



The COVID-19 Pandemic

Collaborative working & lessons learned

Anne Holdoway, Danielle Bear, Dr Barry Jones, Declan O'Brien, Fionna Page, Ella Terblanche & Pete Turner on behalf of the BDA COVID-19 Clinical Guidance Groups, BAPEN and the British Specialist Nutrition Association (BSNA)

During the initial phases of the UK's response to COVID-19, the focus was on emptying hospitals, expanding intensive care units and purchasing ventilators. At a national level, clinical cells, including the National Enteral Feeding Group, were established to ensure that equipment, staffing and resources were sourced and available, to support patients admitted to hospital including those in critical care. Whilst nutrition support products needed securing to manage the anticipated surge in hospital patients, those on home nutrition support equally needed protecting and shielding.

To co-ordinate activities and support the National Enteral Feeding Group, the British Dietetic Association (BDA) established two Clinical Guidance Groups, one focused on acute care and one focused on community care. The aim of these groups was to support central decision making and co-ordinate activities to develop and disseminate resources to facilitate nutritional care across the patient journey from the intensive care unit (ICU) to home. The groups comprised representation from BDA specialist groups – the Critical Care Specialist group (CCSG), the Parenteral and Enteral Nutrition Group (PENG), the Older People Specialist Group (OPSG), the Optimising Nutrition Prescribing Specialist Group (ONPSG), industry and the Department of Health and Social Care (DHSC). Those involved brought with them links to key organisations, including the British Association for Parenteral and Enteral Nutrition (BAPEN), the Intensive Care Society (ICS), Faculty of Intensive Care Medicine (FICM) and clinical commissioning groups.

In this article, several members of the BDA COVID-19 Clinical Guidance Group (CGG), BAPEN and the Director General of the BSNA, share their experience, outline why guidance was needed, describe the merit of working collaboratively in the presence of many unknowns, the lessons learned and how the resources might be used going forward.

Nutrition support in critical care & at step-down

The BDA's CCSG was the first group to step-up to the mark to prepare the profession for the anticipated surge of patients being admitted to the ICU. Through the rapid

development of a phenomenal number of guidelines – www.bda.uk.com/resource/critical-care-dietetics-guidance-covid-19.html – the CCSG were able to support members and the wider dietetic community in providing dietetic care to those affected by COVID-19. Pre-established close links with the ICS facilitated endorsement.

The online discussion forum, and active Twitter (@BDACriticalCare) following, proved to be invaluable in allowing members to ask questions, share experiences and articulate their needs to the CCSG committee. Listening to members' needs, and that of the national and international dietetic community who were being redeployed to work in the critical care, the CCSG provided rapid responses. Ella Terblanche, Chair of the CCSG, commented: "CCSG members were amazing in their generosity to share local guidelines and teaching materials which, after review, were quickly placed on the BDA website for all to benefit from."

With representation on the CGG, the CCSG was also able to work collaboratively with other national nutrition groups, including PENG and BAPEN, to provide a united approach and ensure consistency of messages, facilitate shared learning and minimise repetition and duplication.

"Thank you to the BDA CCSG for this brilliant piece of work. It will be so helpful to so many of us. We really appreciate you working so hard on it, in the middle of a really difficult time."

"The guidance is very thorough and will help achieve consistency in our approach. Your time & dedication is very much appreciated."

Collaboration with industry & the DHSC

For the medical food industry, the outbreak of COVID-19 led to a series of challenges. The greatest unknown was the scale of the problem faced. In a worst-case scenario, it was forecast that 35,000 patients affected by COVID-19 might require tube feeding. Sourcing pumps, giving sets, tube feeds, nasogastric tubes and ancillaries became the focus of the medical food industry. Collaboration with the DHSC and NHS was essential to assist in distributing the scarce resources, including thousands of additional enteral feeding pumps, millions of giving sets and additional quantities of feed that required manufacturing.

Dietitians Ella Terblanche (Chair of the BDA CCSG), Danni Bear (Principal Dietitian Nightingale London/Guy's and St Thomas's NHS Trust), Ailsa Kennedy (North West England), Anne Holdoway (Chair of the BDA COVID-19 Acute Group), Fionna Page (Freelance), Pete Turner (Northern Ireland),

Lucy Morgan (Wales) and Carole-Anne Fleming (Scotland) provided vital clinical insights from all four nations and Europe, into the experience and challenges with providing nutrition support to those critically ill and severely unwell with COVID-19. The information has been key in supporting central government and industry plans to meet demand for medical nutrition products (e.g. feeds, pumps and tubes).

Thankfully the worst-case scenario was never reached, numbers on ICU peaked at about 12,000 patients in the UK, giving spare capacity for pumps and giving sets. The characteristics of the ICU population did however require a significant upsurge in the need for high protein tube feeds. Regional outbreaks led to temporary shortages of high protein tube feeds; the availability of protein supplements helped to alleviate this problem.

