

# Malnutrition Care During the COVID-19 Pandemic: Considerations for Registered Dietitian Nutritionists

Deepa Handu, PhD, RDN, LDN; Lisa Moloney, MS, RDN; Mary Rozga, PhD, RDN; Feon W. Cheng, PhD, MPH, RDN, CHTS-CP

## ABSTRACT

Recent evidence examining adults infected with coronavirus disease 2019 (COVID-19) has indicated a significant impact of malnutrition on health outcomes. Individuals who have multiple comorbidities, are older adults, or who are malnourished, are at increased risk of being admitted to the intensive care unit and of mortality from COVID-19 infections. Therefore, nutrition care to identify and address malnutrition is critical in treating and preventing further adverse health outcomes from COVID-19 infection. This document provides guidance and practice considerations for registered dietitian nutritionists providing nutrition care for adults with suspected or confirmed COVID-19 infection in the hospital, outpatient, or home care settings. In addition, this document discusses and provides considerations for registered dietitian nutritionists working with individuals at risk of malnutrition secondary to food insecurity during the COVID-19 pandemic.

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**M**EDICAL NUTRITION THERAPY (MNT) plays an important role in the prevention and treatment of malnutrition. There is significant evidence to demonstrate that protein-energy malnutrition from inadequate dietary intake can increase risk of infectious diseases.<sup>1</sup> Reciprocally, any exposure, including infectious disease, that impairs immune function and causes malabsorption, increased catabolism, or decreased nutrient intake, can increase risk of malnutrition. Exploratory studies indicate that patients infected with coronavirus disease 2019 (COVID-19) experience some or any of the following symptoms: fever, cough, shortness of breath, muscle ache, confusion, headache, sore throat, chest pain, pneumonia, diarrhea, nausea and vomiting, and loss of taste and smell; all of which can influence nutrition status and ultimately immune function.<sup>2,3</sup> The term *malnutrition* is defined most simply as imbalanced intake of protein and/or energy over prolonged periods of time, and can occur in both undernutrition and overnutrition.<sup>4</sup> The current

document provides guidance that focused primarily on protein-energy malnutrition, which can result from inadequate intake, increased requirements, impaired absorption, and/or altered nutrient utilization.<sup>5</sup>

The purpose of this document is to provide general guidance and practice considerations for registered dietitian nutritionists (RDNs) providing care to the malnourished adult in the hospital, outpatient, or home care settings during the COVID-19 pandemic, including the following:

- Screening and assessment for malnutrition in adults with suspected or confirmed COVID-19 infection;
- MNT for critical illness in the hospital for adults with suspected or confirmed COVID-19 infection;
- MNT for adults with suspected or confirmed COVID-19 infection managing mild to moderate symptoms at home, including transitioning to home from the hospital; and
- Adults experiencing increased food insecurity secondary to the COVID-19 pandemic.

While there are currently no nutrition guidelines specifically for adults with or at risk for COVID-19 infection,

many existing guidelines from the Evidence Analysis Library and other organizations are still applicable and can be used to provide guidance when working with adults with COVID-19 infection.<sup>6</sup> However, some adjustments might be required to meet the increased metabolic and functional needs caused by the COVID-19 infection and treatments. The following discussion and guidance are based on best current knowledge and existing guidelines from the Academy of Nutrition and Dietetics (Academy) and other organizations. This document is not exhaustive and there is still much to be learned about the effect of nutrition management on COVID-19 infection and severity.

## I. SCREENING AND ASSESSMENT OF MALNUTRITION IN ADULTS WITH SUSPECTED OR CONFIRMED COVID-19 INFECTION

It has been well-established that malnutrition is associated with poor health outcomes.<sup>7</sup> In the context of an infection such as COVID-19, an individual with malnutrition might have sub-optimal immunity, contributing to a longer or more difficult recovery. Nutrition screening aims to identify patients who are at risk for malnutrition

and provide a referral for an RDN to deliver detailed nutrition care based on the Nutrition Care Process,<sup>8</sup> including assessment, diagnosis, and intervention by an RDN, in order to treat and prevent further malnutrition and consequent adverse health outcomes.

