Importance of Nutrition for Covid19 Management, Comprehensive approach in Healthcare Facility

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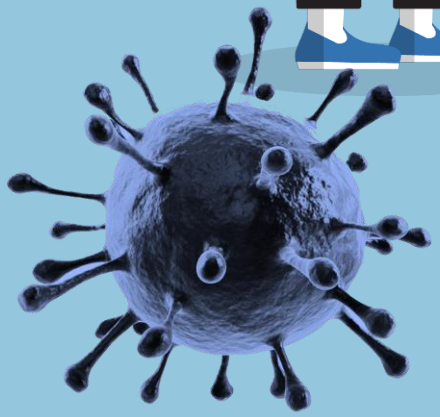

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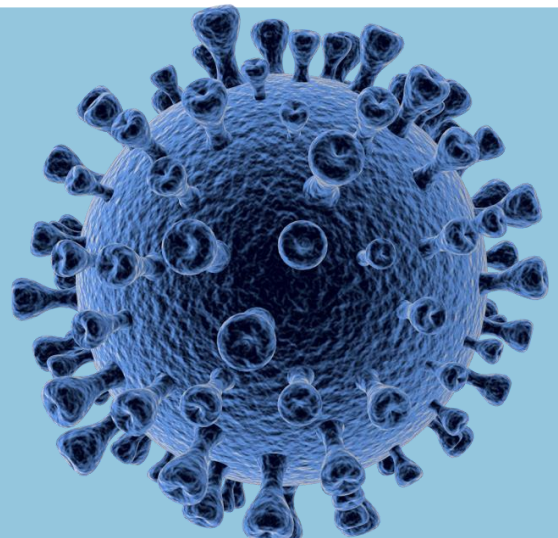
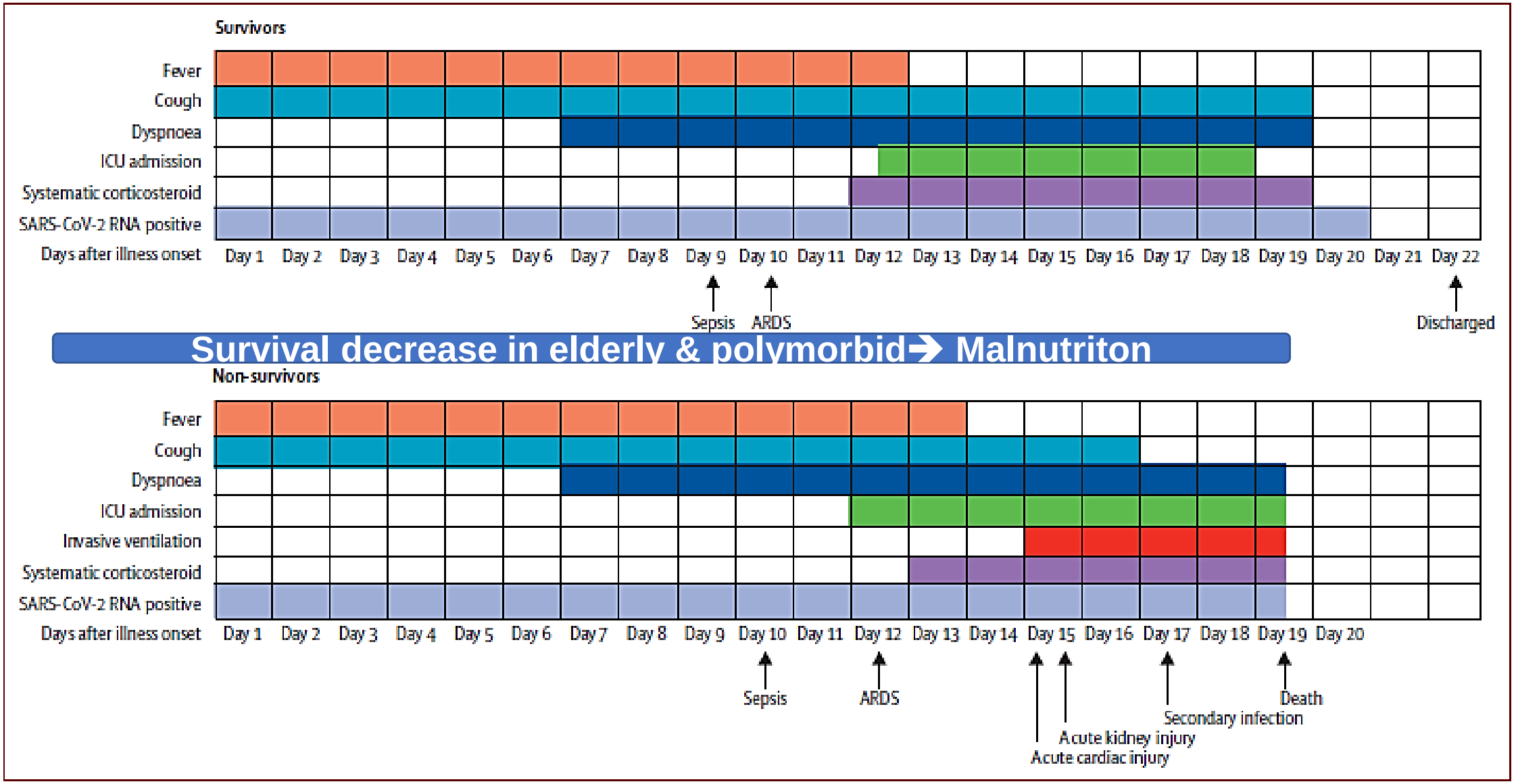


Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China:, (Fei Zhou et.al, Lancet 2020; 395: 1054–62)

Prognosis COVID19 in Hospital

- Dari 191 pasien Covid, dg Komorbid 91 (48%), meninggal 36 org (67%) total meninggal 54 org, selamat 55 org (40%) total selamat 137 org.

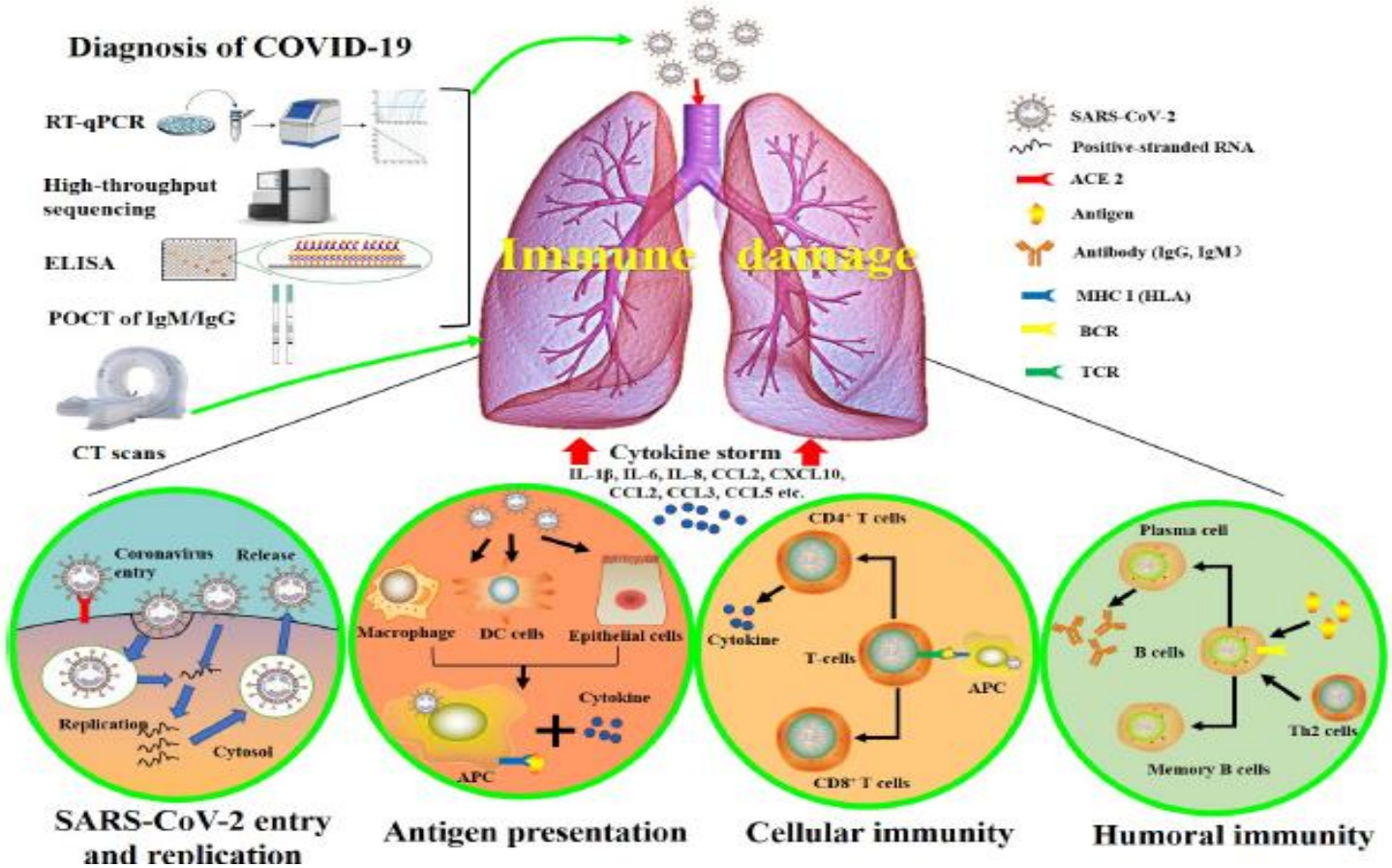


The Occurrence And Development Of Sars-cov-2 Depend On The Interaction Between The Virus And The Individual's Immune System.

infected with the virus ➔the duration ➔severity of the disease, ➔the reinfection.