Declan O'Brien, Director General of the British Specialist Nutrition Association (BSNA), described the work of the BDA CGG as "extraordinarily helpful to gauge the scale of the pump challenge but to also provide timely feedback on the type of tube feeds needed for COVID-19 patients to help industry plan additional production".

As industry, DHSC, BDA and BAPEN prepare for a second wave, or future more localised surges, the focus is now on having adequate quantities of appropriate tube feeds available and, if possible, an agreed centralised mechanism to ensure efficient distribution to address outbreaks in specific regions.

Nasogastric tube placement

During the COVID-19 crisis, BAPEN's Nasogastric (NG) Tube Specialist Interest Group (NG-SIG) became concerned that that misplacement of NG tubes could occur in COVID-19 respiratory infections, due to the opaque lung fields leading to misinterpretation of routine X-rays. NHS Improvement (NHSI) data showed that these 'never events' had occurred early in the pandemic. The risk of pulmonary or oesophageal aspiration prior to NG tube insertion was also deemed to be higher in prone patients, with pH checks being unreliable or misleading. As a result, BAPEN's NG-SIG recommended X-ray as the primary check for NG tube position before first use in critical care patients, provided that those reporting did so using the 4-point check system.

Together with NHSE/I, BAPEN rapidly developed, disseminated and later revised an Aide Memoire and NG tube safety document to help critical care staff check NG tube position safely, particularly for those unfamiliar with the procedures. The guidance was endorsed by relevant anaesthetic and intensivist organisations and the National Nurses Nutrition Group (NNGG). See **Table 1**.

Initially, following the Public Health England (PHE) position based on Health Protection Scotland and World Health Organization (WHO) guidance, the NG tube insertion was classed as a non-aerosol generating procedure (AGP). Based on two studies from the SARS epidemic of 2003 and a review from 2012, these papers were considered to be of poor quality and unsuitable for clinical decision-making. Since PHE regarded 'sputum induction' as an AGP, and NG tube insertion and COVID-19 can cause coughing, BAPEN changed their position to regard NG tube insertion as an AGP. This view was adopted and supported by 22 UK and international groups and associations. BAPEN, in conjunction with the BDA, wrote to PHE, the Secretary of State for Health and Social Care and WHO to express their view. The Chief Nursing Officer of England facilitated the case being heard by a new DHSC committee formed to explore contentious AGP issues. Responses from WHO and other international societies are awaited. Relevant documents, including letters to PHE and the secretary of state for health, can be found on the BAPEN website: www.bapen.org.uk/resources-and-education/education-and-guidance/covid-19

Route of nutrition support in NIV & CPAP

The BDA COVID-19 acute CGG were aware that many patients with COVID-19 were being given respiratory support in the form of non-invasive ventilation (NIV) and continuous positive airways pressure (CPAP). Through ICU experience and work with respiratory patients, such as those with chronic obstructive pulmonary disease (COPD), the group were aware that oral intake can be difficult in patients receiving NIV and CPAP and that NG tube feeding breaks the seal on the masks leading to air leaks and bloating. Nausea and abdominal discomfort develop due to the stomach being distended with air from the positive pressure of the breathing device. Although the European Society for

Clinical Nutrition and Metabolism (ESPEN) recommended peripheral parenteral nutrition (PN) in patients on NIV and CPAP, it was felt that problems with enteral feeding could be managed to enable success. Key recommendations to manage enteral feeding in patients on NIV and CPAP were developed with help from BAPEN, PENG, CCSG and NNNG and the British Thoracic Society (BTS) – see **Table 1**. These included use of fine bore tubes and silicone dressings to prevent air leaks, use of prokinetics, appropriate timing/positioning and use of decompression devices to overcome gastric distension. It was however stressed that should EN not be possible, appropriately managed central PN be considered.

Ward-based nutrition (non-ICU)

As the clinical implications and the impact on healthcare resources began to emerge during the early phases of the global coronavirus pandemic, expert professional nutrition organisations in the UK and around the world rapidly produced guidelines for the nutritional management of patients with COVID-19. Many drew on evidence from previous relevant guidelines,¹ some focused on the management of patients in the intensive care unit,² others provided information for the management of patients on the general hospital wards³⁻⁵ but, inevitably, there were gaps. Practical information for managing nutritional care of patients on hospital wards within the limitations of infection control measures, staff redeployment, level of surge capacity, skill mix, availability of medical nutrition products and personal protective equipment (PPE) was limited. For this reason, the BDA COVID-19 CGG collated the combined, hands-on, experience of the member front-line dietitians, together with emerging guidance from other groups, to make this expertise available to all.

