



Critical Care Specialist Group (CCSG) of the BDA Guidance on management of nutrition and dietetic services during the COVID-19 pandemic

The COVID-19 pandemic has led to unprecedented expansion of and challenge to our critical care services. Undoubtedly, this will require significant planning and restructuring of dietetic services to ensure that we are able to provide a safe and effective service during this time.

This document has been developed by members from the Critical Care Dietitians Specialist Group (CCSG) of the British Dietetic Association taking into account current recommendations for planning and local experiences to date. In the absence of evidence-based guidance in this area, we have drawn upon the experiences and knowledge obtained from those already working with critically ill patients with COVID-19, including our international colleagues.

It goes without saying that it is incredibly important that we look after ourselves and each other during this uncertain time and that the health and wellbeing of staff members is of paramount importance. Continue to look after each other, communicate and share practice with others.

This document is up to date as of Monday 23rd March and we will update in line with new information that arises. Please contact us if you have any information to share that might be useful for others.

Planning

Most Trusts across the UK are making provisions for the expansion of ICU beds. This will place significant pressure on all MDT members, including dietitians.

CCSG strongly recommends that planning for increasing ICU dietetic capacity occurs urgently in line with dietetic managers and critical care planning strategies.

We recommend the following:

1. Estimate the number of additional dietitians that may be needed to cover the planned increase in ICU beds. Using the [Guidelines for the Provision of Intensive Care Services](#) (GPICS) can help with this.
2. Identify dietitians in the department who have previous adult critical care experience (Level 2 and / or 3)
3. Identify dietitians who have significant experience with enteral and parenteral feeding.
4. Identify dietitians with none of the above experience, but who will be freed up from outpatient services and are willing to help.
5. Start upskilling proposed ICU dietitians immediately ([see links here for resources](#)) and arrange for computer access to ICU specific systems as appropriate.
6. Agree local criteria for how patients will be prioritised for dietetic input and agree proposed timelines for follow up. This will be dependent on local agreements and capacity.
7. Many critical care patients will be nursed in non-critical care areas e.g. recovery, theatres. Ensure early communication with nursing staff in charge of non-critical care areas (e.g. recovery or theatres) where ICU patients will be cared for to ensure they are aware of unit feeding protocols and the requirements for ordering of feed, ancillaries etc.

Additionally, consider the following:

1. Phasing the introduction of dietitians into ICU as per the increase in bed numbers, but this does not negate the need for training to commence as a matter of urgency.
2. Triaging the sickest patients to the most experienced dietitians (e.g. the less experienced dietitians would be well placed to cover high dependency / non-COVID-19 patients to free up the most experienced dietitians for the sickest patients).

Enteral feeds, feeding pumps and ancillaries

Along with staffing, provisions for increasing enteral feeds, enteral feeding pumps and ancillaries for enteral feeding need to be made. Early discussions with dietetic managers regarding the prioritisation of enteral feeding pumps from across the Trust (including the community) for ICU are imperative. Where possible, alternative feeding methods for ward-based patients rather than ICU should be used as a first step.

CCSG recommends the following:

1. Calculate the number of additional pumps and ancillaries that may be required. This includes rationalising pump usage across ICU by not using more than one pump per patient.
2. Contact your enteral feeding pump supplier to determine if they can meet the demand and order additional ancillaries. Alternative suppliers may need to be contacted.
3. Consider alternative enteral feeding methods should enough pumps not be available (e.g. gravity / bolus feeding more stable patients on the general wards so that pumps can be available for ICU patients) and devise a plan should this happen. [Manufacturers have produced guidance that may be helpful.](#)
4. Plan for the potential to have increased numbers of patients requiring volume restricted / low electrolyte enteral feeds (e.g. should dialysis machines be in short supply).
5. Contact enteral feed supplier to determine capacity to provide required enteral feeds. Provisions for flexitainers for decanting oral nutrition supplements may need to be made.
6. Consider where enteral feed stock will be delivered and stored in spaces being made available for ICU beds. In addition to increased stock supply there may be a need for alternative enteral feeds depending on your ICU normal feed provision. This requires close liaison with senior ICU management teams.

