BAPEN Conference 2021 Abstracts
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OC1  Outcome of advanced cancer patients receiving home parenteral nutrition; a tertiary centre experience
M. Aleem, S. Mcdonnell, N. Wyer and N. Burch, Department of Nutrition and Gastroenterology, University Hospital Coventry and Warwickshire, CV2 2DX, UK.

OC2  Is early parenteral nutrition necessary following pelvic exenteration surgery?
P. Mistry, Z. Leach, T. Hollingworth, E. Clarke, A.H. Mirenzami, T.R. Smith, University Hospital Southampton NHS Trust, Southampton, United Kingdom, SO16 6YD

OC3  The impact of jejunostomy feeding on nutritional outcomes after oesophagectomy
S.J Davies1 and S. Wheelwright2, Department of Dietetics/ SLT, University Hospital Southampton NHS Foundation Trust, Tremosa Road, Southampton, SO16 6YD1, UK, and Health Sciences, University of Southampton, SO17 1BJ, UK2

OC4  Impact of implementing a Rapid Access Dietetic Service to Care homes during the COVID-19
S. Chervenkova1, L. Jones1, R. Huntriss1, V. Borgognoni1 1.Oviva UK Ltd, Runway East, 20 St Thomas Street, London, SE1 9RS

OC5  An electronic naso-gastric tube pathway, incorporating a clinical decision support tool, improves patient safety and reporting
M. Baker1, E. Birkin2, R. Pochiraju3, D. Rochell4, and C. Marshall5, 1.Nutrition & Dietetics, 2.Safer Surgery, Quality Improvement, 3.Critical Care, 4.eHospital Development, 5.Deputy Medical Director, University Hospitals of Leicester NHS Trust, LE1 5WW

OC6  Assessing the impact of prophylactic versus perioperative feeding jejunostomies on postoperative weight loss in oesophageal cancer patients
L. Mills, K. Kholia and R. Quinn, Heartlands Hospital, University Hospitals Birmingham, Bordesley Green East, Birmingham, United Kingdom, B9 5SS

OC7  Introduction of standardised parenteral nutrition for paediatric and neonatal patients using multichamber bags - an impact assessment on aseptic services capacity
S. L. Zeraschi, N. Iglesias, K. Mak, E. Dawson, A. R. Lowey, C.G. Forster and E.Ward, Pharmacy Department, Leeds General Infirmary, Great George Street, LS1 3EX, United Kingdom

OC8  Dietetic led critical care nutrition interventions provided to critically ill patients with COVID-19 in a large London teaching hospital from March 2020 and April 2021
E. Terblanche, J. Jackson, J. Wetherden, E. Russell and R. Lewis. St George’s University Hospitals NHS Foundation Trust

OC9  An audit of a single acute stroke centres practice when making decisions about gastrostomy placement, for patients who lack mental capacity to make their own decision
S. White, S. Munjal, N. Martindale and G. Pratt, Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, S10 2JF, UK.

OC10  The length of time taken from gastrostomy tube insertion to removal and the factors influencing this following curative head and neck cancer treatment: a service evaluation at a single tertiary oncology centre
L. Gregory, S. Garikipati, J. Thornton, B. Tahir, S. White, B. Foran and C. Robertson, Sheffield Teaching Hospitals NHS Foundation Trust UK S10 2JF
OC11  Assessment of a new Cola flavour modular protein oral nutritional supplement
M Rose, Stanningley Pharma UK Ltd, Nottingham NG1 1GF.

OC12  The Effects of Different Parenteral Nutrition Lipid Formulations on Clinical and Laboratory Endpoints in Patients Receiving Home Parenteral Nutrition: A Systematic Review
C. Kirk¹,², L. Haigh¹, N.P. Thompson³, M. Pearce³, D.E. Jones¹, and J.C. Mathers⁴. ¹Newcastle NIHR Biomedical Research Centre, Newcastle Upon Tyne Hospitals NHS Foundation Trust. ²Department of Gastroenterology, Newcastle upon Tyne Hospitals NHS Foundation Trust. ³Population Health Sciences Institute, Faculty of Medical Sciences, Newcastle University. ⁴Human Nutrition Research Centre, Population Health Sciences Institute, Faculty of Medical Sciences, Newcastle University.

OC13  Dietetic led nutrition interventions provided to patients recovering from critical illness from COVID-19 in a large London teaching Hospital from March 2020 and April 2021
E. Terblanche, J. Jackson, J. Wetherden, E. Russell and R. Lewis. St George's University Hospitals NHS Foundation Trust

OC14  The provision of parenteral nutrition for patients with COVID-19 on the intensive care unit: experience at a district general hospital
A. Champion, D. Murugiah, A. Harris, C. Banks, M. Bossy and C. Alexakis, Royal Surrey County Hospital, Egerton Road, Guildford, Surrey, GU2 7XX, UK

OC15  Using the Nutrition Wheel to identity risk of malnutrition among older adults in the community: a process evaluation
J.L. Murphy¹,², A. Aburrow², C. Davies² and K. Wallis³, ¹Faculty of Health and Social Sciences, Bournemouth University, Bournemouth, UK, BH8 8GP, ³Wessex Academic Health Science Network, Chilworth, UK, SO16 7NP

OC16  Reducing COVID-19 risk by optimising delivery frequency of home parenteral nutrition
C.A. Smillie, C.E. Silcock and S.L. Zeraschi, Pharmacy Department, St James’s University Hospital, Beckett Street, Leeds, LS9 7TF, UK

OC17  Tracking energy expenditure using VCO₂ in ventilated out of-hospital arrest patients
R. Johnson, A. Green and M. Green, Liverpool Heart and Chest Hospital, Thomas Drive, Liverpool, L14 3PE.

OC18  COVID-19 management in a UK Tertiary Centre with High Consequence Infectious Diseases Centre: Nutritional status, intervention and outcome
C. Lorden¹, S. Welsh², B. Puvaneswaran², S. Gandhi³, K.F.Baker⁴,⁵, C. Duncan²,⁵ and C. Mountford¹, ¹Dept of Gastroenterology, Newcastle Hospitals NHSFT, ²Dept of Infectious Diseases, Newcastle Hospitals NHSFT, ³Dept of Dietetics, Newcastle Hospitals NHSFT NE7 7DN, ⁴Department of Rheumatology, Newcastle Hospitals NHSFT, ⁵Translational and Clinical Research Institute, Newcastle University

OC19  Feasibility and effectiveness of a multimodal hospital based oncology prehabilitation service
A. Petrova and A. Labey, North Middlesex University Hospital, London, N18 1QX

OC20  To feed or not to feed - review of post-operative feeding strategies after gastric cancer surgery and impact on outcomes
H. Bennett and R. Harris, Cardiff School of Sport and Health Sciences, Cardiff Metropolitan University, CF5 2YB.

OC21  Monitoring bone mineral density in patients with chronic intestinal failure on home parenteral nutrition - a national centre experience
D.A. Chatterjee, N. Rezwan, N. Vernon, R. Khalid, R. Holman, M. Naghibi, S. Donnelly and S. Gabe, Lennard Jones Intestinal Rehabilitation Unit, St Mark’s Hospital, Watford Road, Harrow, HA1 3UJ, UK
OC22  A multidisciplinary exploration of patients’ and their relative’s experiences of food and nutritional care: baseline data from an action research study
G. Yinusa, Department of Nursing Science, Faculty of Health and Social Sciences, Bournemouth University, Bournemouth, Dorset, BH8 8AJ, UK

OC23  Assessing the impact of multivitamins in cystic fibrosis. A service evaluation.
D.J. Sillsa and M. Mitchell-Whytea, Nottingham University Hospitals Trust, Wolfson Cystic Fibrosis Centre, City campus, Hucknall Road, Nottingham, NG5 1PB, UK.

OC24  Malnutrition Prevalence and Nutritional Care in Adults in the UK: An analysis of data from a BAPEN survey
A.L. Cawood, E. Beggs, E. Holmes, R.J. Stratton, On behalf of Malnutrition Action Group (MAG), a standing committee of The British Association for Parenteral and Enteral Nutrition (BAPEN), Seven Elms, Dark Lane, Astwood Bank, Redditch, Worcs, B96 6HB, UK.

OC25  COVID-19 management in a UK Tertiary Centre Intensive Care Unit: Nutritional status, intervention and outcome

OC26  Long-term micronutrient deficiency in oesophagectomy and gastrectomy patients. Impact of the implementation of a screening protocol on prevalence of deficiency
A. Kidd, F. Huddy and M. Phillips, Department of Nutrition and Dietetics and Oesophagogastric Unit, Royal Surrey County Hospital, Guildford, UK, GU4 9XX

OC27  Water usage in enteral feeding: Results of a PENG survey
C. Fleming1, J. Jones2 and A. Julian1, 1Department of dietetics, NHS Greater Glasgow and Clyde, Glasgow G31 3HT, UK. 2Department of nutrition and biological sciences, Queen Margaret University, Edinburgh EH21 6UU.

OC28  Nutritional autonomy in Short Bowel Syndrome and Intestinal Fistulas
M. Kopczynska1, A. Teubner1, M. Taylor1, A. Abraham1, C.L. Hvas2, S. Burden3, G. Carlson1 and S. Lal1,3, 1Intestinal Failure Unit, Salford Royal NHS Foundation Trust, Salford, United Kingdom 2Department of Hepatology and Gastroenterology, Aarhus University Hospital, Aarhus, Denmark 3University of Manchester, Manchester, United Kingdom

OC29  The role of a dietitian as part of a multimodal hospital based oncology rehabilitations service
A. Petrova, North Middlesex University Hospital, London, N18 1QX

OC30  The role of Parenteral Nutrition in the treatment of children with refractory Inflammatory Bowel Disease - an old hat newly discovered
E. Kurteva1, F. Kiparissi¹ and J. Köglmeier1, 1Great Ormond Street Hospital for Children NHS Foundation Trust, WC1N 3JH London /United Kingdom

OC31  A multidisciplinary approach to reducing percutaneous endoscopic gastrostomy tube site infections within 30 days of placement
S. Roberts, K. Clark, V. Theis and J. Tyrer, St Helens and Knowsley Teaching Hospitals, Warrington Road, Prescot, L35 5DR, United Kingdom

OC32  Critical care dietetic outcomes during the first wave of the COVID-19 pandemic
SC Evans, RJ Prichard and AL Jukes, Cardiff and Vale University Health Board, Cardiff
OC33  Nutritional support for patients recovering from Covid-19: A consensus process with health and social care sector and patient representatives
M.Hickson1, Y.A.Tronco-Hernandez1, J.Murphy2, C.E.Weekes3, A.Julian4, G.Frost5, 1University of Plymouth, Plymouth, PL4 8AA, 2Bournemouth University, Bournemouth, BH8 8GP, 3Guy’s & St Thomas’ NHS Foundation Trust, London SE1 7EH, 4NHS Glasgow and Clyde, Glasgow Royal Infirmary, Glasgow, G31 3HT, 5Imperial College London, London, W12 0NN.