**For adults with suspected or confirmed COVID-19 infection, the Malnutrition Screening Tool can be used to identify individuals who are at risk of malnutrition regardless of setting.**

A recent systematic review and corresponding position paper published by the Academy states, “based upon current evidence, the Malnutrition Screening Tool should be used to screen adults for malnutrition (undernutrition) regardless of their age, medical history, or setting.”<sup>9</sup>

The Malnutrition Screening Tool appears to still be applicable for adults with COVID-19, as it is a quick and easy-to-use validated tool based on 2 questions addressing decreased intake due to poor appetite and recent unintentional weight loss.<sup>10</sup> Due to limited resources and staff during the COVID-19 pandemic, some nutrition screening procedures can require flexibility to better meet the safety needs and operational needs of an organization. For example, while nurses or other team members might have conducted nutrition screening before the COVID-19 pandemic, during the pandemic, these professionals might be needed for emergency patient care and not be able to perform malnutrition screening. In these cases, the nutrition team could carry out the screening process so that patients who are at risk for malnutrition can receive appropriate nutrition assessment and intervention without delay. Also, special coordination, such as conducting nutrition screening using patient-room telephones, can be considered to minimize staff exposure. **For adults with suspected or confirmed COVID-19 infection, the RDN should perform a comprehensive nutrition assessment to identify malnutrition regardless of setting.**

Although there are currently no nutrition guidelines specifically for patients with COVID-19, the Academy's assessment recommendations within evidence-based practice guidelines, available from the Evidence Analysis Library, can be used to guide nutrition assessment for individuals with

suspected or confirmed COVID-19.<sup>6</sup> The [Figure](#) displays some examples of nutrition assessment guidance for critically ill individuals in the following domains: food and nutrition–related history, anthropometric measurements, biochemical data, medical tests and procedures, nutrition-focused physical findings, and client history. Most of these nutrition assessment tools and procedures are applicable to adults with suspected or confirmed COVID-19 infection. For example, the Subjective Global Assessment can still be used to diagnose nutrition status, and it is important to take medications and intravenous drips, such as propofol or dextrose 5%, into consideration when assessing patients, so nutrition prescription can be adjusted as needed. In the context of the COVID-19 pandemic, touching or gently palpating the patient to determine muscle and fat store losses might not be possible. In these cases, the RDN can still conduct visual inspection to note indentations and bony prominences, which could indicate somatic losses. For RDNs working directly with patients infected with COVID-19, personal protective equipment should be used per institution policy while conducting in-person nutrition assessment. RDNs can also utilize nursing and physician notes to provide evidence of wasting as the disease progresses.

A comprehensive assessment should result in the RDN determining the nutrition diagnosis. Examples of potential nutrition diagnoses applicable to adults infected with COVID-19 can include malnutrition, increased nutrient needs, predicted inadequate energy intake, altered gastrointestinal function, or inadequate energy intake. In addition, nutrition assessment can assist in identifying the key etiology of the diagnosis, which will help the RDN determine the best intervention for each patient. For example, an RDN might identify a patient's inability to reach protein and energy needs orally, resulting in the need for supplemental oral or enteral nutrition (EN).

## II. MNT FOR ADULTS WITH MALNUTRITION IN THE INTENSIVE CARE UNIT WITH SUSPECTED OR CONFIRMED COVID-19 INFECTION

Most patients admitted to the intensive care unit (ICU) with COVID-19 are

acutely malnourished.<sup>12</sup> Poor appetite is common with infection, and patients with noninvasive ventilation (NIV) (ie, no endotracheal tube or tracheostomy tube), such as continuous positive airway pressure or bilevel positive airway pressure, often have inadequate intake of calories and protein to meet needs.<sup>13</sup> Critically ill patients in the ICU should be provided with small frequent feedings, including high-energy and high-protein foods and oral nutrition supplements. If protein and energy needs cannot be met with oral intake, nutrition support should be initiated. Although EN is typically the preferred route for nutrition support, airway complications can occur in patients with NIV, and parenteral nutrition (PN) can be considered under these conditions.<sup>14</sup>

**In individuals with suspected or confirmed COVID-19 infection in the ICU who are not mechanically ventilated, RDNs should work with the multidisciplinary team to ensure adequate protein and energy intake. When needs cannot be met orally, EN is preferred to PN. If EN is not appropriate or tolerated, PN must be initiated in a timely manner to treat and prevent further malnutrition.**

