting), and nutritional status may all contribute to cancer-related malnutrition⁸. The nutritional status may result from the local effects of the tumour itself, the host response to the tumour, and/or the treatment modalities involving combinations of chemotherapy, radiotherapy and surgical regimens which produce various acute and chronic symptoms that all limit eating.

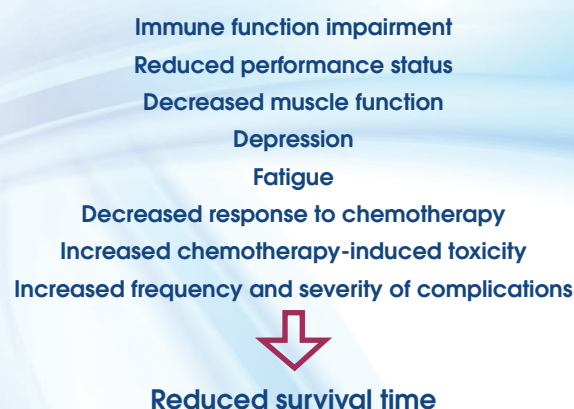
Malnutrition can be identified by using a validated screening tool such as the 'Malnutrition Universal Screening Tool' ('MUST') and/or local screening tools (see page 7).

For further information on malnutrition visit www.malnutritionpathway.co.uk

The consequences of malnutrition in cancer patients include the impairment of immune function, performance status, muscle function and associated debilitating morbidities such as depression and fatigue⁶.

In addition, responses to chemotherapy are decreased, chemotherapy-induced toxicity increases, and complications are more frequent and severe⁶. However, the major consequence of progressive weight loss and nutritional deterioration is reduced survival⁶. Cancer-related malnutrition is also associated with significant healthcare-related costs⁶.

Consequences of malnutrition in cancer patients⁶



Patient quality of life (QoL) is an extremely important outcome measure for cancer patients, their carers and families. How patients feel, physically and emotionally, whilst living with cancer can have an enormous effect on their recovery, ability to carry out normal daily functions, as well as their interpersonal relationships and ability to work.

A systematic review of the epidemiological literature concluded that correcting malnutrition in patients with cancer improves QoL¹¹.

Nutritional screening and support

The nutritional status of patients diagnosed with cancer and entering the Care Pathway will vary from patient to patient. Early nutrition screening can help to identify malnutrition risk and any problems that may affect how well the patient's body can deal with the impact of the subsequent cancer treatment¹².

Nutritional support is required for cancer patients to prevent and manage malnutrition and improve treatment efficacy; it may reduce the side effects of anti-cancer treatment and improve QoL^{6,13-15}.

Nutritional support can help patients maintain their weight or prevent weight loss, decrease problems with the treatment and aid recovery.

Nutritional screening is recommended on first contact with the care setting¹⁶⁻¹⁷. Once an individual has been highlighted at risk of malnutrition, regular screening and monitoring is recommended to determine any improvement or deterioration and action required¹⁶⁻¹⁷.

Nutritional interventions can include dietary advice, oral nutritional supplements (ONS), enteral tube feeding (ETF) and in some instances

parenteral nutrition (PN). Nutritional support can help patients to maintain weight, improve tolerance to treatment, maximise outcomes and improve QoL¹⁴.

Patients may require nutritional support from the onset at diagnosis, during treatment and throughout the whole patient journey, with early use of oral nutritional supplements (ONS). ONS can improve energy intake and reduce weight loss in cancer¹⁸⁻²¹. Nutritional intervention with ONS can also improve QoL in patients who are malnourished and may also result in cost savings^{13,20,22-23}.

Patients may require ONS to meet their daily nutritional requirements. Systematic reviews and NICE Clinical Guidance 32 have demonstrated ONS clinical efficacy and cost-effectiveness of ONS in the management of malnutrition, particularly amongst those patients with a low Body Mass Index (BMI < 20 kg/m²)^{14,23-25}. There is also a low threshold in particular patients undergoing radiotherapy to progress to ETF if they are unable to meet their nutritional requirements orally²⁶.

