



The following information resources have been selected by the National Health Library and Knowledge Service Evidence Virtual Team in response to your question. The resources are listed in our estimated order of relevance to practicing healthcare professionals confronted with this scenario in an Irish context. In respect of the evolving global situation and rapidly changing evidence base, it is advised to use hyperlinked sources in this document to ensure that the information you are disseminating to the public or applying in clinical practice is the most current, valid and accurate.

YOUR QUESTION

What dietetic advice is available for COVID 19 confirmed >65yoa patients—both non-ventilated and ventilated patients?

What do dietetic representative organisations say?

[ESPEN expert statements and practical guidance for nutritional management of individuals with sars-cov-2 infection¹](#)

On March 31 the European Society for Clinical Nutrition and Metabolism (ESPEN) released guidance which features 10 practical recommendations. It is focused on those in the ICU setting or in the presence of older age and polymorbidity, which are independently associated with malnutrition and its negative impact on patient survival.

This is essential guidance, which **[SHOULD BE READ IN FULL](#)** as it features clear recommendations using the best available evidence for the nutritional management of older COVID-10 confirmed patients. This guidance supersedes the other information within this evidence summary which was sourced prior to the publication of the ESPEN guidance.



PREVENTION AND TREATMENT OF MALNUTRITION IN INDIVIDUALS AT RISK OR INFECTED WITH SARS-COV-2

Statement 1

Patients at risk for poor outcomes and higher mortality following infection with SARS-COV-2, namely older adults and polymorbid individuals, should be checked for malnutrition through screening and assessment. The check should initially comprise the MUST criteria* or, for hospitalized patients, the NRS-2002 criteria.

*MUST criteria: see <https://www.bapen.org.uk/screening-and-must/must-calculator>

**NRS-2002 criteria: <https://www.mdcalc.com/nutrition-risk-screening-2002-nrs-2002>

Statement 2

Subjects with malnutrition should try to optimize their nutritional status, ideally by diet counselling from experienced professionals: registered dietitians, experienced nutritional scientists, clinical nutritionists and specialized physicians.

This statement includes energy needs formula for older persons.

Statement 3

Subjects with malnutrition should ensure sufficient supplementation with vitamins and minerals.

Statement 4

Patients in quarantine should continue regular physical activity while taking precautions.

Statement 5

Oral nutritional supplements (ONS) should be used whenever possible to meet patient's needs. When dietary counselling and food fortification are not sufficient to increase dietary intake and reach nutritional goals, ONS shall provide at least 400 kcal/day including 30 g or more of protein/day and shall be continued for at least one month. Efficacy and expected benefit of ONS shall be assessed once a month.



Statement 6

In polymorbid medical inpatients and in older persons with reasonable prognosis, whose nutritional requirements cannot be met orally, enteral nutrition (EN) should be administered. Parenteral nutrition (PN) should be considered when EN is not indicated or unable to reach targets.

NUTRITIONAL MANAGEMENT IN ICU PATIENTS INFECTED WITH SARS-COV-2

Statement 7

In COVID-19 non-intubated ICU patients not reaching the energy target with an oral diet, oral nutritional supplements (ONS) should be considered first and then enteral nutrition treatment. If there are limitations for the enteral route it could be advised to prescribe peripheral parenteral nutrition in the population not reaching energy-protein target by oral or enteral nutrition.

Statement 8

In COVID-19 intubated and ventilated ICU patients enteral nutrition (EN) should be started through a nasogastric tube; post-pyloric feeding should be performed in patients with gastric intolerance after prokinetic treatment or in patients at high-risk for aspiration; the prone position per se does not represent a limitation or contraindication for EN.

Statement 9

In ICU patients who do not tolerate full dose enteral nutrition (EN) during the first week in the ICU, initiating parenteral nutrition (PN) should be weighed on a case-by-case basis. PN should not be started until all strategies to maximize EN tolerance have been attempted.

Statement 10

In ICU patients with dysphagia, texture-adapted food can be considered after extubation. If swallowing is proven unsafe, EN should be administered. In cases with a very high aspiration risk, postpyloric EN or, if not possible, temporary PN during swallowing training with removed nasoenteral tube can be performed.



The European Federation of the Association of Dietitians provide a listing of COVID-19 information on Nutritional Support². This provides general guidance from a variety of countries and will continue to be updated.