OC34  Assessment of macronutrient intake in subjects with mild to moderate pneumonia due to Covid 19 classified based on their nutritional status
S. Varma1, M. Patil2, and D. Patel3, 1HOD, Department of Nutrition, Belle Vue Multispeciality Hospital, Mumbai, India, 2HOD, Department of Nutrition, DY Patil Hospital, Navi Mumbai, India, 3Clinical Nutritionist, Asha Kiran JHC Hospital, Pune, India

OC35  Assessing the relationship between malnutrition and length of stay in the hospital in patients with COVID 19.
S. Varma1, M. Patil2, and D. Patel3, 1HOD, Department of Nutrition, Belle Vue Multispeciality Hospital, Mumbai, India, 2HOD, Department of Nutrition, DY Patil Hospital, Navi Mumbai, India, 3Clinical Nutritionist, Asha Kiran JHC Hospital, Pune, India

OC36  An audit to evaluate adherence to the national standard for dietetic assessment of patients with oesophago-gastric cancer
H. Starling, Leicester Royal Infirmary, University Hospitals of Leicester NHS Trust, Leicester, LE1 5WW, England

OC37  Establishing a nutrition round in a district general hospital neonatal unit
R. Adamson, R. Talathoti, S. Hapuarachchi, A. Jiu, M. Relato, M. Feleo, S. Soden and G. Audu, Special care baby unit, West Middlesex Hospital, Twickenham Road, Isleworth, Middlesex TW7 6AF

OC38  Analysis of nutrition support in COVID19 critical care patients
E. O’Sullivan1, A. McMorrow1, D. McCormack1 and E. O’Connor2, 1Department of Clinical Nutrition, 2Department of Anaesthesia, Intensive Care and Pain, St. James’s Hospital, Dublin, Ireland

OC39  Is nasojejunal feeding as effective as we think? An evaluation of nasojejunal feeding in the Intensive Care Unit
M. Patwell, R. Eckersley, L. White, L. Fixter and A. Rochford, Department of Gastroenterology, Royal Free Hospitals London NHS Foundation Trust, Pond Street, London, NW3 2QG, UK.

OC40  Nutritional comparison of surge one and surge two COVID-19 patients in an adult intensive care unit
M. Dawson, L. Stokes, A. Kravelich and C. Hanlon, University Hospitals of Leicester NHS Trust, Infirmary Square, Leicester, LE1 5WW, UK.

OC41  Improving compliance of the ‘Malnutrition Universal Screening Tool (MUST)’ within an acute care of the elderly ward
J. Hargan, University Hospital Hairmyres, 218 Eaglesham Road, East Kilbride, G75 8RG

OC42  The changing (remote) face of adult home parenteral nutrition patient support and monitoring
M. Baker, C. Curtis, A. Holohan, B. Muggridge, C. Rubio, D. Rogers. J. Stewart, Leicester Intestinal Failure Service, University Hospitals of Leicester NHS Trust, LE1 5WW

OC43  Longitudinal analysis of quality of life of patients on home parenteral nutrition at a regional centre
L. Gemmell, C. Hankins, J. Leeds, C. Kirk, N. Thompson, H. Leyland, and C. Mountford, Home Parenteral Nutrition team, Freeman Hospital, Newcastle upon Tyne, NE7 7DN

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N. Heikal and J. Köglmeier, Great Ormond Street Hospital for Children NHS Foundation Trust, London, UK
OC45  Use of Patients Know Best as a tool to improve patient engagement and deliver a digital dietetics service to kidney patients
K. Durrans, J. Barker, Hull University Teaching Hospitals NHS Trust, Hull Royal Infirmary, Anlaby Road, Hull. HU3 2JZ

OC46  An evaluation of nutritional status and specific nutritional issues during a rehabilitation period post COVID-19 infection
A. Browne1, L. Fallon1, A. Wrenne1, H. Mellett1, S. Brady1, C. Cunningham2 1Department of Clinical Nutrition, St James’s Hospital, Dublin, Ireland, 2Department of Medicine for the Elderly, St James’s Hospital, Dublin, Ireland

OC47  Implementation of the Royal Pharmaceutical Society Professional Standards for Homecare to invoice management of Home Parenteral Nutrition
S. L. Zeraschi, G. Juuremaa, D.C. Moss and C.A. Smillie, Pharmacy Department and Intestinal Failure Teams, St. James’s University Hospital, Beckett Street, Leeds, LS9 7TF, UK

OC48  Can British Association of Parenteral and Enteral Nutrition online modules support undergraduate inter-professional nutrition education?
E. Macaninch and K. J. Martyn, Education and Research in Medical Nutrition Network (ERimNN), School of Health Sciences, University of Brighton, BN1 9SF, UK and Brighton and Sussex Medical School, Sussex University, Brighton

OC49  Micronutrient deficiencies following surgery for oesophagogastric cancer – is there a need for introduction of a novel nutritional pathway?
M. Boland, F. MacLeod and C. Deans, on behalf of the Upper GI Surgical Team, Royal Infirmary Edinburgh, 51 Little France Crescent, Edinburgh, UK, EH16 4SA

OC50  Prevalence of vitamin D deficiency in critically-ill COVID-19 patients
L. Stokes and M. Dawson, Leicester Royal Infirmary, University Hospitals of Leicester NHS Trust, Infirmary Square, Leicester LE1 5WW, UK.

OC51  Implications of pre-operative NG fasting on nutrition in major burn patients: an audit of practice
B.H. Khera, N. Lancaster and C. Lewis, Northern Regional Burn Centre, Royal Victoria Infirmary, Queens Road, Newcastle-upon-Tyne, NE1 4AP, UK.

OC52  Malnutrition risk and the need for dietetic intervention post COVID-19 infection on a care of the elderly rehab ward
Michelle Savage1, L. Dooley1, S. Brady1 and H. Mellett1, 1Clinical Nutrition Department, St James’s Hospital, Dublin, Ireland

OC53  Nutrition in critical care: An audit of protein and energy intakes compared to international recommendations
E. O’Sullivan1, F. Barron1, C. Hughes1, A. Wrenne1, E. O’Connor2 1Department of Clinical Nutrition, 2Department of Anaesthesia, Intensive Care and Pain, St James’s Hospital, Dublin, Ireland

OC54  Quality of life of patients on home parenteral nutrition at a regional centre
L. Gemmell, C. Hankins, J. Leeds, C. Kirk, N. Thompson, H. Leyland, and C. Mountford, Home Parenteral Nutrition team, Freeman Hospital, Newcastle upon Tyne, NE7 7DN

OC55  Optimisation of an inpatient parenteral nutrition formulary in a secondary care hospital
P.Y.P. Chu, S. Patel, E.L. Noble, A.P. Holehouse, J.E. Scantlebury and S.L. Zeraschi, Intestinal Failure Team, Bexley Wing, St James’s University Hospital, Leeds Teaching Hospitals, Beckett Street, Leeds LS9 7TF, United Kingdom.
Critically ill patients with and without SARS-CoV-2 better achieve energy and protein targets with a high-energy, high-protein peptide-based enteral tube feed; insights from a multicentre clinical audit performed during the COVID-19 pandemic
B. Green¹, M. Phillips², L. Morgan³, K Hughes⁴, E. Terblanche⁵, S. King⁶, A. Fiddes⁷, K. Atwal¹, G.P. Hubbard¹, R.J. Stratton¹.¹ Medical Affairs, Nutricia, BA14 0XQ, UK; ²Royal Surrey County Hospital, GU2 7XX, UK; ³The Grange University Hospital, NP44 8YN, UK; ⁴Nevill Hall Hospital, NP7 7EG, UK; ⁵St George’s Hospital, SW17 0QT, UK; ⁶Cheltenham General Hospital, GL53 7AN, UK; ⁷Northumbria Specialist Emergency Care Hospital, NE23 6NZ, UK; ⁸Faculty of Medicine, University of Southampton, SO16 6YD, UK.

Tracheal and Gastric pH study: Is pH testing for NGT confirmation in the critically ill still safe?
JP. McNally-Reilly, S. Giannaraki, J. Wilcox, NA. Barrett, R.White and L. Wandrag, Adult critical care, Guy’s and St Thomas’ NHS Foundation Trust, London, SE1 7EH, United Kingdom

Characteristics and nutritional outcomes of patients recovering from COVID-19 infection post intensive care admission
M. Savage¹, S. Brady¹, M. Fitzmaurice¹, and H. Mellett¹, ¹Clinical Nutrition Department, St James’s Hospital, Dublin, Ireland

Virtual pump trouble shooting for home parenteral and enteral nutrition patients
Y. Houston, Fresenius Kabi Ltd, Cestrian Court, Maner Park, Eastgate Way, Runcorn, WA1 7NT

Nomogram reliability for predicting survival in patients with incurable cancer referred for home parenteral nutrition
C. Kirk¹,², H. Leyland², N.P. Thompson², C. Mountford², C. Hankins, H. Cook², J. McDonald² and L. Gemmell². ¹Newcastle NIHR Biomedical Research Centre, Newcastle Upon Tyne Hospitals NHS Foundation Trust. ²Department of Gastroenterology, Newcastle upon Tyne Hospitals NHS Foundation Trust.