- **VIRAL FACTORS** include virus type, mutation,viral load, viral titer, and viability of the virus in vitro.

- **THE INDIVIDUAL'S IMMUNE SYSTEM** factors include genetics (such as HLA genes), age, gender, **Nutritional Status**, neuroendocrine-immune regulation, and physical status.



The role of nutrition in strengthening immune system against newly emerging viral diseases: case of SARS-CoV-2

- To preserve organism defense mechanisms, adequate nutritional status should be maintained with appropriate intakes of calories, vitamins, minerals and water that should be continuously provided by a healthy diet.
- The nutritional status of each COVID-19-infected patient should be assessed prior undertaking treatments. Nutritional support should be the basis of management of any infected individual.
- However, prevention measures remain the first priority and strategy to develop throughout proper hygiene, healthy diet and staying home.

Nutritional Problem in Patients With COVID-19

Potential implications for nutrition:

- Older patients & comorbidities ➔Preexisting malnutrition, sarcopenia, risk of refeeding syndrome
- Fever and respiratory distress represent two factors that increase the energy expenditure.
- Isolation in small areas and bed resting induce a decrease in patients' muscle mass.
- During Hospital Stay, a decrease in total energy and protein intake is frequently reported, due to the scarce palatability of hospital meals.
- Malnutrition is a frequent under-recognized and undertreated condition in hospital wards and this aspect may worsen during a pandemic

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ARTICLE

Health issues and nutrition in the elderly

Prevalence of malnutrition and analysis of related factors in elderly patients with COVID-19 in Wuhan, China

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Abstract

Background/objectives To evaluate the prevalence of malnutrition and its related factors in elderly patients with COVID-19 in Wuhan, China.

Subjects/methods In a cross-sectional study, we evaluated the nutritional status of elderly inpatients with COVID-19 using the Mini Nutritional Assessment (MNA). Based on MNA scores, patients were divided into non-malnutrition group (MNA ≥ 24), the group with risk of malnutrition (MNA 17–23.5) and malnutrition group (MNA score < 17). Regression analysis was conducted to screen for risk factors for malnutrition.

Results A total of 182 patients were included in the study, of which 27.5% were in the group with malnutrition risk and 52.7% were in the malnutrition group. There were statistical differences in the incidence of comorbid diabetes mellitus, body mass index (BMI), calf circumference,albumin, hemoglobin, and lymphocyte counts among the three groups. Further regression analysis suggested that combined diabetes, low calf circumference, and low albumin were independent risk factors for malnutrition.

Conclusions The prevalence of malnutrition in elderly patients with COVID-19 was high, and nutritional support should be strengthened during treatment, especially for those with diabetes mellitus, low calf circumference, or low albumin.

Nutrition management in COVID 19 patient

The delivery of nutritional therapy to the patient with COVID-19 disease should follow the basic Principles of COVID 19 guidelines

Limit Exposure

Hand Higiene

Using PPE

telemedicine visits (virtual and telephone)

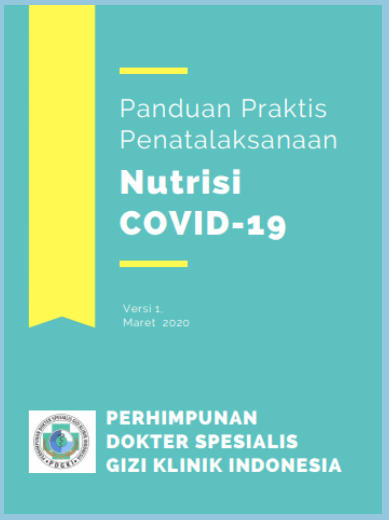
Minimize contact

IMPLEMENTATION OF NUTRITION GUIDELINE IN MANAGING COVID-19, A COMPREHENSIVE APPROACH FOR HOSPITAL

Guidelines

Barazzoni R et al., ESPEN, 2020

aspen LEADING THE SCIENCE AND PRACTICE OF CLINICAL NUTRITION
American Society for Parenteral and Enteral Nutrition