Dietary advice for patients with lung cancer

Many patients with lung cancer not only lose weight, but also find it difficult to eat and drink due to the presence of the tumour and the impact of cancer treatment. They may also have difficulty preparing and sourcing meals and drinks. Dietary advice is therefore important to help them manage these issues. Patients can be given advice on eating energy and protein-rich meals and snacks, maintaining a varied diet so that their vitamin and mineral needs are met, food fortification and consuming small frequent meals and snacks. In addition consideration should be given to those patients requiring a texture-modified diet due to swallowing problems.

Certain chemotherapy agents require an empty stomach to optimise absorption and therefore healthcare professionals may need to advise patients to avoid eating one hour before or up to two hours after taking such

medication. In terms of tumour and treatment related side effects impacting on normal food intake symptom control using appropriate pharmaceutical agents should be prioritised individually for each patient. Seek advice from a doctor or oncology pharmacist as appropriate.

Dietary advice – hints and tips

- Aim for 3 small meals and 3 small snacks a day
- Encourage high energy and protein-rich food choices e.g. full fat milk instead of semi-skimmed, mix grated cheese or cream into foods such as mashed potato and soups
- Keep high-energy snacks within easy reach. Cheese and crackers, biscuits, cakes, nuts, crisps, dried fruit and peanut butter on toast are a good way to get extra calories and protein throughout the day
- Have nourishing drinks in between meals other than tea, coffee and water
- Avoid drinking too much fluid with meals

Range and selection of oral nutritional supplements

There are a wide range of ONS styles (milkshake, juice, yoghurt, savoury), formats (liquid, powder, pudding, pre-thickened), types (high protein, low volume, fibre containing) energy densities (1-2.4kcal/ml) and flavours available to suit a wide range of patient needs. Most ONS provide approximately 300kcal, 12g protein and a full range of vitamins and minerals per serving²⁷.

Many patients requiring ONS can be managed using 1.5-2.4 kcal/ml. The amount of fluid in a standard ONS is approximately 200ml; however, for patients with a small appetite and/or those who are breathless or who have difficulty drinking larger volumes of fluid, there are more concentrated supplements available which contain the same amount of nutrition, but in only 125ml. When commencing ONS the considerations outlined are important.

Considerations when commencing ONS

- **Establish preferred flavours, likes and dislikes**
e.g. milk or juice, sweet or savoury
- **Test preferences and compliance with a**
prescribable 'starter pack'
- **Prescribe preferred product/flavour; 2 ONS/day**
(range 1-3/day – see Pathway on page 6)
- **Refer to a Dietitian where possible and particularly**
if ONS is the sole source of nutrition or patients have
complex needs
- **Modular ONS – that provide one or two nutrients – in**
either powdered or liquid format should only be used
under dietetic supervision
- **If the patient is also diabetic their blood sugars may**
need to be monitored more closely if appropriate

Nutrition starter pack

A nutrition starter pack for patients and carers, which gives them some basic nutritional support information, has been developed in conjunction with the National Lung Cancer Forum for Nurses.

Three two page A4 leaflets are available to download from the patient information section of the National Lung Cancer Forum for Nurses

website (www.nlcnf.org.uk) – these are Practical Tips for Eating, Using Oral Nutritional Supplements and Managing Common Symptoms. Nutritional information may also be available via your local dietetic team.

Further advice on nutrition in cancer can also be found at www.nutritionincancer.co.uk