Guidance which relates to older patients is outlined here:

Netherlands³

A dietitian, Hinke Kruijzena, in association with other experts, provides an interpretation of nutrition component of the Handbook of COVID-19 Prevention and Treatment:

“In [elderly] patients with a high aspiration risk or patients with a clearly distended abdomen (ileus?), parenteral nutrition can be temporarily administered. As their condition improves, this can be gradually replaced by enteral nutrition.”

The wording provided here is very similar to that provided for elderly patients in the Handbook, which is discussed further below, thereby implying agreement with this recommendation.

Kruijzena points out that the Handbook of COVID-19 Prevention and Treatment does not address the management of patients experiencing diarrhoea and other gastrointestinal symptoms, which are common in COVID-19 patients, and which would impact upon their salt and fluid requirements.

A separate generic nutrition policy is also provided by two unnamed Dutch dietitians. They recommend: **“All patients over 70 years of age receive a bottle of compact drinking food at breakfast (Fresubin 3.2: 125 ml, 400 kcal, 20 grams of protein), this was already standard policy and we have adhered to it.** The extra provisions and intermediate meals can of course always be adapted to the wishes of the patient”.



Spain. Food and nutritional recommendations for COVID-19 critically ill patients admitted to the ICU⁴

Despite the WHO including the initiation of enteral nutrition within the first 24-48h at the ICU, according to a Cochrane review the low quality of evidence does not allow to clearly establish whether early enteral nutrition within the first 48h compared to late enteral nutrition after 48h affects the risk of mortality within 30 days, food intolerance, gastrointestinal complications or pneumonia. On their behalf, ESPEN suggests that nutritional therapy should be considered 48h after admission in the ICU. The indicators to be monitored mainly include energy, protein and fluid balance maintenance. According to indirect evidence, oral diet versus enteral or parenteral nutrition is generally encouraged according to the severity of the disease, it is recommended to supply 20-30 kcal/kg/d.

Their specific guidance for elderly patients: **due to the characteristics of admitted subjects (patients over 70 years old, loss of consciousness, poor oral care, prone position, gastroesophageal reflux) the risk of bronchoaspiration must be considered and the loss of the airway protection.**

This guidance also recommends against the use of vitamins and minerals [copper, folate, iron, selenium, vitamin A, vitamin B12, vitamin B6, vitamin C, vitamin D and zinc] supplementation to boost the immune system of patients in the ICU, which contrasts to a paper recently published in the Irish Medical Journal recommending Vitamin D supplementation outlined below.

Ireland, UK and US

Irish resources are provided on [EFAD website](#) and also through INDI⁵, which has an e-learning centre containing a COVID-19 dietetic care pathway which commences with an assessment of risk of malnutrition using MST/MUST tools, screening tools and guidance relating to management of diarrhoea, fatigue, etc.

The British Dietetic Association⁶ provides general COVID-19 recommendations and protocols from other hospitals including CUH in Ireland, but none focus specifically on older patients, with the exception of older patients living independently⁷.

The American Society for Parenteral and Enteral Nutrition⁸ (ASPEN) provides only general guidance.

What does the World Health Organization say?

Clinical management of severe acute respiratory infection when novel coronavirus (2019-nCoV) infection is suspected⁹

In the context of prevention of complications – particularly stress ulcers and gastrointestinal bleeding – the WHO recommends that early enteral nutrition within 24 to 48 hours of admission is provided. It does not address nutrition specifically for the older population and has been criticised for not providing COVID-19 guidance specifically for older people who are not residents of long-term care facilities.¹⁰

What does the international literature say?

Handbook of COVID-19 Prevention and Treatment¹¹

This handbook, compiled from Chinese clinicians' experience of treating COVID-19 patients, focuses on intestinal microecology and nutritional support. They suggest that intestinal microecological balance is broken in COVID-19 patients, manifesting a significant reduction of the intestinal probiotics such as lactobacillus and bifidobacterium. They recommend timely nutritional support: oral feeding if tolerable; if not, use of enteral feeding.

The specific guidance they provide around the elderly is: **“The elderly patients who are at high aspiration risks or patients with apparent abdominal distention can be supported by parenteral nutrition temporarily. It can be gradually replaced by independent diet or enteral nutrition after their condition improves.”**

As mentioned above, a Dutch dietitian¹² agrees with the suggested use of parenteral nutrition, if required. Interestingly, Dutch experts in nutrition and metabolism, Prof. Max Nieuwdorp and Dr. Maarten Soeters, internists at Amsterdam UMC, were also consulted about the application of the Handbook's recommendations to Dutch patients and they advised: “The microbiome appears to be affected in patients with COVID19, so [diet-related measures] seem to be a useful advice, probiotics seem to be a bridge too far.”