The use of technology to aid the formation of home parenteral nutrition contingency prescriptions
C.A. Smillie, R. Haywood, C.F. Donnellan and P.Y.P. Chu, Nutrition team, St James’s University Hospital, Beckett Street, Leeds, LS9 7TF, UK

Life-threatening Malnutrition in very severe Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS)
H. Baxter¹, N. Speight² and W. Weir³, ¹21 Church Street, Tron, KA10 6HT, UK, ²Southlands, Gilesgate, Durham, DH1 1QN, UK, ³10 Harley Street, London W1G 9PF, UK.

Going Digital in a Pandemic! Transforming Dietetic Services by the use of digital platforms to deliver safe and sustainable care during COVID-19 and beyond
R. Gibson, S. Perry, K. Durrans, S. Goodwin, C. Harrgraves, A. Hanning, T. Buckton, A. Morrell, S. Murray, C. Levesley, P. Suffolk, L. Worville. Hull University Teaching Hospitals NHS Trust, Castle Hill Hospital, Castle Road, Cottingham, East Yorkshire, HU16 5JQ

Patients’ experience of a nutrition MDT clinic
S. Roberts, J. Tyrer and V. Theis, St Helens and Knowsley Teaching Hospitals, Warrington Road, Prescot, L35 5DR, United Kingdom

The nutritional management of people living with Amyotrophic Lateral Sclerosis (ALS): a cross-sectional survey of UK Dietitians
S. White¹, N. Zarotti², D. Beever³, M. Bradburn³, P. Norman³, E. Coates³, T. Stavroulakis, D. White², A. McGeachan¹, I.A. Williams³, G. Hackney³, V. Halliday³, and C. McDermott⁴ on behalf of the HighCALs research group. ¹Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, S10 2JF, UK. ²Sheffield Institute for Translational Neuroscience (SITrAn), The University of Sheffield, Sheffield, S10 2HQ, UK. ³School of Health and Related Research (ScHARR), The University of Sheffield, Sheffield, S1 4DA, UK. ⁴Department of Psychology, The University of Sheffield, Sheffield, S1 2LT, UK.
OC66 Audit of management of vitamin D deficiency in adult in-patients
S. Ngui, C. Mutekeri, and P. Mistry, University Hospital Southampton NHS Trust, Tremona Road, Southampton, United Kingdom, SO16 6YD

OC67 Applying learning from 1st to the 3rd wave of the COVID19 pandemic: nutritional provision in critical care
C. Hughes¹, F. Barron¹, E. O’Sullivan¹ and E. O’Connor², ¹Department of Clinical Nutrition, ²Dept of Anaesthetics, Intensive Care and Pain, St. James’s Hospital, Dublin, Ireland

OC68 How to successfully award a whole health community enteral feeding contract
C. Steele, Leicester Royal Infirmary, University Hospitals of Leicester NHS Trust, Leicester, LE1 5WW, UK

OC69 Paediatric transitional care process within a homecare parenteral nutrition service
J. Nobrega and R. Marques Fresenius Kabi and Calea, Cestrian Court, Eastgate Way, Runcorn Cheshire WA7 1NT

OC70 Empowering patients with cancer: self management of nutrition related issues.

OC71 Nutrition Support in the Intensive Care Unit during the COVID19 pandemic
F. Barron¹, C. Hughes¹, E. O’Sullivan¹ and E. O’Connor ², ¹Department of Clinical Nutrition, ²Dept of Anaesthesia, Intensive Care and Pain, St. James’s Hospital, Dublin, Ireland

OC72 An investigation into the need and feasibility of a volume-based enteral feeding protocol on neurosurgical wards
C. Rafferty, Department of Nutrition and Dietetics, Beaumont hospital, Dublin, Ireland

OC73 Reduce, reuse, recycle: Improving patient experience and environmental impact
S.A.L. Williams¹, S. Oldham¹, A.C. Morgan¹ and F.W. McCarten², ¹Gloucester Royal Hospital, Great Western Road, Gloucester, GL1 3NN, ²NUTRICIA, White Horse Business Park, Trowbridge, Wiltshire BA14 0XQ.

OC74 Early nutritional screening, appropriate first line advice and prescribed oral nutrition support across organisational boundaries. New oral nutrition support pathway striving for seamless delivery of care from Hospital into Community Care
R. Gibson, P. Kingston, S. Perry, K. Durrans, C. Hargraves, S. Murray, S. Rust, A. Ramirez, J. Morgan, C. Hughes, N. Woods and C. Grantham, Hull University Teaching Hospitals NHS Trust, Castle Hill Hospital, Castle Road, Cottingham, East Yorkshire, HU16 5JQ

OC75 Supporting the NHS during the covid pandemic to reduce hospital admissions and reducing the risk of Covid-19 infections between nurses and patients
H. Dickinson, Y. Houston, Fresenius Kabi and Calea, Cestrian Court, Eastgate Way, Runcorn, Cheshire WA7 1NT

OC76 Enhancing the Nutrition Service in an Acute Hospital Trust
Wendy-Ling Relph, East Kent Hospitals University NHS Foundation Trust

OC77 The challenge of meeting protein requirements in critically ill patients in the COVID era
S. Verdaasdonk, K. Lomax, A. Morgan, M. Price and L. Fixter, Department of Dietetics, Royal Free Hospitals London NHS Foundation Trust, Pond Street, London, NW3 2QG.

OC78 Nutritional management of mitochondrial depletion syndrome: a case study
J. B. Freemantle, B. Doyle, D. MacCallum, P. Young and M. A. Thomson, Fife NHS, Lynebank Hospital, Halbeath Road, Dunfermline, Scotland, KY11 4UW

OC79 A Quality Improvement Project to optimise nutrition in COVID-19 patients receiving CPAP therapy in a ward based setting
I. Davies¹, H. Hartnett¹, V. Alderman¹ and J. Agbetile¹, ¹Homerton University Hospital, Homerton Row, London, UK, E9 6SR
OC80  Stepwise application of a pilot prehabilitation program for colorectal cancer patients prevents nutritional decline and improves patient-reported outcomes
S Hall, L Cox, R Scarpinata, T Singhal, F Smedley and E Ypsilantis. King's College Hospital, Princess Royal University Hospital, Orpington, United Kingdom

OC81  Assessing the severity of pre-operative malnutrition in cancer patients due to undergo potentially curative surgery. A review of a virtual dietetic prehabilitation service.
L. Cox. King’s College Hospital NHS Foundation Trust

OC82  Peripheral parenteral nutrition in adult acute care - Evaluation of a midline catheter service
C. Morrison¹, J. Williams² and D. Oliver³
¹Dept of Nutrition and Dietetics, The James Cook University Hospital, Middlesbrough, TS4 3BW
²Dept of Infectious diseases, The James Cook University Hospital, Middlesbrough, TS4 3BW
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OC83  Urinary sodium monitoring and dehydration in patients on home parenteral nutrition: an audit
S. James¹, J. Tyrrell-Price¹, C. Atkinson² and A. Ness², ¹Department of Gastroenterology and Nutrition, University Hospitals Bristol and Weston NHS Foundation Trust, Bristol, BS2 8HW, UK. ²National Institute for Health Research Bristol Biomedical Research Centre, University Hospitals Bristol and Weston NHS Foundation Trust and University of Bristol, BS2 8HW UK.

OC84  Improving the recycling of medical nutrition product packaging in primary and secondary care: initial survey results and plans for implementation of educational support.
J. Callaghan¹, J. Taylor², E. Baker³, G. Steel⁴, P. Coulson⁴, A. Johnston⁴, N. Wayne⁵, J. Brown⁶, ¹The Newcastle upon Tyne Hospitals NHS Foundation Trust, NE7 7DN, ²Nutricia Ltd, White Horse Business Park, Trowbridge, Wiltshire BA14 0XQ

OC85  Nutritional care the patient’s perspective: Data from a national survey of patients with diseased related malnutrition.
A.L. Cawood¹, E.R Walters², C. Wheatley³, L. Anderson², T.R. Smith³, ¹Faculty of Medicine, University of Southampton, Tremona Road, Southampton, SO16 6YD; ²Faculty of Health Sciences, University of Southampton, University Road, Southampton, SO17 1BJ; ³PINNT charity, Christchurch, Dorset, BH23 2XS; ⁴Buckinghamshire Healthcare NHS Trust, Aylesbury, Bucks, HP21 8AL; ⁵Department of Gastroenterology, University Hospital Southampton NHS Foundation Trust, Tremona Road, Southampton SO16 6YD.

OC86  The development and use of e-learning modules to support care home staff caring for enterally tube fed patients

OC87  Investigation and follow up of patients under “hospital A” receiving home parenteral nutrition with liver function test (LFT) derangement
S. Sivapalan, A. Jukes, T. Pembroke and R. Hewett, CF14 4XW, Cardiff

OC88  Introduction of the liver frailty index, (LFI) in liver transplant assessment
R Thomson and S Burnside, Nutrition and Dietetics Department, Institute of Transplantation, Freeman Hospital, Newcastle upon Tyne Hospitals NHS Foundation Trust, NE7 7DN, England

OC89  Serial complications following percutaneous endoscopic gastrostomy
T.Y. Lim, A. Charlesworth, D. Dewar, G. Walker and M. Jennings, University Hospital Lewisham, Lewisham High Street, London, SE13 6LH, UK

OC90  Evaluation of a new enteral feeding tube nurse clinic at the Weston Park Hospital Radiotherapy department
L. Cowell¹, N. Wayne¹, J. Solomon¹, V. Gallivan², L. Gregory² and G.P. Hubbard¹,
¹Nutricia Ltd, White Horse Business Park, Trowbridge, Wiltshire BA14 0XQ and ³Weston Park Hospital, Whitham Road, Sheffield, S10 2SJ
OC91 PEG placements during the COVID-19 pandemic - an audit of the procedures performed by a single consultant operator at a tertiary teaching hospital
N.D. Pantzaris and J.A Stewart, University Hospitals of Leicester, Digestive Diseases Centre, Leicester, UK, LE1 5WW

OC92 Nasogastric tube never events during the Covid-19 crisis in the UK; fewer than predicted
B.J.M. Jones¹, W.L. Relph², L. Anderson³, P. Edwards⁴ and L. Broomfield⁵, on behalf of BAPEN Nasogastric Special Interest Group (NGSIG). ¹BAPEN Office, Seven Elms, Dark Lane, Astwood Bank, Redditch B96 6HB, ²Arundel Unit William Harvey Hospital, Ashford, Kent TN23 0LZ, ³Bucks Healthcare NHS Trust, Stoke Mandeville Hospital, Bucks HP21 8AL, ⁴Wrexham Maelor Hospital, Wales LL13 7TD, ⁵Hywel Dda University Health Board Wales SA31 3BB.