Training for non-ICU dietitians

CCSG recommends that shadowing / basic training is commenced for non-ICU dietitians as soon as possible. [Documents to help with this can be found here.](#) However, this will be site specific depending on level of experience and number of additional dietitians required.

The documents provided are examples from sites who have already commenced this training and may be used / adapted as necessary in line with local practices and requirements.

Communication

Communication is essential to the running of a safe and effective dietetic service during this time and for ensuring the health and wellbeing of staff.

CCSG recommends dietetic representation at any COVID-19 operational meetings on the ICU so that changes can be implemented in line with this.

Along with keeping up with strategy updates, it is imperative that dietitians continue to communicate with the ICU MDT regarding the management of all ICU patients. This is particularly important when remote reviews are being undertaken (see below). Decisions regarding this should be made as per local guidance, but could include:

- Attendance at morning handover
- Daily phone calls with the nurse in charge and consultant on call
- Phone calls with the bedside nurse regarding nutrition management of specific patients.

To reduce footfall on the ICU and save PPE for nurses and doctors it is likely that COVID-19 patients will be reviewed remotely. CCSG are aware that some ICUs still operate with paper medical records and remote reviews will be difficult. It is imperative to liaise with your local ICU teams for managing this with remote reviews. We acknowledge that all the below suggestions come with limitations and can make ascertaining the true clinical picture challenging.

Methods that could be considered for remote working include:

- Telephone reviews – although this can be time consuming and impacts on nursing time so need to agree best times to do this with individual units
- Use of Skype/voecera (if facilities available within critical care unit) to speak to nursing staff/nurse in charge/doctors regarding individual patients.
- Work with the nursing staff to ensure all the essential information to undertake a remote review is being included in the nursing care plans i.e. Feed name, ml/hr, volume delivered in 24hrs, GRV size, problems with delivery (e.g. frequent fasting), propofol dose, if being proned, if fluid restriction is needed.
- In those units that are completely paper based, one of the dietitians may be required to be in full PPE to review charts and speak with staff to collect data and relay this to other dietetic team members. Discuss with your local team.

Nutritional management

It is impossible to provide evidence-based guidance for the nutritional management of patients with COVID-19. The guidance provided here is based on the management of patients with severe respiratory failure / Acute Respiratory Distress Syndrome (ARDS) and taking into account current clinical management of these patients. Please use clinical judgement at the bedside, consider local practices and evidence / guidelines for the nutritional management of critically ill patients.

The average time of mechanical ventilation in COVID-19 patients is expected to be around 14 days and therefore these patients are at high nutrition risk.

Many patients will present with gastrointestinal dysfunction on admission (e.g. diarrhoea, abdominal pain, vomiting). Patients with type 2 diabetes seem to be at higher risk for COVID-19 and patients are may require very high insulin doses therefore enteral / parenteral feeding regimens will need to take these factors into account.

CCSG makes the following recommendations:

Energy and protein targets

- Energy and protein targets should be set as per current local practice. CCSG recommends using the guidance in [ESPEN 2019](#) and the [Critical Care Chapter PENG handbook 2019](#).
- If undertaking remote reviews, ensure communication with the bedside nurse regarding the accuracy of weight and height. If required, communicate with the patient's family (likely via phone, using out-patient records or GP notes) to minimise the risk of significant incorrect energy and protein target estimations. It may be appropriate to use an ideal body weight if there are significant discrepancies.
- Adjustments to the feeding plan should be made for propofol, glucose and citrate as per usual practice, to avoid overfeeding.
- Consider protein supplements in patients who are unable to meet protein targets due to significant contribution of non-nutritional calories.
- Consider early / prophylactic prokinetics in patients who have high GRVs (using your local cut-off).

Proning

Proning patients with COVID-19 has been found to be effective and may be required for long periods over several days. CCSG acknowledges that there will be a balance between restrictive fluid balance practices, reducing the risk of aspiration / regurgitation and maintaining adequate provision of nutrition.