Comprehensive approach in Healthcare Facility

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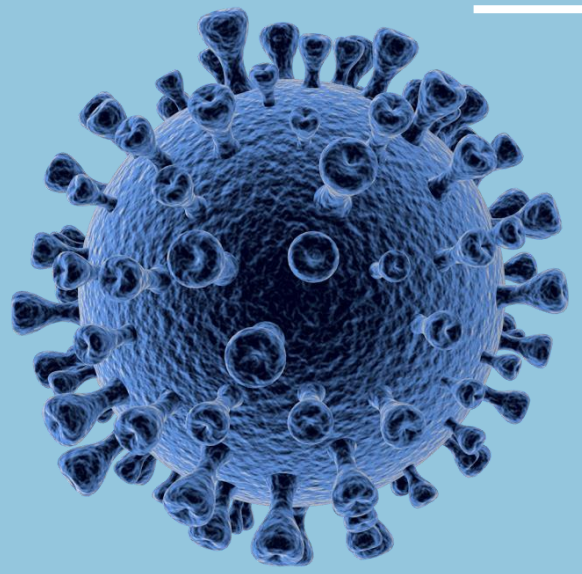

ESPEN expert statements and practical guidance for nutritional management of individuals with SARS-CoV-2 infection

1: Check for Malnutrition
Patients at risk for worst outcomes and higher mortality following infection with SARS-COV-2, namely older adults and polymorbid individuals, should be checked using the MUST criteria or, for hospitalized patients, the NRS-2002 criteria.

"If the gut works, use it."

2: Optimization of the nutritional status
Subjects with malnutrition should undergo diet counseling from an experienced professionals.

3: Supplementation with vitamins and minerals
Subjects with malnutrition should ensure supplementation with vitamin A, vitamin D and other micronutrients.

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

5: Oral nutrition supplements (ONS)
ONS should be used whenever possible to meet patient's needs, when dietary counseling and food fortification are not sufficient to increase dietary intake and reach nutritional goals.

6: Enteral nutrition (EN)
In patients, whose nutritional requirements cannot be met orally, EN should be administered. Parenteral nutrition (PN) should be considered when EN is not indicated or unsufficient.

INDIVIDUALS AT RISK OR INFECTED WITH SARS-COV-2

7: Medical nutrition in non-intubated ICU patients
If the energy target is not reached with an oral diet, ONS should be considered first and then EN treatment. If there are limitations for the enteral route it could be advised to prescribe peripheral PN in the population not reaching energy-protein target by oral or enteral nutrition.

8: Medical nutrition in intubated ICU patients I
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.

9: Medical nutrition in intubated ICU pati
In ICU patients who do not tolerate If full dose EN
first week in the ICU ist not tolerated, initiating pa
nutrition (PN) should be weighed on a case-by-case

Post Mechanical ventilation, move to ward

10: Nutrition in ICU patients with dysphagia
Texture-adapted food can be considered after extubation. If swallowing is proven unsafe, EN should be administered.

ICU PATIENTS INFECTED WITH SARS-COV-2

Barazzoni R et al., ESPEN, 2020

STATEMENT 1
Check for Malnutrition

- 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.

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ESPEN Endorsed Recommendation

GLIM criteria for the diagnosis of malnutrition – A consensus report from the global clinical nutrition community☆