Explanation of expert recommendations on medical nutrition for patients with novel coronavirus pneumonia¹³

[Translated into Chinese using www.deepl.com. Caution recommended in use of findings.]

This article discusses the 10 recommendations for medical nutrition therapy for patients with new coronary pneumonia made by the Parenteral and Enteral Nutrition Branch of the Chinese Medical Association (CSPEN). These recommendations are: principles, methods, energy, protein, fat, non-protein energy supply ratio, fluid volume, micronutrients, immunonutrients and monitoring of the effects of nutritional treatment.

The translation [which was not conducted professionally and should therefore be considered with caution] states the following regarding elderly patients:

"7. Liquid volume.

Care should be taken to maintain fluid balance and control of intravenous infusion is recommended for patients with massive lung solids and elderly patients ... For elderly patients, cardiac insufficiency, pulmonary edema, chest fluid and tissue edema patients should control the amount of fluid, especially intravenous infusion, follow the principle of 'dry rather than wet.'"

"9. Immune nutrients.

Be careful to weigh the pros and cons and master the evidence of adaptation. Interpretation: theoretically, immune nutrients can promote recovery by suppressing the inflammatory response and modulating immune function. The role of BCAA and N3 fatty acids has been discussed above, and glutamine and nucleotides have also been reported in a more consistent manner. Arginine can significantly increase thymic weight, enhance T-cell function, and promote wound healing; **a recent meta-analysis suggests that supplementation with arginine significantly elevates CRP in >60-year-old elderly**, tumor patients and patients with elevated basal C-reactive protein (CRP), even more so when the enteral nutrition route is used. If used, weigh the pros and cons, consider them separately and grasp the evidence of adaptation.



Optimisation of Vitamin D Status for Enhanced Immuno-protection against Covid-19¹⁴

This Irish paper suggests that there is evidence that optimisation of vitamin D may attenuate some of the critical downstream immunological sequelae thought to elicit poorer clinical outcome in COVID-19 infection, such as prolonged interferon-gamma response, and persistent interleukin 6 elevation, a negative prognostic indicator in acutely-ill pneumonia patients, including those with COVID-19.

“It is proposed that such vitamin D supplementation may enhance resistance to COVID-19 infection, or limit its damaging immunological sequelae and improve clinical prognosis in those who do become infected. **Consequently, all older adults, hospital inpatients and nursing home residents should be supplemented with a minimum 20 microgram daily dose of vitamin D.**”
[Excerpt from the [HEALTHCARE PROFESSIONAL SUMMARY.](#)]

Potential interventions for novel coronavirus in China: A systematic review¹⁵

The authors suggest that the nutritional status of each infected patient should be evaluated before the administration of general treatments. This paper provides an overview of many interventions such as vitamins, minerals and immunoenhancers which may be beneficial in the treatment of COVID-19 patients. The evidence it uses is very broad ranging including animal studies, so the recommendations may not be strong enough to directly inform clinical care. With regard to elderly patients it suggests: “The COVID-19 was first identified in Winter of 2019 and mostly affected middle-aged to elderly people. The virus-infected people might have insufficient vitamin D. In addition, the decreased vitamin D status in calves had been reported to cause the infection of bovine coronavirus. Therefore, vitamin D could work as another therapeutic option for the treatment of this novel virus.”

The remaining articles listed do not specifically relate to elderly patients.

Review article: Gastrointestinal features in COVID-19 and the possibility of faecal transmission¹⁶

Gastrointestinal symptoms such as anorexia, diarrhoea, vomiting, nausea, abdominal pain and gastrointestinal bleeding are common in patients with COVID-19. SARS-CoV-2 enters gastrointestinal epithelial cells, and the faeces of COVID-19 patients were infectious.

Management of corona virus disease-19 (COVID-19): the Zhejiang experience¹⁷

[English language abstract; full-text article available only in Chinese.]

"Nutritional and gastrointestinal function should be assessed for all patients. Nutritional support and application of prebiotics or probiotics were suggested to regulate the balance of intestinal microbiota and reduce the risk of secondary infection due to bacterial translocation."