OC93 A retrospective study of patients attending the Emergency Department at a District General Hospital with Gastrostomy complications
S. Gupta and K. Eaton, Croydon University Hospital, 530 London Road, Croydon, CR7 7YE, UK.

OC94 Lipid monitoring and hyperlipidaemia in patients on home parenteral nutrition
S. Heasman, T. Rowland, E. Priestley, L. Gemmell, C. Mountford and N.P. Thompson, Freeman Hospital, Newcastle Hospitals NHS Foundation Trust. Freeman Road, High Heaton, Newcastle upon Tyne, NE7 7DN, UK.
Outcome of advanced cancer patients receiving home parenteral nutrition; a tertiary centre experience
by M. Aleem, S. Mcdonnell, N. Wyer and N. Burch, Department of Nutrition and Gastroenterology, University Hospital Coventry and Warwickshire, CV2 2DX, UK.

Patients with malignancy, who are unable to meet their nutritional needs through oral or enteral routes, and who have at least a 3-months prognosis and good performance status, should be considered for Home Parenteral Nutrition (HPN). The number of patients with cancer receiving HPN in the UK is rising. Given the increase in utilisation, it is important to evaluate response to treatment and ensure robust decision making is in place. This audit aimed to review the outcomes of patients commenced on palliative HPN for this indication in our centre.

The study design was retrospective and prospective. Clinical information was collected from an online database and patient notes. It included all palliative HPN discharges from Dec 2016 to Nov 2020. Outcomes were recorded up to the end of February 2021.

The cohort consisted of 30 patients. The mean age was 59.7 years and 65.2% were females. The cancer spectrum was Gastrointestinal: 21 (70%), Gynaecological: 8 (26%) and Lymphatic: 1 (3.3%). The main indicator for HPN was bowel obstruction (83%). 17 patients (56.6%) had metastatic disease. Most (n =26) had an ECOG Performance Status (PS) of 2. Average weight loss at the time of referral was 10.2% and 12 patients (40%) received concurrent chemotherapy. The average length of hospital stay was 27.6 days (range 7-81). Two patients came off HPN and had it restarted later, constituting 32 HPN discharges. 31 discharges were to home and 1 was to Hospice. Regarding the British Intestinal Failure Alliance (BIFA) Position Statement, number of discharges fell into palliative categories as; P1: 24, P2: 6 and P3: 2.

By end of Feb 2021, 6 patients were still alive (20%), 2 of whom had been able to discontinue HPN due to resolution of obstruction with chemotherapy. 15 patients had TPN continued till death; 8 stopped because patient deteriorated and 1 stopped because of patient wishes. Mean survival on HPN was found to be 160 days (range 32-432). 43.3% of patients had a mean survival of more than 3 months. Survival among P1, P2 and P3 (BIFA) palliative categories was 121, 258 and 478 days respectively. Increased Glasgow Prognostic Score (GPS) correlated with poorer survival (Table 1) with GPS 0 having significantly increased survival compared to GPS 2 (p-value of 0.0043 on one way ANOVA). Patients who received chemotherapy had a mean survival of 195.1 days compared to 145.1 days for those who did not (p-value 0.43). Nutritional outcomes demonstrated weight gain in 19/28 discharges (67.8%) with a mean weight change of +3.84%. Handgrip data was available for 19 patients and showed an improvement in 8 (42%). The average increase was 4.2 Kg. Mid arm muscle circumference showed an average change of -0.68%. Complications in our cohort included: line-related sepsis (21%), line fracture (3.1%), line dislodged (3.1%) deranged LFTs (3.1% – resolved with change to the bespoke regimen), fluid overload (3.1%) and Hyperkalaemia (3.1%).

In carefully selected patients with adequate PS, HPN provides a good outcome in malignancy. It entails improvement in nutritional parameters and is well tolerated with minimal side effects. We consider utilisation of GPS a useful tool and suggest careful consideration before commencing palliative HPN in borderline cases with a GPS of 2 (as survival likely to be significantly poorer). It was noteworthy that concurrent chemotherapy did not result in a significant improvement in survival compared to HPN alone; however, there was a trend towards longer survival with chemotherapy. Further assessment of the quality of life and functional benefits should be explored in conjunction with larger scale outcome data pertaining to survival and nutritional outcomes in this complex subset of HPN patients.

Table 1

<table>
<thead>
<tr>
<th>Glasgow Prognostic Score</th>
<th>Survival Range (Days)</th>
<th>Survival Average (Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>90-432</td>
<td>240</td>
</tr>
<tr>
<td>1</td>
<td>55-375</td>
<td>166</td>
</tr>
<tr>
<td>2</td>
<td>32-195</td>
<td>77</td>
</tr>
</tbody>
</table>

References
Is early parenteral nutrition necessary following pelvic exenteration surgery?
by P. Mistry, Z. Leach, T. Hollingworth, E. Clarke, A.H. Mirenzami, T.R. Smith, University Hospital Southampton NHS Trust, Southampton, United Kingdom, SO16 6YD

Background: Pelvic exenteration (PE) surgery is complex surgery performed on patients with advanced pelvic cancers, predominantly locally advanced and recurrent rectal cancer. Postoperative paralytic ileus is often associated with this surgery and parenteral nutrition (PN) is routinely used as nutrition support (1). Intraoperative radiotherapy (IORT) is used in combination with surgery to improve oncological outcomes in advanced and recurrent colorectal cancer (2). In our unit patients are sometimes started on PN immediately after surgery in anticipation of paralytic ileus, irrespective of their pre-operative nutritional status. PN is associated with several risks, including catheter related sepsis, and therefore its use should be limited to patients with intestinal failure (3).

Aim: To evaluate if there is a need for early PN following elective pelvic exenteration surgery and whether this changes with duration of surgery or use of IORT.

Method: Patients admitted to a UK teaching hospital for PE surgery between 2018 and 2020 were reviewed retrospectively, using the electronic patient record and nutrition support team PN records. Patients who received pre-operative PN, had incomplete PN records or who had PN stopped prematurely due to suspected infection were excluded from this evaluation. SPSS was utilised for statistical analysis. Data for operation time and PN duration was normally distributed. Independent t-tests were used for comparisons.

Results: 75 patients who had undergone PE surgery were reviewed. 9 patients were excluded; 5 had PN stopped due to suspected infection, 2 patients were given pre-operative PN, 2 had missing records. 66 patients were included in the study. 42 had PE surgery only and 24 patients received IORT with PE surgery. Findings are outlined in Table 1 below:

Table 1. Use of PN in patients who have undergone PE and/or IORT.

<table>
<thead>
<tr>
<th>No. of patients</th>
<th>PE surgery only</th>
<th>PE surgery + IORT</th>
<th>p value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of patients</td>
<td>42</td>
<td>24</td>
<td>-</td>
</tr>
<tr>
<td>Mean operation time (hrs)</td>
<td>10.4 (SD 3.38)</td>
<td>15.5 (SD 5.22)</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>No. patients PN given</td>
<td>22 (52%)</td>
<td>22 (92%)</td>
<td>-</td>
</tr>
<tr>
<td>Mean operation time in patients receiving post-operative PN (hrs)</td>
<td>11.0 (SD 3.70)</td>
<td>15.9 (SD 5.25)</td>
<td>P&lt;0.05</td>
</tr>
<tr>
<td>Mean duration of post-operative PN (days)</td>
<td>4.2 (SD 4.95)</td>
<td>12.4 (SD 8.43)</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>No. patients who required PN ≥5 days</td>
<td>18 (43%)</td>
<td>22 (100%)</td>
<td>-</td>
</tr>
</tbody>
</table>

*p<0.05=significant; p<0.001=highly significant

Conclusions: This retrospective evaluation of PN use in patients who have undergone PE surgery demonstrates that patients who have also received IORT are more likely to require PN for a postoperative paralytic ileus. Patients in this group also require PN for a statistically significantly longer duration than patients who undergo PE surgery without IORT. This need for PN also coincides with the significantly longer operation times. In conclusion, early postoperative PN should be reserved for patients who have undergone PE surgery with IORT. Those having PE surgery alone should be considered for PN after ≥ 5 days of no nutrition or in the presence of other risk factors.

References
The impact of jejunostomy feeding on nutritional outcomes after oesophagectomy

by S.J Davies1 and S. Wheelwright2, Department of Dietetics/ SLT, University Hospital Southampton NHS Foundation Trust, Tremona Road, Southampton, SO16 6YD1, UK, and Health Sciences, University of Southampton, SO17 1BJ, UK

Oesophagectomy is the mainstay of curative treatment for oesophageal cancer; however nutritional status is compromised in the months and years post-operatively1. Controversy surrounds the optimal route for post-operative nutrition support and there is wide variation in the use of feeding jejunostomy in different centres across the UK2-3. The aim of this study was to evaluate whether patients who received jejunostomy feeding post-oesophagectomy had improved nutritional and clinical outcomes within the first post-operative year, compared to those without jejunostomy.

As part of a service evaluation, we collected data for all consecutive adults who underwent oesophagectomy for a cancer diagnosis within our centre between April 2016 and July 2019. Current practice within our specialist regional centre is the selective use of jejunostomy placement, primarily if there is concern of a post-operative complication which would delay establishing oral intake, such as anastomotic leak, or malnutrition (low BMI or significant weight loss) pre-operatively. All patients follow an established enhanced recovery protocol post-operatively, including early oral feeding in the absence of anastomotic leak. Clear fluids are initiated on post-operative day (POD) 2, free fluids on POD4 and a purée consistency diet on POD5, and for 2 weeks after discharge. All patients are prescribed 2x125ml high protein oral nutritional supplements per day (providing 600kcal, 36g protein). If a jejunostomy is inserted, enteral feeding is commenced on POD1 and increased gradually to meet full estimated nutritional requirements by POD3-4. Once established on a purée diet orally, enteral feeding is adjusted to supplementary overnight feeding providing approximately 50% requirements on hospital discharge.