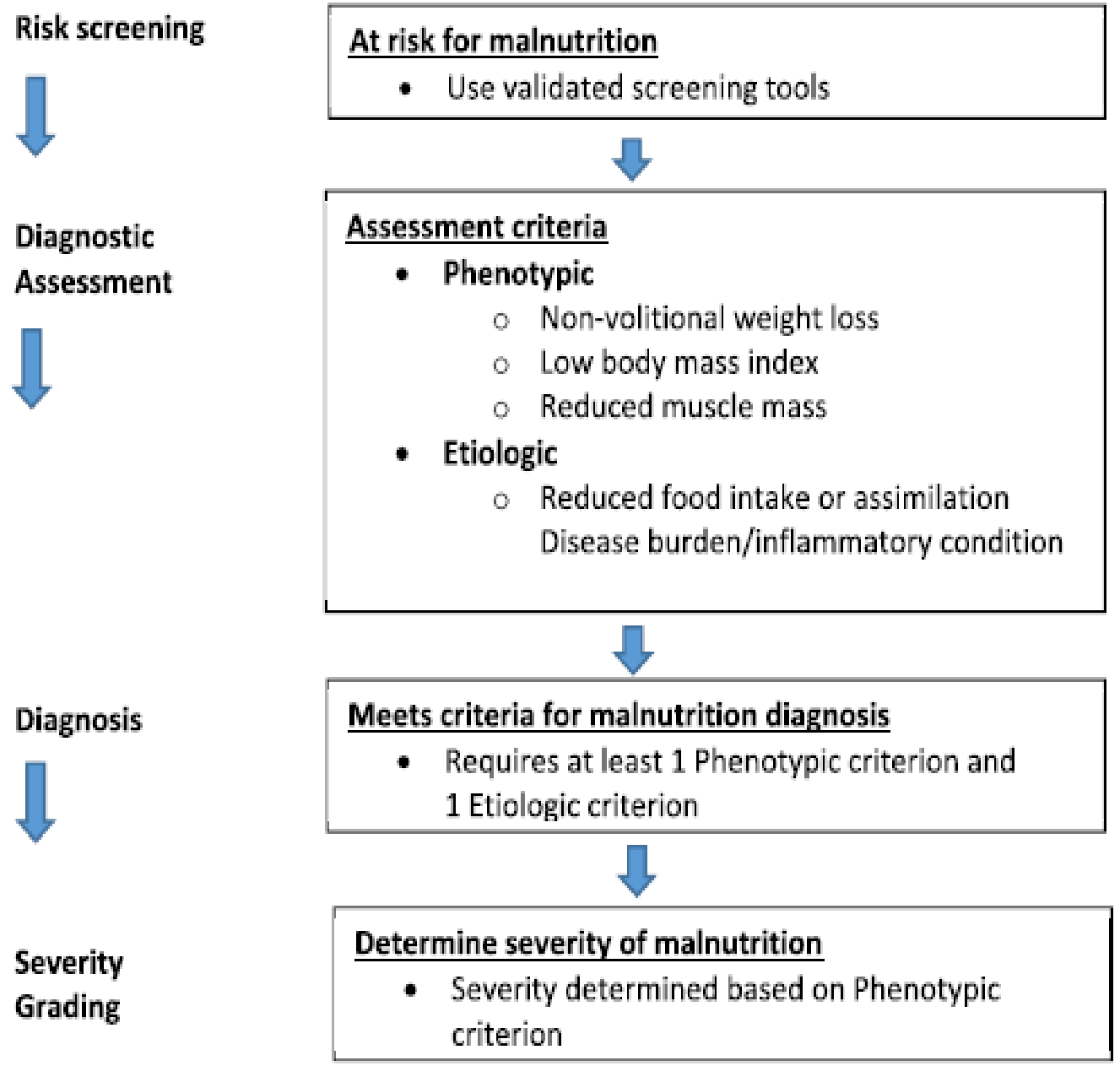
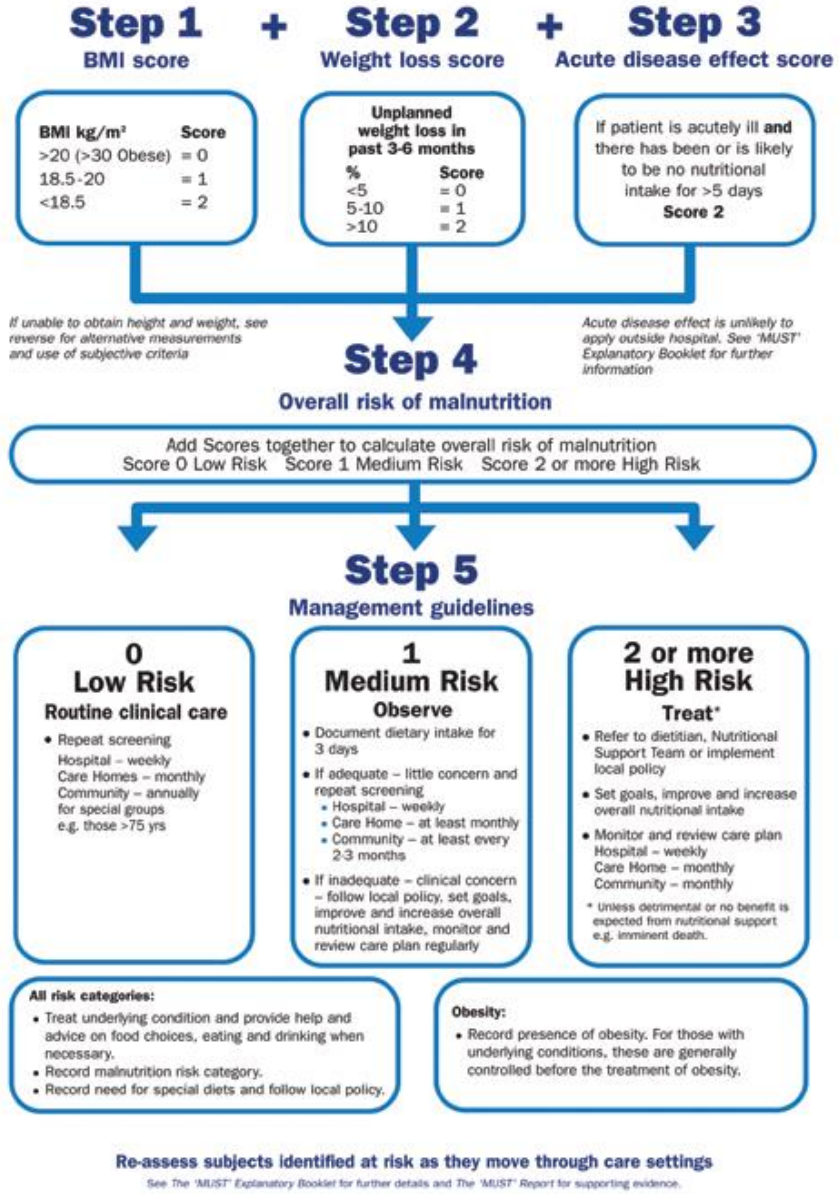