CCSG makes the following recommendations:

- Nasogastric (NG) feeding should continue during prone positioning if there are no concerns regarding gastrointestinal intolerance (GI) (e.g. high gastric residual volumes (GRVs), vomiting).
- If your unit GRV threshold is more than 300 ml / 4 hours, consider revising this to be a maximum of 300 ml/4 hours in proned patients to reduce the risk of aspiration/regurgitation
- Consider the use of early or prophylactic prokinetics in patients who have high GRVs (e.g. >300ml/4 hours or using your local cut-off).
- Avoid 2 kcal/ml enteral feeds if possible as these may exacerbate high GRVs, although it is acknowledged that these may be required for the management of potassium or fluid restrictions.
- Aim to avoid large volumes / high rates of enteral feed. Consider 1.3/1.5kcal/ml feeds.
- If high GRVs persist for more than 48-72 hours consider bedside placement of post-pyloric feeding tube when patient is supine if able in line with infection control policies.
- If post-pyloric feeding is not available, consider alternative options such as a semi-elemental enteral feeds or Parenteral Nutrition (PN).
- If enteral feeding is stopped during proning, ensure insulin infusion is adjusted if this is being given.

Whilst gastric feeding is not contraindicated in these patients, we acknowledge that sites with no / limited experience with proning patients may be anxious about this. If you are not able to enterally feed these patients, consider ensuring that a lumen is kept free on the CVC from admission for PN if required.

Fluid management

A restrictive fluid management strategy may be used for these patients and therefore volume of enteral and parenteral nutrition many need to be limited.

CCSG recommends close communication with the medical team to manage the balance between fluid management and meeting nutrition targets.

Renal replacement Therapy

Based on current experience with COVID-19, a large proportion of patients are likely to develop Acute Kidney Injury (AKI). It is anticipated that there may be insufficient numbers of filters to meet the increased demand.

CCSG recommends that volume restricted / low electrolyte enteral feeds are considered where necessary according to usual practice.

Use of parenteral nutrition

Patients with COVID-19 may require significant levels of sedation and neuromuscular blockade which may increase the incidence of GI intolerance. Use of PN may therefore increase in sites where post-pyloric feeding is not available.

CCSG recommends the following:

- Discuss PN provisions with your local pharmacy to ensure that this service can be provided.
- Accept that if demand increases, off the shelf bags may be required with limited scope for scratch bags.

Non-invasive ventilation (NIV)

In many circumstances, patients requiring NIV do not meeting their energy and protein targets via oral intake alone. This decision for NG feeding in patients requiring NIV should be balanced with the potential for the patient to require intubation and the risks associated with this in an enterally fed patient. Close communication with the team is essential.

CCSG recommends the following:

- Consider placement of an NGT on admission to facilitate feeding and hydration.
- If this practice is not adopted, monitor oral intake and utilise oral nutrition support (ONS) if appropriate with the progression to NG feeding if oral intake remains poor (<65% of energy and protein targets).
- Patients that have been extubated to NIV are likely to have poor oral intake and NG feeding should be continued until they have been assessed and are managing sufficient oral intake.

Monitoring of nutrition support

Monitoring of nutrition support is essential during this time given the nutrition risk of these patients, increased demand for services, potential reliance on feeding protocols for a prolonged duration and likelihood for developing GI intolerance.

CCSG recommends close attention is paid to the prescription vs. delivery of enteral and parenteral feeds and that non-nutrition sources (glucose, propofol and citrate) and considered in these calculations to avoid both significant under and overfeeding.

Additional Guidance

CCSG recommends that all critical care dietitians keep up to date with guidance from other societies regarding professional practice during this time, medical treatment of patients with COVID-19 and health and wellbeing tips. The Intensive Care Society has created a hub that contains links to many of these guides. The website can be found [here](#).

Additional links include:

- [HCPC advice on working outside of your scope](#)
- [ICNARC report on 196 patients critically ill with COVID-19](#)