The study was registered with the Trust’s Clinical Effectiveness Department (Audit number SEV/0275), and approved by the University Ethics Committee (ERGOII ID 62607).

A total of 165 patients who underwent oesophagectomy within the study period were included and analysed in two groups according to whether they received a jejunostomy tube or not. N=24 (14.5%) patients received jejunostomy feeding, whilst n=141 patients did not. A power calculation showed this sample size was adequate to detect statistical difference in mean percentage weight loss at 6 months. There were no significant differences in baseline characteristics between the groups. Patients with feeding jejunostomy lost significantly less weight at both 6 and 12 months post-operatively compared to those without jejunostomy (p=<0.001 and p=0.001 respectively). These results remained statistically significant in a multiple regression model, when controlled for age, gender, pre-operative T and N staging and adjuvant treatment (p=<0.001 and p=0.03 respectively). The jejunostomy group experienced higher incidence of anastomotic leak (p=0.02) and serious complications (Clavien-Dindo ≥3b) (p=0.03), as indicated by the reason for jejunostomy insertion. Consequently the jejunostomy group had a significantly longer length of hospital stay (LOS) (p=<0.001). The mean calorie intake provided by the jejunal feed alone on discharge was 18.1 kcal/kg/day and 0.7 g/kg/day protein. Median length of time patients required home enteral feeding (HEF) was 10 weeks (IQR 3-20 weeks) after discharge. N=4 (16.7%) patients experienced minor jejunostomy tube-related complications, only one of which affected clinical management where the tube leaked after insertion, so continued HEF was not possible. N=16 (43.2%) patients in the non-jejunostomy group were readmitted within 90 days of surgery due to inadequacy of oral nutritional intake and weight loss as a factor for the re-admission. None of the readmissions in the jejunostomy group were related to nutrition. N=9 (6.4%) patients in the non-jejunostomy group subsequently required ‘rescue tube feeding’ within 90 days of surgery, and n=12 (8.5%) within the first year post-operatively.

Despite being more nutritionally compromised pre-operatively and having a longer LOS, patients who received jejunostomy feeding lost significantly less weight at 6 and 12 months post-operatively compared to those without feeding jejunostomy. Use of short-term supplementary jejunal feeding in addition to oral intake after hospital discharge is beneficial for maintaining nutritional status, with low risk for serious tube-related complications. We suggest a randomised-controlled trial to confirm these findings.

References
Impact of implementing a Rapid Access Dietetic Service to Care homes during COVID-19
by S. Chervenkova¹, L. Jones¹, R. Huntriss¹, V. Borgognoni¹
1.Oviva UK Ltd, Runway East, 20 St Thomas Street, London, SE1 9RS, s.chervenkova@nhs.net

Background: In the UK, 38% of people residing in care homes are estimated to be at high risk of malnutrition¹ and it is known now that nutritional status can further be negatively affected by COVID-19 not only directly through medical complications but also social factors such as social isolation, staffing issues, increased anxiety and low mood². Our aim is to evaluate the clinical and cost effectiveness of direct dietetic input (Rapid Access Dietetic Service) to care homes during the COVID-19 pandemic.

Methods: During the first wave of the Covid-19 pandemic, a rapid access service to support care homes was set up, accepting referrals directly from the care home staff and offering a remote dietetic assessment within 1 week of referral. Patients at high risk of malnutrition / on ONS were followed up as part of a 12-week care pathway. The 12-week pathway consisted of initial and last telephone/video consultation by the dietitian and monthly telephone follow ups in between by the dietetic assistant. Care home staff were provided remote training on ‘Food First’ malnutrition management and ONS prescribing. Outcomes audited were MUST, clinical outcomes (number of falls, pressure sores, chest and UTI infections, hospital admissions, A&E attendance in the last 3 months) pre and after 12-week pathway. Cost benefit analyses were performed on both clinical outcomes and ONS changes. Service evaluation was done by requesting GP / care staff and community dietitians’ feedback.

Results: 54 patients were referred by the care homes staff/GP, 24 of those because of medium/high risk of malnutrition, 30 referred for ONS review. Out of the patients who were medium/high risk (n = 24) and were onboarded onto the 12-week care pathway, the number of patients with MUST of 0 (low risk) increased 8-fold, patients with MUST of 1 (medium risk) increased 2.3 times and patients with MUST of 2 or above (high risk) declined by half after the 12-week care pathway. Cost benefit analysis on clinical outcomes showed combined estimated cost savings of £26,061 (Table 1). Out of the patients on ONS, 11 prescriptions were changed, 5 were stopped, 13 were continued resulting in a total ONS annualised savings of £12,753 / £425 per patient. The service was evaluated by the community dietitians, care staff and GPs and positive feedback was provided.

Table 1: Estimated annual cost benefit of improved clinical outcomes and reduction in malnutrition risk.

<table>
<thead>
<tr>
<th>Outcome measured</th>
<th>At initial assessment</th>
<th>At discharge</th>
<th>Estimated Cost saving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infections (n in last 3 months)</td>
<td>5</td>
<td>0</td>
<td>£5195 (£1021 each)³</td>
</tr>
<tr>
<td>Falls (n in last 3 months)</td>
<td>4</td>
<td>0</td>
<td>£4424 (£1106 each)³</td>
</tr>
<tr>
<td>Pressure sores (n in last 3 months)</td>
<td>3</td>
<td>0</td>
<td>£3642 (£1,214 each)⁴</td>
</tr>
<tr>
<td>Hospital admissions</td>
<td>8</td>
<td>0</td>
<td>£12,800 (£1600 each)³</td>
</tr>
<tr>
<td>(n in last 3 months)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ONS cost (£)</td>
<td>27,772</td>
<td>15,019</td>
<td>£12,753³</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>£38,814</td>
</tr>
</tbody>
</table>

Discussion: Despite being an existing service, significant adaptations were made in order to continue providing care throughout the COVID-19 pandemic. All interactions and engagement with GPs and care home staff were conducted remotely in place of the usual in-person service. Despite this change, marked improvements in patient malnutrition status were seen during the 12-week care pathway. Cost benefit analysis show a combined annualised cost saving of £38,814 during the 6-month intervention from the ONS changes and clinical outcomes. This equates to an annualised cost saving of £77.628 and £718.7 per person referred. The service was highly valued by the care home staff, GPs and community dietitians as evidenced by the positive feedback received. Limitations include other possible factors may have influenced the results e.g. medications/other HCP involvement. Annualized savings for ONS changes and clinical outcomes were estimated based on savings achieved in the 6 months over the service was running. The cost of dietitian was not included as a pre-existing service was altered during the pandemic months prioritizing care homes.

Conclusion: The new rapid access service for care homes resulted in residents being seen quickly and appropriately treated for malnutrition where identified. The service also resulted in significant cost savings for ONS prescriptions and avoidance of healthcare costs associated with malnutrition. Continuation of this new service model should be considered to reduce the incidence of malnutrition and effectively manage those identified as malnourished.

References:
3. National Schedule of Reference Costs 2017/2018
An electronic naso-gastric tube pathway, incorporating a clinical decision support tool, improves patient safety and reporting

by M. Baker, E. Birkin, R. Pochiraju, D. Rochell, and C. Marshall, Nutrition & Dietetics, Safer Surgery, Quality Improvement, Critical Care, eHospital Development, Deputy Medical Director, University Hospitals of Leicester NHS Trust, LE1 5WW

Due to the ongoing patient safety concerns arising from misplaced naso-gastric tubes (NGT), NHS Improvement requested assurance from hospital trusts that all safety critical requirements for placement checks are in place. A never event in 2020 identified the need to improve compliance to documentation of safety critical requirements. Critical Care routinely use x-ray confirmation for initial placement checks, accompanied by a paper based LocSSIP modified to include the 4 point criteria for x-ray reporting. Other clinical areas were required to use a case note sticker documenting placement and initial confirmation (by pH or X-ray) and a paper careplan for ongoing placement confirmation.

Previous audits identified poor compliance to documentation (table 1) despite local policy reflecting national standards.

<table>
<thead>
<tr>
<th>Documentation:</th>
<th>Prior to implementation of eNGT</th>
<th>eNGT Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>NGT Insertion</td>
<td>Non Critical Care n = 66</td>
<td>Critical Care n = 25</td>
</tr>
<tr>
<td></td>
<td>22 (33%)</td>
<td>9 (36%)</td>
</tr>
<tr>
<td>Initial gastric placement</td>
<td>51 (77%)</td>
<td>9 (36%)</td>
</tr>
<tr>
<td>X-Ray reporting</td>
<td>17 (26%)</td>
<td>34 (52%)</td>
</tr>
<tr>
<td>pH Not documented</td>
<td>34 (22%)</td>
<td>15 (22%)</td>
</tr>
<tr>
<td>Where X-ray reported (4 criteria point criteria documented)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ongoing daily placement checks YES every 24hr</td>
<td>24 (36%)</td>
<td>28 (47%)</td>
</tr>
<tr>
<td>YES but &lt; 24hr Not assessed</td>
<td>15 (25%)</td>
<td>21 (38%)</td>
</tr>
</tbody>
</table>

*Completion of LocSSIP assessed, b Ryles drainage NGT only require documentation of insertion

An electronic pathway incorporating a clinical decision tool (eNGT) was developed to record initial placement (with pre-procedure safety checks, NGT type & contraindications), initial gastric placement confirmation (including separate x-ray reporting), ongoing monitoring and NGT removal. Throughout guidance is given on when to seek specialist advice and whether the NGT can safely be used for administration. A spot check audit of all inpatients with an eNGT pathway was repeated in June 2021 (Table 1).

eNGT has improved compliance to reporting of safety critical steps, in particular, interpretation of x-ray using the 4 point criteria. NGT insertions remain poorly reported but the current eNGT does not allow recording of insertions in theatre or radiology, or those placed in other trusts prior to transfer. This needs addressing as recording of NGT insertion will alert to a 24hr repeated placement check.

The next step is to develop a dashboard so compliance against all NGT placed at ward/unit level can be tracked on a weekly basis. This will enable the nutrition support team to direct bespoke training. We also hope to link this tool with the x-ray reporting system and electronic prescribing module.