Fig. 1. GLIM diagnostic scheme for screening, assessment, diagnosis and grading of malnutrition.

Screening Tools

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

**NRS-2002 criteria: https://www.mdcalc.com/nutrition-riskscreening-2002-nrs-2002.



STATEMENT 2

- Subjects with malnutrition should try to optimize their nutritional professionals
- “double burden” of malnutrition, when both undernutrition and overnutrition will promote severity of disease.

Statement 2

Energy needs :

- 27 kcal per kg body weight and day; total energy expenditure for polymorbid patients aged >65 years. ➔individually adjusted

- 30 kcal per kg body weight and day; total energy expenditure for severely underweight polymorbid patients

- in severely underweight patients should be cautiously ➔ risk of refeeding syndrome.

Statement 2

Protein needs are usually estimated using formulae such as:

- 1 g protein per kg body weight and day in older persons; ➔individually adjusted
- 1 g protein per kg body weight and day in polymorbid
- The protein target of 1.3 g/kg/day should also be reached by day→1.2-2g/kg BB

Fat and carbohydrate needs are adapted to the energy needs

- while considering an energy ratio from fat and carbohydrates between 30:70 (subjects with no respiratory deficiency) to 50:50 (ventilated patients) percent.

Statement 3

- Subjects with malnutrition should ensure sufficient supplementation with vitamins and minerals.
- While it is important to prevent and treat micronutrient deficiencies, there is no established evidence that routine, empirical use of **SUPRAPHYSIOLOGIC OR SUPRATHERAPEUTIC** amount of micronutrients may prevent or improve clinical outcomes of COVID-19.
- Based on the above combined considerations, we suggest that provision of daily allowances for vitamins and trace elements be ensured to malnourished patients at risk for or with COVID-19, aimed at maximizing general anti-infection nutritional defense.

Statement 4

- Patients in quarantine should continue regular physical activity while taking precautions➔ maintaining physical function and mental health

Statement 5

- Oral nutritional supplements (ONS) should be used whenever possible to meet patient's needs, when dietary counseling 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.

Oral nutritional supplements (ONS)

Macronutrient:
Protein,
Carbohydrate,
Fat

Micronutrient:
Vitamin, Mineral
Specific nutrient

Statement 6

"If the gut works, use it."

- 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.
- Monitoring and evaluation post nutritional management is important

Nutritional support depending on the respiratory support allocated to the ICU patient.

Setting	Ward	ICU Day 1–2	ICU Day 2-	Ward rehabilitation
Oxygen Therapy and mechanical ventilation	No or consider O2 support (High) Flow Nasal Cannula	FNC followed by mechanical ventilation	Mechanical ventilation	Possible extubation and transfer to ward
Organ Failure	Bilateral pneumonia, thrombopenia	Deterioration of respiratory status; ARDS; possible shock	MOF possible	Progressive recovery after extubation
Nutritional support	Screening for malnutrition; oral feeding/ONS, enteral or parenteral nutrition if needed	Define energy and protein target In case of FNC or NIV, administer energy/protein orally or enterally and if not possible parenterally	Prefer early enteral feeding Protein and mobilization	Assess dysphagia and use oral nutrition if possible; if not: enteral or parenteral nutrition Increase protein intake and add exercise

Admisi → ICU → ICU Recovery → Ward➔ home care

- ICU-acquired weakness (ICUAW)➔ Need Appropriate energy delivery avoiding overfeeding and adequate protein administration are critical to prevent this severe loss of muscle mass and function
- Nutrition intervention and therapy needs to be considered as an integral part of the approach to patients victim of SARS-CoV-2 infection

AT ADMISSION

Record:
- Body weight and height*
- Relevant biochemical parameters†

START ONS 2x /hari, mengandung Whey Protein 20g/ hari

+

Suplementasi Mikronutrien iv dan Vit D3 25000-50000IU/minggu

Simplified nutritional risk screening‡		Yes	No
1	Is BMI <22 kg/m²?		
2	Did the patient loose weight in the past 3 mo?		
3	Did the patient reduce food intake or is expected to reduce it in the next few days?		