### EN Initiation

**In adults with suspected or confirmed COVID-19 infection in the ICU, RDNs should work with the multidisciplinary team to ensure nutrition support is initiated within 36 hours of hospitalization or within 12 hours of intubation.**

Nutrition support should be initiated as soon as possible, ideally within 36 hours of hospitalization or within 12 hours of intubation.<sup>15</sup> In adults in the ICU, requiring nutrition support, EN should be provided instead of PN if the patient is hemodynamically stable and has a functional gastrointestinal tract.<sup>11,14,15</sup> The RDN should consider holding EN if:

- mean arterial pressure <65 mm Hg<sup>15</sup>;
- escalating number and doses of vasopressors<sup>15</sup>;
- rising lactate levels<sup>15</sup>;
- unexplained abdominal pain, nausea, vomiting, diarrhea, or abdominal distention<sup>15</sup>; or
- uncontrolled shock, life-threatening hypoxemia, hypercapnia, or acidosis.<sup>14</sup>

**CI<sup>a</sup>: Assessment for Critically Ill Patients**

The registered dietitian nutritionist's (RDN's) assessment of critically ill adults should include, but not be limited to, the following:

**Food and Nutrition—Related History:**

- History of nutrient intake (eg, energy intake, meal—snack pattern, and macro- and micronutrients)
- Adequacy of nutrient intake/nutrient delivery
- Bioactive substances (eg, alcohol intake, soy protein, psyllium, and fish oil)
- Previous and current diet history, diet orders, exclusions and experience, and cultural and religious preferences
- Changes in appetite or usual intake (as a result of the disease process, treatment, or comorbid conditions)
- Disease-specific nutrient requirements
- Food allergies/intolerances
- Appropriateness of nutrition support therapy for the patient
- Food and nutrient administration (ie, oral, enteral, or parenteral access)
- Physical activity habits and restrictions

**Anthropometric Measurements:**

- Weight, height
- Weight change
- Body mass index (calculated as kg/m<sup>2</sup>)
- Body compartment estimates (fat mass, fat-free mass)

**Biochemical Data, Medical Tests, and Procedures:**

- Biochemical indices (ie, glucose, electrolytes, and others as warranted by clinical condition)
- Implications of diagnostic tests and therapeutic procedures (ie, indirect calorimetry measurements, radiography for confirmation of feeding tube placement, and other gastrointestinal diagnostic tests)

**Nutrition-Focused Physical Findings:**

- Nutrition-focused physical examination that includes, but is not limited to, fluid assessment, functional status, wound status, clinical signs of malnutrition/overnutrition, and/or nutrient deficiencies
- Intake and output, including stool and fistula output and wound drainage
- Existing or potential access sites for delivery of nutrition support therapy
- Abdominal examination
- Fluid status (ie, edema, ascites, and dehydration)
- Vital signs

**Client History:**

- Medical and family history and comorbidities
- Surgical intervention
- Effect of clinical status on ingestion, digestion, metabolism, and absorption, and utilization of nutrients
- Indicators of acute or chronic nutrition support—related complications
- Medication management
- Factors that might influence existing or potential access sites for delivery of nutrition support therapy

Assessment of the above factors is needed to correctly diagnose nutrition problems and plan nutrition interventions. Inability to achieve optimal nutrient intake can contribute to poor outcomes.

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**Figure.** Nutrition assessment of critically ill adults. <sup>a</sup>CI=critical illness. Adapted from the Academy of Nutrition and Dietetics's Critical Illness guidelines.<sup>11</sup>

When EN is not feasible or appropriate, PN might be necessary to treat or prevent malnutrition. PN will require management by a multidisciplinary care team due to high risk for line sepsis and metabolic

complications, such as refeeding syndrome and hyperglycemia.

**EN Administration**

EN should be provided initially via a nasogastric tube or orogastric tube

because placement of feeding tubes in the small bowel could delay initiation of feeding and could increase risk of spreading infection, due to the need for skilled staff and confirmation of feeding tube placement.<sup>14,15</sup> The height

**Rating: Consensus**

Imperative

**CI: Reassessment of Critically Ill Adults**

The RDN's reassessment of critically ill adults should include:

- Changes in nutrient needs
- A determination of daily actual intake of enteral nutrition (EN), parenteral nutrition (PN), and other nutrient sources
- EN/PN access site
- Changes in clinical status, weight, biochemical data, and intake and output
- Changes in nutrition-focused physical assessment findings.