The resource *'Practical considerations for nutritional management of non-ICU COVID-19 patients in hospital'* (see **Table 1**) was designed to complement and align with the wide-range of high-quality resources available covering nutritional care in the community, critical care and rehabilitation.

As we move through the different phases of the pandemic, this resource will hopefully be used to assist with planning care pathways for a possible second surge

and also inform nutritional care beyond COVID-19, particularly for other patient groups with respiratory disease.

Post ICU rehabilitation – the creation of a new framework to support patients

In the aftermath of COVID-19, the need to ensure that the rehabilitation needs of those who required critical care was recognised as an important factor in the continuation of care to optimise recovery once home.

With collective expertise from nursing; physiotherapy; dietetics (represented by Danni Bear); occupational therapy; speech and language therapy; clinical psychology; sports medicine; ear, nose and throat surgery; intensive care; neuro-intensive care; plastic surgery; respiratory medicine; rehabilitation medicine; and renal medicine, the ICS framework *'A framework for assessing early rehabilitation needs following treatment in intensive care'* was created to assess and guide rehabilitation needs required from the multidisciplinary team, in a timely manner (see **Table 1**).

The coalition worked hard to expedite the creation of a comprehensive pathway for the rehabilitation of patients in and leaving intensive care after severe COVID-19 infections. It includes a new Post ICU Presentation Screening (PICUPS) tool and rehabilitation prescription that can be adopted and implemented by trusts. The intention is that the document and the national datasets it generates, will provide valuable data for future improvements in ICU after-care for all patients and generate much-needed research into the epidemiology, mechanisms and treatment and health economics of ICU survivorship.

It is anticipated that iterations will be required to refine the content of the framework and the associated tools, hence feedback is essential and encouraged.

Nutritional care in the community

In tandem with the collaboration and creation of resources on nutrition support for the acute setting (of which the above only represent a fraction), the BDA Community Nutrition Group comprising Louise Albrich (CCSG), Monica Compton (ONPSG), Alison Smith (OPSG), Ann Ashworth (BAPEN MAG), Anne Holdoway (Malnutrition Pathway),

Carole-Anne Fleming and Ailsa Kennedy (PENG), Elizabeth McKnight (South Eastern Health and Social Care Trust, Northern Ireland), Eleanor Johnstone (BDA) and Eleri Wright (Respiratory Dietitian), worked in tandem to create diet resources in conjunction with colleagues, to support patients recovering at home after an ICU or hospital stay for COVID-19 or to support those experiencing an infection at home (see **Table 1**).

Acknowledgments & conclusions

All that has been achieved during COVID-19 in the field of nutrition support reflects the ambitions of a considerable number of key players, who worked collaboratively and set aside individual priorities in favour of a collective approach. A selection of some of the resources (and collaborations in creating them) have been included in **Table 1** (note this is not exhaustive). Whilst it is not possible to name all those involved, we hope when visiting the resources, you take note of those who created them, selflessly giving their time for the benefit of many.

Learning much as we went, information was rapidly developed and shared to facilitate new practices amongst healthcare professionals and teams to guide care. Rather than deliver isolated projects, we witnessed a switch to effective cross-working and co-ordination, the alignment of efforts and achieved mutually reinforcing activities. Working with partners in industry, many professionals from the UK involved in the creation of guidance and resources, delivered webinars which contributed to the on-going global education and cross-skilling of dietitians and clinicians working across healthcare settings.

For all its devastation, COVID-19 has perhaps taught us key principles underpinning successful collective action. Through a shared understanding of the problem, a common agenda to address it, working beyond our silos, communicating regularly with key partners and with equal respect to each organisation or group's perspectives, the rapid creation of multiprofessional resources and guidance was achieved. Such actions rightfully secured a place for nutrition within the healthcare agenda, in the news and in journal articles. Let's hope beyond COVID-19 we can continue to build on this transformative work.

Continues overleaf.