Monitor food/supplement intake with the aid of local health care professionals.

DURING HOSPITAL STAY

If patient does not tolerate ONS (i.e., <2 bottles/d are consumed for 2 consecutive days) or respiratory conditions worsen, contact the Clinical Nutrition and Dietetics Unit for the prescription of parenteral nutrition or start it implementing strict biochemical monitoring†

Early nutritional supplementation in non-critically ill patients hospitalized for the 2019 novel coronavirus disease (COVID-19): Rationale and feasibility of a shared pragmatic protocol

- Implementing prompt and appropriate nutritional care in COVID-19 disease management is a difficult challenge owing to the current dramatic emergency circumstances.
- However, all efforts should be made to try to guarantee adequate nutritional support to hospitalized patients, as it may be potentially beneficial to clinical outcomes and effective in reducing or preventing the deleterious consequences of malnutrition in this patient population.

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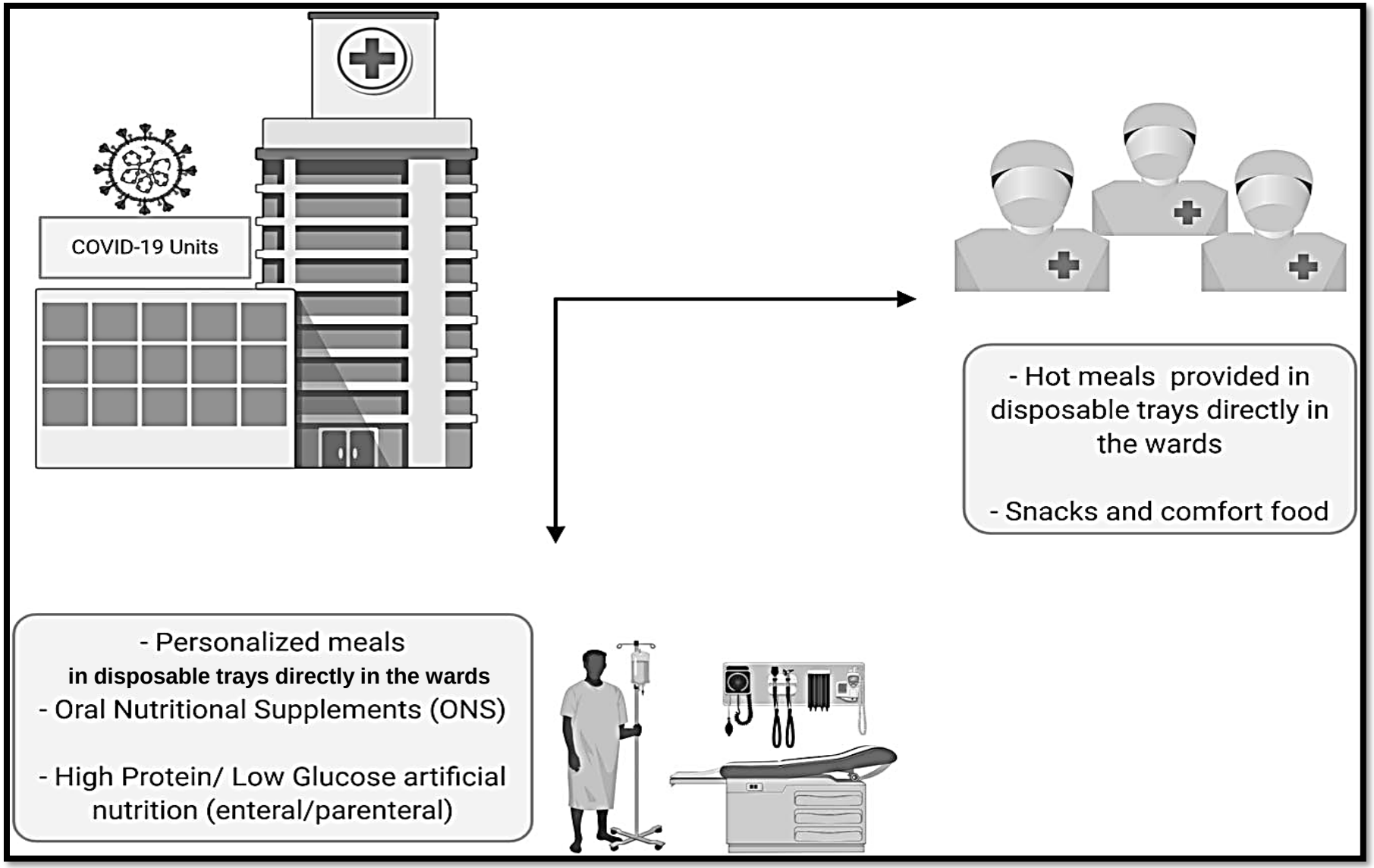
CORRESPONDENCE