**Rating: Consensus**

Imperative

**Figure.** (continued) Nutrition assessment of critically ill adults. <sup>a</sup>CI=critical illness. Adapted from the Academy of Nutrition and Dietetics's Critical Illness guidelines.<sup>11</sup>

of the bed should ideally be elevated 30 to 45 degrees,<sup>11</sup> and the nasogastric tube size should be a 10 to 12 French, preferably 12 French, to facilitate bolus feeding, if necessary.<sup>15,16</sup> Enteral feeding for patients in prone position is not contraindicated. However, if possible, the height of the bed should be elevated 10 to 25 degrees.<sup>15</sup>

If feeding pumps are available, continuous feeding via a feeding pump is recommended.<sup>15,17</sup> If feeding pumps are not available, the next alternative is a gravity feed. If a gravity feed is not possible, bolus feedings should be provided.<sup>15</sup> Bolus feeds should not be provided to patients with gastric abnormalities or patients requiring post-pyloric feedings.<sup>16</sup> The RDN should develop the bolus feeding and flushing schedule in accordance with fluid restrictions, institutional policies, and how frequently the nurse enters the patient's room, to minimize staff exposure to infection.

### EN Rate and Progression

**In adults with suspected or confirmed COVID-19 infection, RDNs should work with the multidisciplinary team to develop an individualized nutrition prescription based on thorough assessment of protein and energy needs to prevent further decline in nutritional status.**

Indirect calorimetry is typically recommended as best practice for estimating energy expenditure. However, indirect calorimetry is not recommended during the COVID-19 pandemic because it requires disconnection from the ventilator circuit and a considerable amount of time, both of which increase

risk for COVID-19 transmission to health care providers.<sup>14</sup>

RDNs should initiate hypocaloric EN feedings and progress to 15 to 20 kcal/kg actual body weight (ABW) (use ideal body weight if body mass index [BMI; calculated as kg/m<sup>2</sup>] is >30), or <70% of Penn State Equation Estimate<sup>11</sup> within the first week.<sup>14,15</sup> During the second week, EN should be advanced to 25 kcal/kg ABW; 11 to 14 kcal/kg ABW if BMI is 30 to 50; and 22 to 25 kcal/kg ideal body weight if BMI >50.<sup>14,17</sup> Practitioners must account for energy intake from drips and medications, such as propofol, when determining energy needs from EN. EN should provide 1.2 to 2.0 g protein/kg ABW in patients with normal weight status, and 1.2 to 2.0 g/kg IBW if BMI >30.<sup>15,17</sup>

### EN Formula and Supplementation

**In adults with suspected or confirmed COVID-19 infection, RDNs should take overall nutrition assessment, including nutrient needs, fluid status, and interventions to address fluid status, into consideration when selecting the type of EN formula.**

In adults who are critically ill in the ICU, fluid management is impacted by a multitude of factors, including COVID-19 infection pathology. For the initial resuscitation of patients with COVID-19, physicians are frequently restricting fluid volumes.<sup>18</sup> To further complicate assessment of fluid status, approximately 40% of patients who are critically ill with COVID-19 infection are developing acute kidney injury.<sup>19</sup> The exact cause of acute kidney injury in these patients is unknown; however, dehydration starting before admission could be a contributing factor.

Patients who are critically ill with COVID-19 infection could potentially be receiving a significant amount of energy from drips and medications and, due to high protein needs, RDNs should select high-protein formulas ( $\geq 20\%$  protein) during the acute phase of the illness.<sup>15</sup> RDNs should evaluate blood urea nitrogen and creatinine trends as part of their nutrition assessment and adjust the EN rate and formula as appropriate. Immune-modulating formulas are another option because, theoretically, they can alter a patient's immune response and clinical outcomes. Unfortunately, consistent high-quality evidence for immune-modulating formulas are lacking and, therefore, cannot be formally recommended at this time for patients with COVID-19 infections.<sup>11,15</sup>

Some patients might need additional protein and fiber beyond what is provided in the formula. Once patients are no longer in the acute phase of COVID-19 illness, supplemental protein and fiber should be considered. To reduce staff exposure, supplemental protein and fiber should be provided together, along with appropriate flushes.<sup>15</sup> Some patients recovering from COVID-19 infection begin to experience diarrhea, at which point a high-fiber formula should be considered.