References

- 1 Cancer Research. www.cancerresearchuk.org/cancer-info/cancerstats/types/lung/incidence/uk-lung-cancer-incidence-statistics (accessed 10 November 2014).
- 2 Cancer Research. www.cancerresearchuk.org/cancer-info/cancerstats/types/lung/mortality/uk-lung-cancer-mortality-statistics (accessed 10 November 2014).
- 3 Macmillan Cancer Support. Cancer's Unequal Burden. The reality behind improving cancer survival rates. April 2014
- 4 Bennett A, White J. Improving care and quality of life for patients with lung cancer. *Nursing Standard* 2013; 28 (9): 50-58
- 5 National Institute for Health and Clinical Evidence. The diagnosis and treatment of lung cancer. www.nice.org.uk/guidance/cg121/resources/nice-updates-guidance-on-the-diagnosis-and-treatment-of-lung-cancer (accessed 10 November 2014).
- 6 Van Cutsem E, Arends J. The causes and consequences of cancer-associated malnutrition. *European Journal of Oncology Nursing* 2005;9:S51-S63. Suppl 2:S51-63.
- 7 Tong H, Isenring E, Yates P. The prevalence of nutrition impact symptoms and their relationship to quality of life and clinical outcomes in medical oncology patients. *Support Care Cancer* 2009;17:83-90.
- 8 Isenring EA, Bauer JD, Capra S. The scored Patient-generated Subjective Global Assessment (PG-SGA) and its association with quality of life in ambulatory patients receiving radiotherapy. *European Journal of Clinical Nutrition* 2003;57:305-309.
- 9 Bauer J, Capra S, Ferguson M. Use of the scored Patient-Generated Subjective Global Assessment (PG-SGA) as a nutrition assessment tool in patients with cancer. *European Journal of Clinical Nutrition* 2002;56:779-785.
- 10 Bozzetti F, Mariani L, Vullo SL et al. The nutritional risk in oncology: a study of 1453 cancer outpatients. *Support Care Cancer* 2012;20(8):1919-1928.
- 11 Li CG, Gupta D, Vashi PG. Role of nutritional status in predicting quality of life outcomes in cancer – a systematic review of the epidemiological literature. *Nutritional Journal* 2012;11:27.
- 12 Arrieta O, Ortega RMM, Villanueva-Rodriguez G et al. Association of nutritional status and serum albumin levels with development of toxicity in patients with advanced non-small cell lung cancer treated with paclitaxel-cisplatin chemotherapy: a prospective study. *BMC Cancer* 2010;10:50.
- 13 Baldwin C, Spiro A, Ahern R et al. Oral Nutritional interventions in malnourished patients with cancer: a systematic review and meta-analysis. *Journal of National Cancer Institute* 2012;104(5):371-385.
- 14 Arends J, Bodoky G, Bozzetti F et al. ESPEN guidelines on enteral nutrition: non-surgical oncology. *Clinical Nutrition* 2006;25:245-259.
- 15 Rivadeneira DE, Evoy D, Fahey TJ et al. Nutritional support of the cancer patient. *Clinical Journal of Cancer* 1998;48:69-80.
- 16 National Institute for Health and Clinical Excellence. Nutrition support in adults: oral nutrition support, enteral and tube feeding and parenteral nutrition. Clinical Guideline 32, 2006.
- 17 National Institute for Health and Clinical Excellence. Quality standard for nutrition support in adults. NICE quality standard 24. November 2012
- 18 Percival C, Hussain A, Zadara-Chrzastowska S et al. Providing nutritional support to patients with thoracic cancer: findings of a dedicated rehabilitation service. *Respiratory Medicine* 2013;107(5):753-761.
- 19 Burden ST, Hill J, Shaffer JL et al. An unblinded randomised controlled trial of preoperative oral supplements in colorectal cancer patients. *Journal Human Nutrition and Dietetics* 2011;24(5):441-448.
- 20 Lee H, Havrilla C, Bravo V et al. Effect of oral nutritional supplementation on weight loss and percutaneous endoscopic gastrostomy tube rates in patients treated with radiotherapy for oropharyngeal carcinoma. *Support Cancer Care* 2008;16(3):285-289.
- 21 Stratton RJ, Green CJ, Elia M. Disease-related malnutrition: an evidence-based approach to treatment. Wallingford: CAB International; 2003.
- 22 Isenring EA, Bauer JD, Capra S. Nutrition support using the American Dietetic Association medical nutrition therapy protocol for radiation oncology patients improves dietary intake compared with standard practice. *Journal of American Dietetic Association* 2007;107(3):404-412.
- 23 Elia M (ed). The cost of disease-related malnutrition in the UK and economic considerations for the use of oral nutritional supplements (ONS) in adults. A report by BAPEN. 2005.
- 24 Garg S, Yoo J, Winquist E. Nutritional support for head and neck cancer patients receiving radiotherapy: a systematic review. *Support Care Cancer* 2010;18(6):667-677.
- 25 Stratton RJ, Elia M. A review of reviews. A new look at the evidence for oral nutritional supplements in clinical practice. *Clinical Nutrition Supplements* 2007;2:5-23.
- 26 Kiss N, Isenring E, Gough K, Krishnasamy M. The prevalence of weight loss during (chemo)radiotherapy treatment for lung cancer and associated patient and treatment related factors. *Clin Nutr*. 2013 Nov 25. pii: S0261-5614 (13)00319-1.
- 27 British National Formulary. www.medicinescomplete.com/about/publications.htm