References
Assessing the impact of prophylactic versus perioperative feeding jejunostomies on postoperative weight loss in oesophageal cancer patients
by L. Mills, K. Kholia and R. Quinn, Heartlands Hospital, University Hospitals Birmingham, Bordesley Green East, Birmingham, United Kingdom, B9 5SS

Malnutrition is prevalent in 60-85% of oesophageal cancer patients, and can affect patients’ prospects of receiving curative surgery. Patients with preoperative malnutrition and poor preoperative function also have worse outcomes after oesophagectomies. However, limited data is available to support the optimal method and timing of preoperative nutritional support. Feeding jejunostomies (FJs) can be placed preoperatively (prophylactically) or perioperatively. The aim of this review was to assess the impact of prophylactic versus perioperative FJs on postoperative weight loss.

A retrospective review was undertaken of 40 patients who had elective oesophagectomies between January 2017 and May 2019. Data was collected from hospital electronic systems including preoperative and postoperative weight loss, tumour (T) stage and dysphagia status for prophylactic (n=4) versus perioperative (n=36) FJs. Patients who received postoperative parenteral nutrition (PN), nasojejunal (NJ) or nasogastric (NG) feeding were excluded. Statistical analysis was carried out using IBM SPSS version 26, using Mann-Whitney U test (α=0.05). Ethical approval was not required for this service evaluation.

Average BMI at diagnosis was 26.7kg/m2 (range 19.5-40.5kg/m2). 100% of patients with prophylactic FJs had T3 tumours at time of diagnosis compared to 61% with perioperative FJs. The remainder included T1 tumours (3%) and T2s (36%). 50% of prophylactic FJs experienced dysphagia to all consistencies but liquids versus 6% in perioperative. Mean number of days tube fed with prophylactic FJs was 205 versus 82 with perioperative (p=0.007). Average overall weight loss pre-diagnosis was 5% (range 0-16%). Mean preoperative weight loss was lower in perioperative FJs (5%) than prophylactic (12%); but this difference was not statistically significant (p=0.651). With prophylactic FJs, postoperative weight loss was higher at 3 months (6.2%) and 6 months (9.1%) compared to 5.0% and 5.9% in perioperative FJs respectively. However, there was no statistically significant difference in preoperative (p=0.651), 3 month (p=0.942) and 6 month (p=0.770) postoperative percentage weight loss when comparing prophylactic or perioperative FJs.

There are currently no national guidelines that incorporate enteral nutrition in preoperative pathways for oesophageal cancer. This review suggests it remains unclear whether the timing of FJ insertion influences postoperative weight loss, consistent with previous research. Enteral feeding is more established perioperatively due to its incorporation in multiple guidelines such as ESPEN and ERAS. However with the emergence of prehabilitation highlighting the importance of optimising nutritional status prior to treatment, enteral feeding could become a key component for nutritionally at risk Upper GI patients.

Future research could investigate the impact of preoperative enteral feeding pathways (that determine tube type and time of insertion) on preoperative weight loss, and whether this influences surgical complications or (if required) adjuvant chemotherapy continuity. More research in a larger cohort of patients is required to provide an adequately powered study.

References
Introduction of standardised parenteral nutrition for paediatric and neonatal patients using multichamber bags - an impact assessment on aseptic services capacity

Traditionally, paediatric and neonatal parenteral nutrition (PN) has been prescribed as a bespoke product, which was compounded in-house or outsourced from commercial providers. Due to limited stability of the admixtures, the majority of prescriptions were compounded into two containers - a lipid syringe / bag containing lipid and vitamins, plus an aqueous bag for amino acids, glucose, electrolytes and trace elements. In this large specialist children’s hospital a limited number of older / larger patients were prescribed a multi chamber bag (MCB), either whole or part as appropriate to their needs. The majority, however were prescribed as bespoke bags.

It is well established that the more an intravenous product is manipulated, the higher the risk to the patient\(^1\). Using this premise, an MCB with no additions is safer from an aseptics perspective than a bespoke bag made from individual components.

Aseptics capacity is finite, both within the NHS and in the commercial sector. There is increasing pressure on services from chemotherapy, increasingly complex intestinal failure patients, and other high risk intravenous medicines, so any means of standardisation must be considered. Capacity for bespoke compounding should be preserved for patients for whom it is essential. In-house timings for compounding bespoke PN were 57 minutes v 30 minutes for simple additions to an MCB.

Evidence from a number of neonatal units\(^2\) has shown that standardised concentrated PN could meet the nutritional needs of a significant proportion of neonates, and use improved the percentage of each PN prescription administered.

A Patient Safety Alert in 2017\(^3\) warned of the risks associated with incorrect rates of separate lipid infusions. The action plan for this trust included introducing MCBs for neonates and young children for whom they were suitable.

These drivers lead to the development of feeding protocols to enable use of MCBs for neonates. Initial roll out began in January 2019 for babies <2.5kg, then in a phased process to larger neonates and then paediatric patients. Micronutrients (plus sodium glycerophosphate for premature babies) were the only additions made to the MCBs.

It remained the prescriber’s clinical decision which patients required bespoke PN, however, comprehensive protocols supported decision making to favour MCB use where appropriate.

A saving of greater than 33 hours per week in aseptics time was achieved in 2020-21.

Table 1. Change in prescribing practice since introduction of MCBs

<table>
<thead>
<tr>
<th>Year</th>
<th>Bespoke neonates</th>
<th>MCB neonates</th>
<th>Neonatal MCBs as % of total neonatal PN bags</th>
<th>Bespoke paediatric</th>
<th>MCB paediatric</th>
<th>Paediatric MCBs as % of total paediatric PN bags</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017-18</td>
<td>3454</td>
<td>zero</td>
<td>zero</td>
<td>2820</td>
<td>zero</td>
<td>Zero</td>
</tr>
<tr>
<td>2018-19</td>
<td>3466</td>
<td>82</td>
<td>2%</td>
<td>3640</td>
<td>zero</td>
<td>Zero</td>
</tr>
<tr>
<td>2019-20</td>
<td>1880</td>
<td>1512</td>
<td>45%</td>
<td>3419</td>
<td>480</td>
<td>12%</td>
</tr>
<tr>
<td>2020-21</td>
<td>1168</td>
<td>2024</td>
<td>63%</td>
<td>1900</td>
<td>1804</td>
<td>49%</td>
</tr>
</tbody>
</table>

References

Book

Website

Dietetic-led critical care nutrition interventions provided to critically ill patients with COVID-19 in a large London teaching hospital from March 2020 to April 2021.

by E. Terblanche, J. Jackson, J. Wetherden, E. Russell and R. Lewis. St George’s University Hospitals NHS Foundation Trust

Many patients admitted to critical care with COVID-19 were at risk of malnutrition due to pre-existing chronic diseases associated with underlying poor nutritional intake and sarcopenia (1). Combined with increased energy expenditure and catabolism (2), alterations to gastrointestinal function and deficits in nutritional delivery during critical illness all risked declining nutritional status and subsequent poorer functional ability. International nutrition guidelines (3-6) recommend providing early enteral nutrition support using protocols. The UK and Australian versions created during the pandemic (3;4) recommend for individualised nutrition therapy by registered dietitians to anticipate and manage the complications commonly seen in these patients that can impact on the provision and type of nutrition support. The aim of this study is to evaluate the role of the dietitian in the nutrition interventions provided to patients with COVID-19 during critical illness and compare with recommended guidelines (3;4).

Data was collected and analysed for adult patients with COVID-19 admitted to the intensive care units (ICU) requiring advanced respiratory support and enteral or parenteral nutrition support for longer than 48 hours during the period March 2020 to April 2021. Patients were followed from ICU admission to ward step down. Data was available for 453 critically ill patients. Demographic data presented as mean (SD); age 60 years old (12), 67% male, weight 84kg (20), BMI 29kg/m² (6) for 20 ICU days (18), mortality of 55%. 167 patients (37%) were classified as high nutritional risk as determined by experienced critical care dietitians for whom nutritional requirements were individually determined by the dietitian within 24 hours of ICU admission. The remaining patients were seen within a mean of 72hrs. 99% (447/453) were enterally fed and the remaining received parenteral nutrition. Patients received on average 5.2 (4.5) dietetic interventions over the ICU stay, irrespective of nutritional risk. Reasons for dietetic interventions were adjustment of feed to account for calorie provision according to metabolic phase (74%); calories derived from sedation (55%); gastrointestinal dysfunction (32%); weaning from enteral nutrition to oral (32%); and renal, fluid and electrolyte adjustments (26%). A range of enteral feeds were used - the majority of patients (93%) received high protein (6.3-7.5 grams protein per 100ml), concentrated (18.5%) (200 kcal per 100ml), peptide (9.5%) and protein supplementation (60%). On average those patients who survived lost 8.2kg (6.4) equating to 8.8% (6.9) of total weight over the ICU stay. A dietetic handover was provided for 100% of patients who transferred to the ward.

In this study 100% of patients required dietetic input as their nutritional needs could not be met with protocol alone. A significant number were identified as nutritionally at risk, were prioritised as urgent and seen within the guideline timeframes. The dietitian was needed to tailor dietetic interventions to manage complications common in patients with COVID-19. They were also actively involved in adjusting nutrition interventions to facilitate patients’ nutritional recovery and rehabilitation. Patients lost weight over the ICU stay and all patients were handed over to ward dietitians for further dietetic management.

References
An audit of a single acute stroke centres practice when making decisions about gastrostomy placement, for patients who lack mental capacity to make their own decision
by S. White, S. Munjal, N. Martindale and G. Pratt, Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, S10 2JF, UK.

Professional guidance clearly describes the processes that should take place when making best interests decisions about commencing, continuing and withdrawing clinically-assisted nutrition and hydration for people who lack the mental capacity to make the decision themselves (1). Healthcare professionals should have a good understanding of the law and professional guidance underpinning how these decisions are made (2). Clinical teams are protected by the Mental Capacity Act (3) when making these ethically complex decisions but only when following the requirements of the relevant legislation and professional guidance (1,3). We aimed to audit best interests decision making practice in one large stroke centre.