### EN Considerations for NIV

In patients with NIV, feeding tube placement might be contraindicated due to potential issues, such as air leakage, distention of the stomach, or if the patient is in the prone position.<sup>13</sup> Stomach distention can lead to poor feeding tolerance and impaired diaphragmatic function. If nasogastric/



orogastric tube placement is appropriate, feeding pumps should be prioritized to patients on NIV so they can be fed continuously. If a feeding pump is not available, a gravity drip should be considered. Bolus feeds should not be used in patients with NIV due to increased risk for aspiration.<sup>13</sup>

## Monitoring and Evaluation

**In adults with suspected or confirmed COVID-19 infection, RDNs should monitor nutrition support tolerance daily and work with the multidisciplinary team to promote tolerance.**

Tolerance can be evaluated through a physical examination, including abdominal distention, diarrhea, and laboratory values. Gastric residual volume (GRV) should not be used as the sole indicator of EN tolerance. Practitioners should recommend against holding EN when GRV is <500 mL in the absence of other signs of intolerance.<sup>11,15,20</sup> To promote EN tolerance, the RDN should work with the multidisciplinary team to promote the following initiatives:

- Patients beds should be upright at an angle of 30 to 45 degrees (10–25 degrees if prone).
- If GRVs between 200 and 500 mL, consider promotility agents.
- If the abdomen remains distended after the above initiatives, consider aspirating the stomach and checking GRV; GRV <500 mL/6 h is considered acceptable, repeat after 6 hours if GRV is >500 mL.<sup>11</sup>
- In the event a patient is experiencing diarrhea, soluble fiber supplementation should be provided.<sup>11,15</sup>
- If the patient is still not tolerating EN, consider placement of nasojugal tube.<sup>15</sup>
- If EN is not feasible, PN should be initiated as soon as possible.

In addition to physical assessment, laboratory values should be monitored daily. RDNs should monitor for refeeding syndrome and hyperglycemia, especially among patients receiving PN.

To monitor for refeeding syndrome, RDNs should monitor sodium and fluid balance and serum phosphorus, potassium, magnesium, and calcium, which can decrease rapidly.<sup>21</sup> If refeeding syndrome is suspected, electrolytes

should be replaced immediately intravenously and feeding rate should be decreased.<sup>21</sup>

## Post Intubation

Prolonged ICU stay can exacerbate muscle catabolism and therefore increase protein needs.<sup>14</sup> Furthermore, dysphagia can result from post-intubation trauma, and its presence for a prolonged period can lead to consequences such as aspiration pneumonia and malnutrition.<sup>22</sup> The nutrition care plan for these patients should incorporate recommendations from the speech-language pathologist and should accommodate increased nutrient requirements of the patients, food preferences, and availability of resources. If severe dysphagia persists and energy and protein needs cannot be met, the RDN might need to either initiate or resume EN. If EN is not possible, PN should be provided until oral or EN can be resumed.<sup>14</sup>

## III. MNT FOR MALNUTRITION IN ADULTS WITH SUSPECTED OR CONFIRMED COVID-19 INFECTION IN OUTPATIENT AND HOME-CARE SETTINGS, INCLUDING TRANSITIONING TO HOME FROM THE HOSPITAL

According to studies from China and case reports in the United States, the majority of all COVID-19 patients exhibited mild to moderate symptoms and managed their illness at home.<sup>3,23</sup> Common symptoms of COVID-19 can lead to problems with nutrient absorption and/or overall inadequate dietary intake. Patients recovering from COVID-19 infection who are discharged from the hospital might still be experiencing COVID-19 symptoms and might be malnourished and therefore have increased nutrient needs. For individuals managing or recovering from COVID-19 symptoms in their homes, maintaining adequate nutrient intake and hydration is critical.