Table 1: Examples of Nutrition Guidelines Created during COVID-19

Guidance	Authors & Collaborations	Link
Critical Care Specialist Group Guidance on management of nutrition and dietetic services during the COVID-19 pandemic	BDA CCSG	www.bda.uk.com/resource/critical-care-dietetics-guidance-COVID-19.html
Best Practice Guidance: Enteral Feeding in Prone Position	BDA CCSG, ICS	www.bda.uk.com/resource/best-practice-guidance-enteral-feeding-in-prone-position.html
Guidance on Bolus Enteral Feeding	BDA CCSG, BDA PENG, NNGG	www.bda.uk.com/resource/bda-critical-care-specialist-group-COVID-19-best-practice-guidance-bolus-enteral-feeding.html
AIDE-MEMOIRE Nasogastric tube (NGT) placement checks before first use in critical care settings during the COVID-19 response	BAPEN, NNGG, BDA	www.bapen.org.uk/pdfs/covid-19/aide-memoire-ngt-placement-13-05-20.pdf
Nutritional considerations when using acute peritoneal dialysis for the treatment of acute kidney injury	BDA RNSG, BDA CCSG	www.bda.uk.com/resource/nutritional-considerations-when-using-acute-peritoneal-dialysis-for-the-treatment-of-acute-kidney-injury.html
Stepdown care: nutrition at home & eating problems after critical illness	BDA CCSG, ICS, ICUsteps	www.bda.uk.com/resource/nutrition-at-home-after-critical-illness.html www.bda.uk.com/resource/tips-to-help-with-eating-problems-after-critical-illness.html
Community nutritional care	BDA COVID-19 Community CGG, BDA ONPSG Malnutrition Pathway (RCN, BAPEN, BDA) NHSE, BDA	www.bda.uk.com/uploads/assets/d12513ae-7015-4a08-803b499f765e2839/Top-tips-for-ONS-and-enteral-feeding-prescribing.pdf www.malnutritionpathway.co.uk/covid19-community-hcp www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/06/C0388-after-care-needs-of-inpatients-recovering-from-covid-19-5-june-2020-1.pdf
Route of Nutrition Support in Patients Requiring NIV & CPAP During the COVID-19 Response	BDA CGG, BDA-CCSG, BDA PENG, BAPEN, BTS, ICS	www.bda.uk.com/resource/route-of-nutrition-support-in-patients-requiring-niv-cpap-during-the-COVID-19-response.html
Practical considerations for nutritional management of non-ICU COVID-19 patients in hospital	BDA CGG, NNGG, BAPEN	www.bda.uk.com/resource/practical-considerations-for-nutritional-management-of-non-icu-covid-19-patients-in-hospital.html
Responding to COVID-19 and Beyond: A framework for assessing early rehabilitation needs following treatment in intensive care	BSRM, ICS; A collaborative across many professions	https://bit.ly/ICSRehab
Nasogastric (NG) tube placement	BAPEN NG-SIG, BDA	www.bapen.org.uk/pdfs/covid-19/covid-19-and-enteral-tube-feeding-safety-13-05-20.pdf

Note: The above list is not exhaustive. Further guidance on many aspects of nutrition support in COVID-19 can be found at: www.bda.uk.com/resource-library.html?topic=231035F0-AE66-498C-9F43A419839C6CAF and www.bapen.org.uk/resources-and-education/education-and-guidance/covid-19

Key: BDA CCSG = British Dietetic Association Critical Care Specialist Group; ICS = Intensive Care Society; BDA PENG = British Dietetic Association Parenteral and Enteral Nutrition Group; NNGG = National Nurses Nutrition Group; FICM = Faculty of Intensive Care Medicine; ANA = Association of Anaesthetists; RCoA = Royal College of Anaesthetists; BDA RNSG = British Dietetic Association Renal Nutrition Specialist Group; BDA COVID-19 Community CGG = British Dietetic Association COVID-19 Community Clinical Guidance Group; BDA ONPSG = British Dietetic Association Optimising Nutrition Prescribing Specialist Group; RCN = Royal College of Nursing; BAPEN = British Association for Parenteral and Enteral Nutrition; BDA = British Dietetic Association; NHSE = NHS England; BTS = British Thoracic Society; BSRM = British Society of Rehabilitation Medicine; BAPEN NG-SIG = British Association for Parenteral and Enteral Nutrition Nasogastric Tube Special Interest Group

References: **1.** Barazzoni R, et al. (2020). ESPEN expert statements and practical guidance for nutritional management of individuals with SARS-CoV-2 infection. *Clin Nutr*; 39(6): 1631-1638. **2.** Critical Care Specialist Group of the British Dietetic Association (2020). Guidance on management of nutrition and dietetic services during the COVID-19 pandemic. Accessed online: www.bda.uk.com/resource/bda-critical-care-group-COVID-19-guidance-published.html (Mar 2020). **3.** The First Affiliated Hospital, Zhejiang University School of Medicine (FA) (2020). Handbook of COVID-19 Prevention and Treatment. Accessed online: https://esge.org/documents/Handbook_of_COVID-19_Prevention_and_Treatment.pdf (Aug 2020). **4.** AuSPEN (2020). Nutrition Management for Critically and Acutely Unwell Hospitalised Patients with COVID-19 in Australia and New Zealand. Accessed online: <https://custom.cvent.com/FE8ADE3646EB4896BCEA8239F12DC577/files/93ecb5eadf7244faa98d9848921428a8.pdf> (Apr 2020). **5.** Gaccialanza R, et al. (2020). 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. *Nutrition*; 74: 110835. DOI: <https://doi.org/10.1016/j.nut.2020.110835>.