The case notes of patients who were admitted to hospital with a stroke between March 2017 and July 2020 were retrospectively audited against standards informed by the requirements of the professional guidance produced by the British Medical Association and Royal College of Physicians (1).

The case notes of 55 patients were audited, with 93% having had an ischaemic stroke and 7% having had a haemorrhagic stroke, with the total cohort having a mean Modified Rank Scale score of 4.5 (indicating moderate to severe disability). The designated decision maker was documented in 91% of cases and this was always the stroke clinician. Family and friends were documented to have been consulted in 93% of cases. The clinical assessment of the patients was documented more frequently than the patients past and present wishes, values and beliefs. The risks (91%) and benefits (76%) of tube placement were more frequently discussed than the risks (42%) and benefits (45%) of long term enteral feeding. The prognosis of the patient if enteral feeding was not commenced was documented as being discussed in 76% of cases. The realistic future for the patient (i.e. expectation of further functional recovery) with or without commencing enteral feeding was documented as being discussed in 67% of cases. The best interests decision was documented in 95% of cases. There were no cases in which a date to review this decision was documented.

This audit scrutinised the best interests decision making practice of a large stroke centre. It was often identified who the decision maker was; that family were involved; and the best interests decision that was made. However, documented evidence about how the patient would have felt about their current condition and the option to have a gastrostomy placed, and the risks/benefits associated with long term enteral feeding was lacking. It is important those involved in the best interest decision making process, consider how the patient would have viewed the likely clinical, social and quality of life outcomes of commencing or continuing enteral feeding. With recovery post stroke often being uncertain, professional guidance recommended that the best interests decisions are periodically reviewed (1), something that was not identified as being planned for in this audit. Key recommendations for practice included introducing a pro-forma to guide and document the process followed, and setting a date to repeat and review the best interest decision. We intend to re-audit in a years time.

References

Patients with head and neck cancer experience side effects following surgery, radiotherapy and chemotherapy which can significantly impact on their ability to take adequate oral diet. Some common side effects include dysphagia, taste changes, nausea, mucositis and altered saliva. In our local centre patients are offered a prophylactic gastrostomy feeding tube allowing timely enteral feeding if they are unable to meet their nutritional requirements orally. The primary aim of this service evaluation was to determine the average length of time from gastrostomy tube insertion to removal. The secondary aim was to assess the factors influencing the time the gastrostomy remains in situ post treatment.

Data was collected retrospectively from electronic health records and patient notes. Patients were identified from an existing database that had head and neck cancer diagnosis and a gastrostomy tube placed between December 2016 and December 2018. Patient demographics, tumour characteristics, treatment received, nutritional and swallowing status before, during and after treatment and time gastrostomy tube was in-situ were recorded. Multiple regression analysis was used to correlate relationship between the length of time gastrostomy tube was in-situ to possible predictors (smoking status, location of primary cancer, stage of cancer, pathological neck nodes, concurrent chemotherapy, whether radiotherapy was primary or adjuvant, pre and post radiotherapy FOIS (Functional Oral Intake Score) and PSS (Performance Status Scale) normalcy of diet scale to determine oral intake (1,2,3).

Of the sixty one patients identified for the analysis 62% (n=38) had primary cancer in the oropharynx and 80% (n=49) had stage 4 disease. In 77% (n=47) of patients, radiotherapy was their primary treatment while 23% (n=14) of radiotherapy was given following surgery. Median gastrostomy tube duration was 197 days (n=61) and 308 days (n=7) for patients who had major surgery and radiotherapy. Following completion of radiotherapy median weight loss was 10% and mean weight loss was 7%. 66% (n=40) of patients with a low pre-treatment PSS score were post-surgery, 9 of these patients had a PSS score <50 and 6 had prior surgery involving resection of mandible, maxilla or floor of mouth with neck dissections. Multiple regression analysis identified PSS score pre-treatment to be the only significant predictor of the time the gastrostomy tube was in-situ (p=0.026).

A low PSS score could help identify patients expected to be reliant on their feeding tube for a longer period of time. Patients having major head and neck surgery prior to radiotherapy are likely to keep their feeding tubes in for longer. The average duration from gastrostomy tube insertion to removal is similar to previously published studies (4). It would be useful to re-evaluate and investigate gastrostomy use in relation to the total time in situ.

References
Assessment of a new Cola flavour modular protein oral nutritional supplement
by M Rose, Stanningley Pharma UK Ltd, Nottingham NG1 1GF.

It is essential to provide sufficient dietary protein to maintain a positive balance within the body. Requirements may increase following injury or with disease. Oral nutritional supplements (ONS) high in protein can help provide patients with adequate essential and non-essential amino acids1. Targets for protein intake in many therapeutic situations have risen recently2,3. Administration is generally easily achieved via a tube feed but oral options can be notoriously unpleasant and result in poor patient concordance. In April 2021 a Cola flavour of Renapro® Shot was made available containing 20g of protein in 60 ml which is ACBS approved for hypoproteinaemia.4

Feedback forms in both electronic pdf and printed hard copy versions were developed which included a range of responses and opportunities for comments where appropriate. The forms had an option for participants to allow their feedback to be included in a formal assessment or not. The evaluation looked at 7 aspects: Appearance, Smell, Taste, After Swallowing, Current Modular Protein use, Preference and Prescribing intension. Most questions had a range of 3-5 response options to make analysis simpler. Dietitians were provided samples to taste neat and with sparkling water for dilution.

Sixty-six forms were completed, returned and entered into a spreadsheet. Only 6 of these did not agree to have their responses included in this analysis. On appearance 57 of 60 thought the product was acceptable with 52 agreeing the smell was also acceptable, and 29 mentioned ‘Cola’ in their comments. Eleven of the 55 responses said the smell was unpleasant with 44 choosing tolerable, pleasant or very pleasant. Fifty-three (91%) said the taste was agreeable (Tolerable, good or pleasant) and five (9%) out of 58 said the taste was unpleasant. After swallowing only 2 (3%) thought the product was unpleasant compared with 97% who thought it tolerable, good or pleasant.

Comparisons with their existing modular protein usage showed that 90% reported the Cola flavour was the same or more pleasant than their current choice. Most of those reporting ‘more pleasant’ were using Prosorce® 17/29 (59%). Interestingly, 95% stated that they would prescribe the Cola flavour for their patients. Other feedback was ‘Easier to drink due to hard bottle as opposed to sachet’. ‘The lid allows you to open, close and store in fridge’, ‘Its Innovative’, ‘Novel product’, ‘What about frozen as ice cubes or a lolly?’, ‘Young patients will love it!’ Negative comments were ‘It’s very sweet!’, ‘like cough medicine’ and that ‘the red label was too similar to the current peach flavour bottle.’ Two comments were that it ‘Smells like feet’ and ‘Gone Off’.

Overall the feedback was very positive. The majority of comments were that the product did taste like Cola flavour or Cola sweets and many said it was even better when diluted with sparkling water. Some considered the taste to be very sweet, this is despite only 2.9 grams of sugar present in each 60ml dose. Even those that said the product was not pleasant did agree that it was something they would prescribe to patients.

References
4. Renapro® Shot Datasheet February 2021
Home parenteral nutrition (HPN) is a life-sustaining therapy for individuals with intestinal failure. It refers to the intravenous infusion of macronutrients, micronutrients, fluids and electrolytes. Routinely used HPN solutions contain different quantities of these components. Consequently, each HPN solution may have different impacts on metabolism, inflammation and oxidative stress. Long-term use of HPN can lead to a number of adverse health outcomes including the development of metabolic bone disease, intestinal failure associated liver disease and poor quality of life but whether, and how, the composition of HPN solutions contributes to these health sequelae is poorly understood. The aim of this study is to systematically review and evaluate the evidence for the differential effects of HPN solutions and to understand what features are associated with differences in clinical endpoints.

A systematic literature search was conducted between September and December 2020 using the MEDLINE (Ovid), EMBASE, Scopus, and Web of Science databases. Studies were selected according to the following criteria (a) adult participants (>18 years old) dependent on HPN; (b) randomised controlled trials, prospective cohort and cross-sectional study designs; (c) primary research comparing two or more HPN solutions and (d) published in English language. Data were extracted and study quality assessed using Cochrane Collaborations tools: Risk of Bias for Randomised Controlled Trials (RCTs); Risk of Bias in Non-Randomised Studies of Interventions; and the Newcastle Ottawa Scale for cross-sectional studies.

Of the 5148 articles identified, seven RCTs, two prospective cohort and one cross-sectional study were included with a total of 295 participants. Studies varied in terms of duration (one to 60 months) and sample size (n=5 to 88). Ten studies compared lipid emulsions (LE) and one study also compared LE with lipid-free HPN. No studies were found that compared the amino acid, vitamin, trace element or electrolyte components of HPN. In general, LE were well tolerated with no significant adverse effects. LE containing olive +/- or fish oil were associated with a lower ω-6:ω-3 fatty acid ratio, positive reductions in markers of liver function, and changes in blood and cell fatty acid profiles.

Despite the increasing use of HPN, surprisingly few data are available to guide the provision of macro and micronutrients in the adult population requiring this therapy. Although LE containing olive +/- or fish oil show promise with regards to liver function and blood and cell fatty acid profiles, further studies are needed before drawing definitive conclusions on the clinical value of these emulsions. It is likely that one type of HPN solution alone cannot be uniformly applied to patient care, and each patient should be assessed on an individual basis.

References
Dietetic-led nutrition interventions provided to patients recovering from critical illness from COVID-19 in a large London teaching Hospital from March 2020 to April 2021.

by E. Terblanche, J. Jackson, J. Wetherden, E. Russell and R. Lewis. St Georges University Hospitals NHS Foundation Trust

Critically-ill COVID-19 patients experience elevated metabolic response (1,2), alterations to gastrointestinal function and deficits in nutritional delivery throughout critical illness and the recovery phase. These contribute to a decline in nutritional status and poorer functional ability on step down to the ward (3) especially in those found to be malnourished on admission (4). The nutrition patients receive in their post Intensive Care Unit (ICU) phase of recovery is now considered equally as important as that received on the ICU, particularly for those already nutritionally compromised, frail or with sarcopenia (5). Guidelines produced by the British Dietetic Association (6) explicitly state the potential role of dietitians in nutritional recovery following COVID-19 critical illness. The aim of this study is to evaluate to role of the dietitian in the nutrition interventions provided patients with COVID-19 during ward-based rehabilitation following a critical care admission, making comparisons with these guidelines.