2019 Novel coronavirus infection and gastrointestinal tract¹⁸

"The connection between the lung and the gastrointestinal tract is not completely understood. It is well known that the respiratory tract houses its own microbiota, but patients with respiratory infections generally have gut dysfunction or secondary gut dysfunction complications, which are related to a more severe clinical course of the disease, thus indicating gut–lung crosstalk. This phenomenon can also be observed in the patients with COVID-19. Numerous studies have shown that modulating gut microbiota can reduce enteritis and ventilator-associated pneumonia, and it can reverse certain side effects of antibiotics to avoid early influenza virus replication in lung epithelia. Currently, there is no direct clinical evidence that the modulation of gut microbiota plays the therapeutic role in the treatment of COVID-19, but we speculate that targeting gut microbiota may be a new therapeutic option or at least an adjuvant therapeutic choice. In early February, the guidance [version 5] established by the China's National Health Commission and National Administration of Traditional Chinese Medicine recommended that in the treatment of patients with severe COVID-19 infection, probiotics may be used to maintain the balance of intestinal microecology and prevent secondary bacterial infection, which shows that



the Chinese government and first-line medical staffs accept the importance of the role of gut microbiota in COVID-19 infection.”

Epidemiological and clinical features of 2019-nCoV acute respiratory disease cases in Chongqing municipality, China: a retrospective, descriptive, multiple-center study¹⁹

[Preprint which has not been peer-reviewed.]

“While severe patients obviously manifested more prominent abnormalities, suggesting multiple organ dysfunction and poor outcomes. Additionally, severe cases suffered from lower albumin and hemoglobin, suggesting the importance of nutrition supportive treatments.”

What does BMJ Best Practice say?

COVID-19²⁰

BMJ Best Practice does not comment specifically on the nutritional requirements of elderly patients. They do suggest however: “Patients with mild illness who have risk factors for poor outcomes (ie age >60 years, presence of comorbidities) should also be prioritised for hospital admission. These patients should be managed in the same way as severe COVID-19 depending on the clinical presentation.”

Oxford CEBM COVID-19 Evidence Service

The CEBM are currently undertaking a review to determine if Vitamin C reduces the duration and symptoms of COVID-19? This should be available [here](#)²¹ in the coming days.

Clinical Trials

A number of nutrition related COVID-19 clinical trials are being conducted such as:

- [Anti-inflammatory/Antioxidant Oral Nutrition Supplementation in COVID-19](#)
- [Identifying Critically-ill Patients With COVID-19 Who Will Benefit Most From Nutrition Support Therapy: Validation of the NUTRIC Nutritional Risk Assessment Tool](#)

Produced by the members of the National Health Library and Knowledge Service Evidence Team.† Current as at 3 April 2020. This evidence summary collates the best available evidence at the time of writing. Emerging literature or subsequent developments in respect of COVID-19 may require amendment to the information or sources listed in the document. Although all reasonable care has been taken in the compilation of content, the National Health Library and Knowledge Service Evidence Team makes no representations or warranties expressed or implied as to the accuracy or suitability of the information or sources listed in the document. This evidence summary is the property of the National Health Library and Knowledge Service and subsequent re-use or distribution in whole or in part should include acknowledgement of the service.

The following PICO(T) was used as a basis for the evidence summary:

P Population person location condition/patient characteristic	COVID 19 CONFIRMED >65YOA PATIENTS
I Intervention length location type	DIETETIC ADVICE
C Comparison another intervention no intervention location of the intervention	
O Outcome	

The following search strategy was used in tandem with COVID-19 search strings:

EMTREE HEADINGS:

P - AGED/ OR AGED HOSPITAL PATIENT/ OR FRAIL ELDERLY/ OR INSTITUTIONALIZED ELDERLY/ OR VERY ELDERLY/
 I - GERIATRIC NUTRITION / DIET /NUTRITION/ OR GERIATRIC NUTRITION/ OR PARENTERAL NUTRITION/ OR EXP DIETITIAN/

MESH HEADINGS:

P - (MH "Aged+")
 I - ("Nutritional Support") (MH "Nutrition Therapy+") (MH "Enteral Nutrition") (MH "Parenteral Nutrition+")

Keywords:

P - elder OR elderly OR older OR old OR age OR aged OR senior OR geriatric OR >60 OR >65 OR >70
 I - Food OR meal OR meals OR diet OR dietitian OR dietetic OR dietician OR nutrient OR nutritional OR nutrition OR nutritionist OR weight loss OR energy consumption OR energy balance OR nutritional support OR malnutrition OR nutrient deficiency OR nutritional status OR fluid balance OR intravenous fluids OR energy metabolism OR metabolic balance OR underfeeding OR overfeeding OR caloric deficiency

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