Nutritional management in hospital setting during SARS-CoV-2 pandemic: a real-life experience

Marco Cintoni[1] · Emanuele Rinninella[2] · Maria Giuseppina Annetta[3] · Maria Cristina Mele[4]

- To meet the increased energy and protein requirements of the malnutrition covid 19 patient conditions, ➔started a personalized meal provision, combined with Oral Nutritional Supplements, to all oral-feedable COVID-19 patients, while those unable to eat are supported with high protein/low glucose
- Enteral and Parenteral Nutrition formulas, according to recent ESPEN guideline on clinical nutrition
- Indeed, in the recent Chinese experience, nutritional support was considered a basic treatment and part of the multidisciplinary management for symptomatic SARS-CoV-2 affected patients.

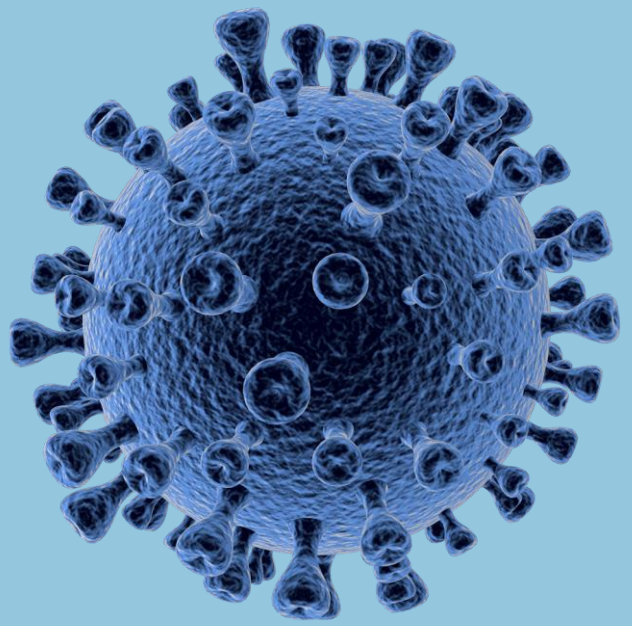
The nutritional management of COVID-19 units at Hospital, for patients and healthcare professionals



- While actual evidence is focusing on the general management of coronavirus disease (COVID-19), little is known regarding nutritional support during hospital stay.
- The lack of nutritional procedures could, in turn, prolong patients' recovery and increase further infectious complications.

SUMMARY

03



Take Home Messages

- VIRAL FACTORS & THE INDIVIDUAL'S IMMUNE SYSTEM factors all contribute to whether an individual is infected with the virus, the duration and severity of the disease, and the reinfection.
- To preserve organism defense mechanisms, adequate nutritional status should be maintained with appropriate intakes of calories, vitamins, minerals and water that should be continuously provided by a healthy diet.
- COVID-19 patients need ONS to meet patient nutritional needs, which this virus infection can cause symptoms of fever, coughing, general weakness, pain, difficulty breathing as well as changes to taste and smell.
- Nutrition intervention and therapy needs to be considered as an integral part of the approach to patients victim of SARS-CoV-2 infection➔ part of patient journey at hospital stay
- The delivery of nutritional therapy to the patient with COVID-19 disease should follow the basic Principles of COVID 19 guidelines

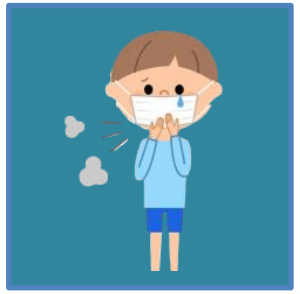
Defenses guide

Defenses

Maintain hand hygiene. Wash your hands with running water, or use an alcohol-free hand sanitizer.

Defenses

Cover your nose and mouth with a tissue or elbow flexion when coughing and sneezing.



Defenses

Maintain indoor air circulation, and wear masks in public places and crowded places.

Defenses guide

Practise food safety

Use different chopping boards and knives for raw meat and cooked foods

Wash your hands between handling raw and cooked food.

World Health Organization

Practise food safety

Sick animals and animals that have died of diseases should not be eaten

World Health Organization

THANK YOU FOR LISTENING