Lung Cancer Nutritional Care Pathway

ALL PATIENTS

- Nutritionally screen at diagnosis with local or national tool e.g. 'MUST'¹
- Identify barriers impacting on nutritional intake as part of a holistic needs assessment e.g. 'Distress Thermometer'²
- Consider:
 - Eating and drinking difficulties
 - Appetite loss
 - Early satiety
 - Nausea and other GI issues
 - Sore mouth or swallowing problems including pain
 - Impact of fatigue and breathlessness
- Encourage mouth care strategies

LOW RISK

- Offer a 'Nutrition Starter Information Pack'^{**}
- Rescreen at next visit

MEDIUM RISK

As for low risk patients plus:

- Agree care plan with patient and carer
- Involve other members of the Multidisciplinary Team (MDT) if required e.g. Speech and Language Therapist
- Optimise symptom control and nutritional intake e.g.
 - Food fortification advice and texture modified diet
 - Small and frequent meals/snacks/nourishing drinks
- Consider appropriate use of oral nutritional supplements (ONS) as per local guidelines e.g. 2 ONS^{**} per day (range 1-3)^{3,4}
- Monitor and review at next visit and/or consider Dietitian referral

HIGH RISK

As for low/medium risk patients plus:

- Refer to dietitian for assessment and treatment plan
- If food intake is insufficient (<50% of 3 meals per day) recommend:
 - ONS e.g. 2 ONS per day (range 1-3) alongside oral intake, 12 week duration, according to clinical condition/nutritional needs^{4,7} as per local guidelines
- Consider enteral tube feeding as appropriate
- Appropriate dietary advice if oesophageal stent is in situ
- Ongoing monitoring and review regularly:
 - Check compliance and adjust nutritional intervention as required to maximise intake

ACTIVE SUPPORTIVE CARE

- Optimise nutritional care
- Liaise with patient, family, carer, and MDT regarding ethics i.e. provision of nutrition as treatment/basic care
- Liaise with palliative care team as required

Nutritional management and supportive care

Rescreen and/or refer to Dietitian as per local policy

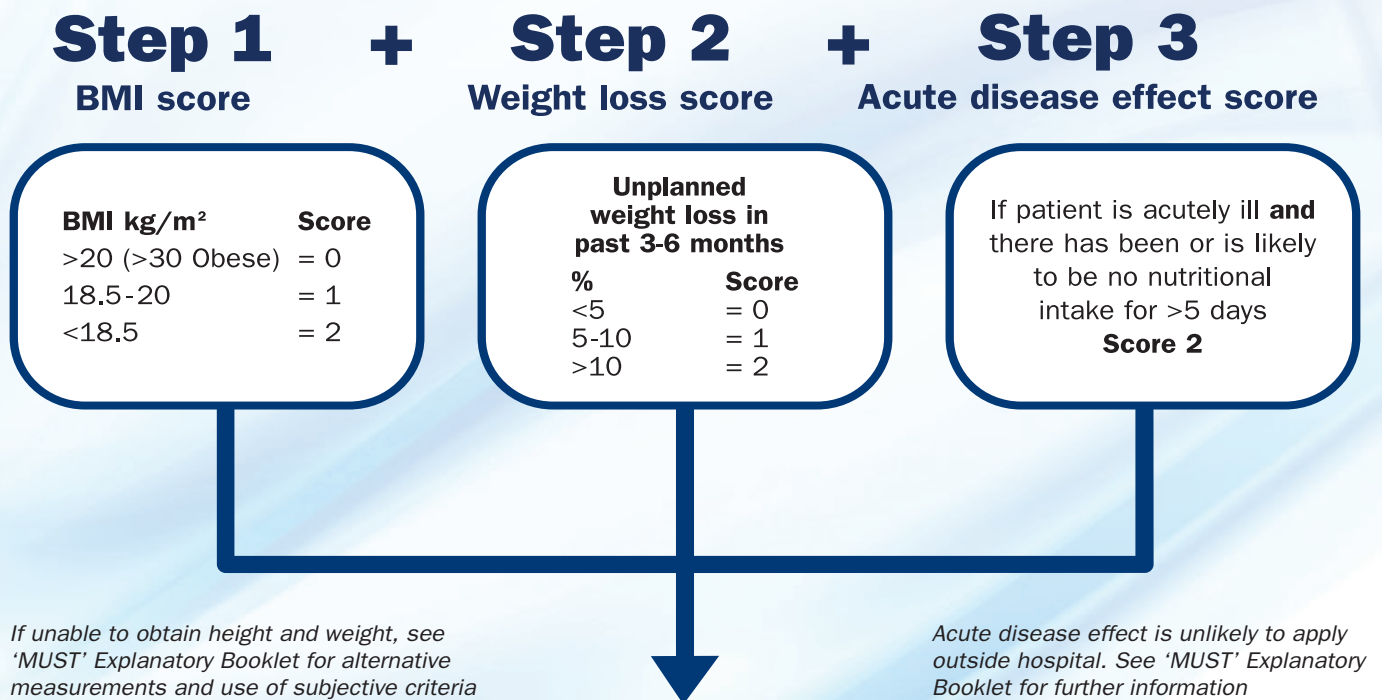
1. http://www.bapen.org.uk/pdfs/must/must_page3.pdf (accessed 10 November 2014).
 2. <http://www.ncsi.org.uk/wp-content/uploads/DI-Tool-Revised-Bristol-Method.pdf> (accessed 10 November 2014).
 3. Arends *et al.*, ESPEN Guidelines on Enteral Nutrition: Non-surgical oncology. Clin Nutr 2006; 25: 245-259.
 4. Percival C, Hussain A, Zadara-Chrzastowska S *et al.* Providing nutritional support to patients with thoracic cancer: findings of a dedicated rehabilitation service. Respiratory Medicine 2013; 107(5): 753-761.
 5. NICE. Nutrition support in adults: oral nutrition support, enteral tube feeding and parenteral nutrition. Clinical Guideline 32. 2006.
 6. Stratton RJ and Elia M. A review of reviews: A new look at the evidence for oral nutritional supplements in clinical practice. Clin Nutr Suppl 2. 5-23. 2007.