**In adults with suspected or confirmed COVID-19 infection who are managing their illness at home, it is crucial for RDNs to provide remote MNT in order to help achieve or maintain optimal nutrition status. In adults with suspected or confirmed COVID-19 infection who**

**are managing their illness at home, RDNs should work with patients and their families to ensure adequate intake of energy, protein, and hydration.**

When counseling patients with suspected or confirmed COVID-19 infections who are in their homes or in the outpatient setting, RDNs can advise patients and their families of the following:

- Ensure adequate intake of energy and protein by meeting, at minimum, 100% of the recommended dietary allowance for energy and protein based on age and sex. These requirements will likely be increased due to the pathology of COVID-19 infection.
- High-calorie, high-protein meals and snacks can help prevent weight loss and maintain lean muscle mass. For example, RDNs can advise eating vegetables with cream, butter, margarine, cheese sauce, olive oil, or salad dressing to increase energy intake and choosing foods high in protein, such as milk, eggs, cheese, meats, fish, poultry, nuts, and beans.<sup>24</sup>
- Nutrient-dense foods and beverages, including oral nutritional supplements, are good methods to increase calorie and protein intake if oral dietary intake is not adequate to meet needs (eg, protein powders and meal-replacement shakes and bars).<sup>24</sup>
- For individuals having difficulty coordinating chewing and breathing, beverages might be a better option to efficiently increase energy intake compared to solid foods.
- Micronutrient supplements can help compensate for inadequate oral intake to address deficiencies.<sup>24</sup>
- Manage nausea, vomiting, and shortness of breath by offering small, frequent meals and snacks.<sup>25,26</sup>
- Focus on providing foods that require little handling, preparation, or effort to eat.
- Ensure adequate intake of fluids to stay hydrated throughout the day and evening. If the patient is experiencing vomiting and

diarrhea, advise consumption of rehydration drinks.

Additional guidance on managing malnutrition through adequate intake of calories, protein, and hydration can be found in the Academy's Nutrition Care Manual, Evidence Analysis Library, and Malnutrition Quality Improvement Toolkit.<sup>6,25,27</sup> In addition to nutrition management, RDNs should consider discussing guidelines for managing safe home care practices, including food safety, with patients and their families.<sup>28,29</sup>

#### IV. ADDITIONAL NUTRITION CONSIDERATIONS FOR MALNUTRITION IN ADULTS DURING THE COVID-19 PANDEMIC

##### Adults with Comorbidities

While there is no clear evidence demonstrating a causal relationship between COVID-19 infection and underlying comorbidities, recent evidence suggests that the majority of severe symptoms and complications from COVID-19 infection are reported among older adults and individuals with underlying comorbidities, such as diabetes, chronic kidney disease, cardiovascular disease, or pulmonary disorders.<sup>23</sup> Individuals with these comorbidities are already at increased risk of malnutrition, which can contribute to an impaired immune system and exacerbation of symptoms. It is imperative that individuals with pre-existing conditions, such as chronic kidney disease, cardiovascular disease, hypertension, or pulmonary disorders, receive regular nutrition assessment, and that individuals at moderate or high risk of malnutrition receive effective nutrition interventions by RDNs. RDNs should ensure that individuals with comorbidities have adequate oral dietary intake to meet calorie and protein needs, and oral nutritional supplements can be considered to meet needs if dietary intake is inadequate. The COVID-19 pandemic requires that prevention and management of malnutrition become a focus in patient care.

The Academy has recent guidelines containing recommendations on malnutrition management in chronic kidney disease, cystic fibrosis, and chronic obstructive pulmonary disease.<sup>6,30,31</sup> These guidelines are still

relevant to patients with COVID-19 and these conditions; however, implementation of these recommendations should include consideration of COVID-19 pathology, personal protective equipment standards set by Centers for Diseases Control and Prevention,<sup>29</sup> and institutional guidelines.

**For adults with existing comorbidities and not infected with COVID-19, RDNs should continue to advise consuming a nutrient-dense eating pattern to meet protein and energy needs, with oral supplementation when necessary, to prevent and treat malnutrition.**

**For adults with existing comorbidities and with suspected or confirmed COVID-19 infection, RDNs should proactively prevent and treat protein-energy wasting by regularly assessing weight and nutritional status when possible, and advising adequate protein and energy intake through diet, with supplementation through oral, EN, or PN, when necessary.**

##### Micronutrients

Among patients at risk or with suspected or confirmed COVID-19 infection, there is a paucity of evidence indicating effects of adding micronutrients through supplementation or intravenously on the risk or severity of COVID infection. Therefore, it is critical for RDNs to rely on their scientific training and clinical expertise to determine whether the patient is deficient in a specific micronutrient and whether treating the respective deficiency is a priority. Existing evidence from a critical illness population can also help inform practice for patients with COVID-19 infections.

#### V. MALNUTRITION AND FOOD INSECURITY DURING THE COVID-19 PANDEMIC

While COVID-19 infection itself can increase risk for malnutrition, food insecurity caused by the economic crisis and social isolation secondary to the COVID-19 pandemic can also increase risk for malnutrition.<sup>32</sup> In 2018, 37 million individuals in the United States were food insecure.<sup>32</sup> Adults with food insecurity are at higher risk of chronic conditions, such as mental health problems and depression, diabetes, hypertension, and sleep

problems. Children with food insecurity are at increased risk for poor health, asthma, obesity, anemia, developmental problems, behavioral problems, and aggression and anxiety.<sup>33,34</sup>

Currently, there have been no major food shortages reported in the United States related to the COVID-19 pandemic.<sup>35</sup> However, unemployment rates have soared,<sup>36</sup> causing unprecedented demand for unemployment benefits and several initiatives to reduce the burden of monthly payments for rent, utilities, and home or student loans. Despite these measures, many individuals are struggling economically, which can decrease accessibility of fresh and healthy foods. Social isolation measures implemented to prevent the spread of COVID-19 infection can also increase risk for food insecurity. For example, in the United States, 29.7 million children<sup>37</sup> depend on free lunches from the National School Breakfast and Lunch Programs, but during the current COVID-19 pandemic, many schools have closed, and clients might be uncertain how to access free meals being provided by schools. Uncertainty of how to access food-assistance programs can increase the daily financial burden on low-income families to provide healthy meals. In addition, individuals who are at high risk of severe symptoms and mortality from COVID-19 infection, including individuals who are elderly, might be wary of shopping at the grocery store or might want to avoid public transportation to the grocery store. RDNs working in the community, outpatient, and hospital settings have a crucial responsibility to identify clients' food access needs and provide federal, state, and local resources to help address these needs.

**When appropriate, RDNs should screen for food insecurity, provide guidance and resources for eating healthfully on a budget, and provide resources to improve access to healthy foods.**

When working with individuals with or at risk of malnutrition due to food insecurity during the COVID-19 pandemic, RDNs should consider the following:

- It might be advantageous to screen for food insecurity. Validated tools include the 2-item

Hunger Vital Sign tool, as well as the screening tool from the US Department of Agriculture (USDA).<sup>38-40</sup>

- RDNs can counsel individuals and their families to focus on healthful food choices by providing thrifty meal options with grocery lists and recipes. RDNs can also encourage families to reduce their grocery bills by brainstorming methods to decrease food waste.<sup>41-44</sup>
- If possible, RDNs might be able to consult with clients directly in their homes via telehealth. Remote sessions can be an opportunity to reach clients when they are near their cupboards and refrigerators, which can be an effective method of collaborating on dietary changes in real time and place. The Academy offers resources to provide nutrition resources via telehealth during the COVID-19 pandemic.<sup>45-48</sup> RDNs should ask clients which communication methods they prefer.
- RDNs can facilitate connecting individuals with grocery delivery services, as well as neighbors, family, and friends to help those infected with COVID-19 get the food they need to prevent and treat malnutrition.

**For clients and families at risk for food insecurity, RDNs should discuss options to improve food access through federal, state, and local programs.**

Due to the unprecedented economic crisis caused by the COVID-19 pandemic, several federal, state, and local food-assistance programs have developed, enhanced, or modified services in order to meet needs. RDNs should assist in connecting clients with available resources.