7. Norman K *et al.* Three month intervention with protein and energy rich supplements improve muscle function and quality of life in malnourished patients with non-neoplastic gastrointestinal disease – a randomized controlled trial. Clin Nutr 2008; 27(1): 48-56.

* A nutrition starter pack for patients and carers, which gives them some basic nutritional support information has been developed in conjunction with the National Lung Cancer Forum for Nurses and is available via www.nlcfn.org.uk

** ONS: Oral Nutritional Supplement
 These recommendations are based on the NCAT Lung Rehabilitation Care Pathway <http://webarchive.nationalarchives.gov.uk/20130513211237/http://www.ncat.nhs.uk/our-work/living-beyond-cancer/cancer-rehabilitation#tab-bestpracticepathways> (accessed 10 November 2014)
 NB: Pathway aimed at adults as lung cancer in children is incredibly rare.

'Malnutrition Universal Screening Tool' ('MUST') Flowchart



Step 4

Overall risk of malnutrition

Add Scores together to calculate overall risk of malnutrition
Score 0 Low Risk Score 1 Medium Risk Score 2 or more High Risk

See Lung Cancer Nutritional Care Pathway on page 6

All risk categories:

- Treat underlying condition and provide help and advice on food choices, eating and drinking when necessary.
- Record malnutrition risk category.
- Record need for special diets and follow local policy.

Obesity:

- Record presence of obesity. For those with underlying conditions, these are generally controlled before the treatment of obesity.

Re-assess subjects identified at risk as they move through care settings

See The 'MUST' Explanatory Booklet for further details and The 'MUST' Report for supporting evidence.

'Malnutrition Universal Screening Tool' ('MUST') is reproduced here with the kind permission of BAPEN (British Association for Parenteral and Enteral Nutrition).
For more information and supporting materials see: <http://www.bapen.org.uk/musttoolkit.html>

NOVEMBER 2014 (Document to be reviewed November 2019)

This document has been produced by a panel of healthcare professionals experienced in working with oncology patients.

Free copies of the guide can be downloaded from www.lungcancernutrition.com

Please send any feedback or requests for permission to reproduce any part of the guide to Hilary Franklin Healthcare Communications,
30 Queens Drive, Thames Ditton, Surrey, KT7 0TW. Email: hilary@franklincoms.co.uk Telephone: 020 8398 8551