- When appropriate, refer clients to a local food bank<sup>49</sup> or assist them in navigating enrollment in federal food-assistance programs or Meals on Wheels.<sup>50</sup>
- The USDA has provided several “flexibilities and contingencies” for food-assistance programs, including the Supplemental Nutrition Assistance Program, the Special Supplemental Nutrition Program for Women Infants

and Children (WIC), and the National School Lunch and Breakfast Programs, in order to adapt to increased need for these services, along with the reduced capabilities of delivering these services directly to clients.<sup>51</sup>

- The USDA's Food and Nutrition Service responded to the COVID-19 pandemic through efforts to provide school lunches to eligible children when schools are closed through the Summer Food Service Program or Seamless Summer Option,<sup>52</sup> and RDNs can utilize these tools to assist connecting families with the school lunch program.<sup>53</sup>
- The USDA has also provided waivers for WIC requirements to accommodate remote services; WIC food substitution waivers; and provision of emergency food allotments to SNAP households.<sup>51</sup>

**As leaders in nutrition, RDNs should advocate for increased access to healthy foods by supporting state and federal initiatives for increased and emergency food assistance.**

Increased risk of food insecurity during the COVID-19 pandemic requires proactive, broad-scale action to help individuals and families improve or maintain nutrition status, preventing even more damage to health from the COVID-19 pandemic. RDNs can affect change on a state and local level via advocacy through the following venues:

- The Academy's “Action Center” provides templates for letters to representatives or senators to communicate support or opposition for bills that impact public health. RDNs can “take action” by visiting this resource and sending a letter of support to their respective lawmakers to help Americans keep food on the table during the COVID-19 pandemic and to urge congress to prioritize federal food-assistance program funding.<sup>54</sup>
- Monitor the Academy's Action Center to increase awareness and advocacy for food-assistance programs as opportunities arise.<sup>54</sup>

- “Take action” and monitor opportunities to support food assistance at the Food Research & Action Center<sup>55</sup> and the Alliance to End Hunger.<sup>56</sup>
- Monitor and utilize advocacy tools provided by the Food Research & Action Center, including to maximize the role of the WIC program to support health and food security.<sup>57</sup>

The COVID-19 pandemic has created an unprecedented need for RDNs to assess and address food insecurity among clients and their families through innovative and conscientious nutrition counseling, referral to and participation in food-assistance programs, and by taking action to advocate for greater access to food assistance on state and federal levels.

## VI. RESEARCH NEEDS

In order to inform evidence-based nutrition and dietetics practice for individuals infected with COVID-19, the Academy is seeking to gather data from RDNs who are currently working with patients infected with COVID-19 or whose work has been impacted by the pandemic. In order to inform evidence-based practice, the Academy is seeking to collect patient-level data, as well as data at a systems or process level, using surveillance surveys. The Academy is requesting RDNs register with the Academy of Nutrition and Dietetics Health Informatics Infrastructure ([www.ANDHII.org](http://www.ANDHII.org)), which is the Academy's, free, de-identified system for collecting patient-level data, in order to document nutrition care of patients infected with COVID-19. For the patient-level data, the Academy does not specify what, when, or how much data RDNs enter into the Academy of Nutrition and Dietetics Health Informatics Infrastructure system, but requests that practitioners enter data as they have the time and capacity to do so. Collection of this type of patient-level data is needed in order elucidate effective interventions to support RDNs in their day-to-day efforts with COVID-19 patients and for future pandemics.

## CONCLUSIONS

MNT is an integral aspect of managing malnutrition due to COVID-19 infection. RDNs should proactively implement appropriate nutrition care plans



to assess, prevent, and treat malnutrition in collaboration with a multidisciplinary team for individuals with, or at risk for, COVID-19 infection. The guidance provided in this document can assist RDNs in screening, assessing, and intervening to prevent and treat malnutrition in patients infected with COVID-19 who are hospitalized or in an outpatient or home care setting and for those at risk for food insecurity secondary to the COVID-19 pandemic. RDNs should work proactively with multidisciplinary teams and advocate for appropriate and timely nutrition support to effectively improve clinical outcomes and reduce or prevent the adverse consequences of malnutrition in individuals with, or at risk for, COVID-19 infection.

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## AUTHOR INFORMATION

D. Handu is senior scientific director, and L. Moloney, M. Rozga, and F. W. Cheng are nutrition researchers, Academy of Nutrition and Dietetics Evidence Analysis Center, Chicago, IL.

Address correspondence to: Deepa Handu, PhD, RDN, LDN, Academy of Nutrition and Dietetics Evidence Analysis Center, 120 S Riverside Plaza, Suite 2190, Chicago, IL 60606-6995. E-mail: [dhandu@eatright.org](mailto:dhandu@eatright.org)

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## AUTHOR CONTRIBUTIONS

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