Data was collected and analysed for adult patients with COVID-19 who left ICU during March 2020 to April 2021. Patients were followed from ICU step down to hospital discharge. The study was performed using a prospective observational methodology. Data was available on 177 patients. Demographics presented as mean (SD). ICU admission weight mean 89kg (20.9), BMI 30 kg/m² (6.7), age 60 years old (12), 67% male, ward length of stay 11days (8.4) and total hospital stay 35.6days (21). 111 (63%) went home, 31 (18%) were transferred to another acute hospital and 27 (15%) discharged to rehabilitation hospital. On step down from ICU patients had lost 8.2kg (6.4) and 8.8% (6.9) weight loss and total stay loss of 9.3kg (6.8) and 9.8% loss (6.8). Guidelines (6) recommend supplemental use of enteral nutrition (EN) and/or high protein supplements to meet nutritional targets where required, enteral feeding tubes should not be removed without dietetic input and ensure community follow up is arranged when required. On discharge from ICU, 37 (21%) were exclusively on EN, 70 (40%) were on Supplementary EN and 68 (38%) needed Oral Nutritional Supplements (ONS). The majority of patients (90%) received dietetic interventions, all were seen within 48 hours of ICU step down and an average of 3 times (2.5). Those who required ENS received it for 6 days (5.5). Nasogastric tubes were removed without dietetic involvement in 58 (54%) patients. For the 107 patients that needed ENS, 34 (40%) used a high protein feed (6.3-7.5grams protein per 100ml), 24 (22%) a high energy feed (150 kcal per 100ml) and 12 (11%) concentrated feed (200 kcal per 100ml). 117 (66%) patients needed ONS over their admission with the majority (62%) using a compact high protein product. 125 (70%) patients needed dietetic follow up on discharge from hospital - 15 for continued EN (12%); 68 ONS (54%); and 42 (34%) received healthy eating advice.

This study demonstrated that 90% of patients who survived critical illness due to COVID-19 received individualised nutrition interventions from the dietitian to support rehabilitation. Due to the impact of the COVID-19 infection on the ability to eat and drink, EN and/or ONS were clinically appropriate throughout the duration of the ward stay. Dietetic provision met the recommended guidelines for nutrition support in hospital and facilitated further dietetic input on discharge. Feeding tubes were removed in half of patients without dietetic input which may have been premature in some cases and warrants further work on decision making. Patients lost weight over the ICU stay, but this was halted under dietetic-led care post ICU.

References
5. Singer P. Preserving the quality of life: nutrition in the ICU . Critical Care 2019: 23 (1) 1-5
The provision of parenteral nutrition for patients with COVID-19 on the intensive care unit: experience at a district general hospital

by A. Champion, D. Murugiah, A. Harris, C. Banks, M. Bossy and C. Alexakis, Royal Surrey County Hospital, Egerton Road, Guildford, Surrey, GU2 7XX, UK

Up to 10% of COVID-19 patients require respiratory and hemodynamic support in the ICU and are at an increased risk of malnutrition (1). Where enteral nutrition is impossible, contraindicated, or insufficient then parenteral nutrition (PN) is warranted, and considered safe in the critically ill cohort (2, 3). We report the characteristics and outcomes for ventilated patients with COVID-19 who received PN on ICU.

A retrospective observational study was undertaken of COVID-19 ICU patients between March-April 2020 (“wave1”) and December-March 2021 (“wave2”). Nutritional risk was calculated using The NUTRIC score (4). Data was analysed in Microsoft Excel.

In total, 17 patients with COVID-19 (7 in “wave1”, 10 in “wave2”) received PN for an average of 8.6 ± 4 (range 4-16) days during their admission.

1. Patient characteristics (n=17)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Wave 1 (n=7)</th>
<th>Wave 2 (n=10)</th>
<th>Total (n=17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (mean ± SD (range))</td>
<td>60 ±12 (28-78)</td>
<td></td>
<td>60 ±12 (28-78)</td>
</tr>
<tr>
<td>Male/Female</td>
<td>15/2</td>
<td></td>
<td>15/2</td>
</tr>
<tr>
<td>BMI kg/m2</td>
<td>29.7 ±6 (21-35)</td>
<td></td>
<td>29.7 ±6 (21-35)</td>
</tr>
<tr>
<td>Intubated and ventilated (I+V)</td>
<td>17 (100%)</td>
<td></td>
<td>17 (100%)</td>
</tr>
<tr>
<td>Nasogastric tube in situ</td>
<td>17 (100%)</td>
<td></td>
<td>17 (100%)</td>
</tr>
<tr>
<td>APACHE score (mean (range))</td>
<td>15 (12-24)</td>
<td></td>
<td>15 (12-24)</td>
</tr>
<tr>
<td>SOFA score (mean (range))</td>
<td>10 (6-14)</td>
<td></td>
<td>10 (6-14)</td>
</tr>
<tr>
<td>Proning</td>
<td>13 (76%)</td>
<td></td>
<td>13 (76%)</td>
</tr>
<tr>
<td>30-day mortality</td>
<td>12 (70%)</td>
<td></td>
<td>12 (70%)</td>
</tr>
<tr>
<td>Time to PN from I+V (mean SD ± (range))</td>
<td>8.9 ±4 (2-18)</td>
<td></td>
<td>8.9 ±4 (2-18)</td>
</tr>
</tbody>
</table>

Legend: BMI – Body Mass Index, I+V – intubated and ventilated, APACHE - Acute Physiology And Chronic Health Evaluation, SOFA – Sequential Organ Failure Assessment

Indications for PN were high gastric residual volumes (GRVs) (70%), haemodynamic instability and impaired feed delivery. In wave 2, bedside Naso-jejunal tube (NJT) placement was available. Six patients had successful NJT insertion, all of which subsequently achieved nutritional targets enterally, and PN was discontinued. 35% of patients had a NUTRIC score ≥5 and required longer on PN (mean 10.5 days) versus those with a NUTRIC score <4 (mean 7.1 days). Biochemical refeeding was seen in 50% of patients.

In conclusion, ventilated COVID-19 patients on the ICU who required PN had complex nutritional needs, and significant levels of refeeding. Accrued nutritional deficit due to high GRV’s was our primary indication for PN commencement. They had a high mortality rate, when compared to national ICNARC mortality data (5), suggesting PN was provided at the point of worsening multi-organ failure.

References
Using the Nutrition Wheel to identify risk of malnutrition among older adults in the community: a process evaluation

by J.L. Murphy¹,², A. Aburrow², C. Davies² and K. Wallis²,¹ Faculty of Health and Social Sciences, Bournemouth University, Bournemouth, UK, BH8 8GP, ²Wessex Academic Health Science Network, Chilworth, UK, SO16 7NP

The majority of malnutrition (as undernutrition) in older adults originates in the community (1) and is still under-detected and under-treated (2). Work conducted by the Wessex Academic Health Science Network (AHSN) Nutrition in Older People Programme (2014-18) (3) identified a need for simple tools used by the wider workforce including volunteers, community workers and carers to identify and better manage malnutrition at an early stage. Based on the Patients Association Nutrition Checklist (with four key questions focussing on weight, unplanned weight loss, appetite and nutrition)(4), the ‘Nutrition Wheel’ was developed as a novel interactive tool to help identify risk of undernutrition in the older people in the community and provide appropriate nutritional guidance and signposting. This process evaluation used mixed methods to investigate the feasibility and acceptability of the Nutrition Wheel to identify older people at risk of malnutrition by volunteers and staff from 3 charitable organisations in Dorset, Hampshire and Hertfordshire.

In total, 27 volunteers/staff were trained to use the Nutrition Wheel, ranging in age from 26-76 years. They were asked to deploy the Nutrition Wheel with older people over a 4 to 6-week period between May 2019 – July 2019. Monitoring forms were used to record those identified at risk after using the Nutrition Wheel with clients aged >65 years at home or at community events e.g. at lunch and activity groups. 15 telephone interviews and one in-person focus group (with 9 volunteers/staff) were conducted to explore the use of the Nutrition Wheel, training and support, impact and the monitoring process. Interviews were audio-recorded, transcribed verbatim and then analysed using deductive thematic analysis.

The Nutrition Wheel was used with 153 older adults living in the community. There were 29.4% (n 45) older adults rated at risk of malnutrition. Of these, 17% (n 8) scored ‘Yes’ or ‘Don’t know’ on question 1 (concerns about being underweight or need nutritional advice), 51% (n 23) scored ‘Yes’ or ‘Don’t know’ on question 2 (loss of weight unintentionally in the past 3-6 months), 38% (n 17) scored ‘Yes’ or ‘Don’t know’ on question 3 (clothes or rings have become loose recently), 49% (n 22) scored ‘Yes’ or ‘Don’t know’ on question 4 (recent loss of appetite and interest in eating). Five key themes were identified from the interviews and focus group: design and usability; outcomes and concerns identified (including quality and frequency of meals, physical and mental problems, hydration); person-centred approaches; barriers; sustainability.

This process evaluation showed that volunteers and staff were using the Nutrition Wheel as a conversation starter about nutrition as part of their role. The tool opened-up the opportunity for older people to raise other health related issues and concerns. Training raised awareness of malnutrition and improved understanding of appropriate actions volunteers and staff could undertake in response. The Nutrition Wheel was an easy-to-use tool to identify risk of malnutrition and could be linked with other tasks. However wider signposting was needed to link with appropriate nutrition resources to offer guidance for some conditions. Further investigation is needed to understand how the Nutrition Wheel could be embedded as part of volunteer/staff roles in the community and link with wider health and social care pathways.

References
Reducing COVID-19 risk by optimising delivery frequency of home parenteral nutrition

by C.A. Smillie, C.E. Silcock and S.L. Zeraschi, Pharmacy Department, St James's University Hospital, Beckett Street, Leeds, LS9 7TF, UK

During the COVID-19 pandemic patients with intestinal failure requiring home parenteral nutrition (HPN) or intravenous fluids (IVF) were instructed to shield at home and avoid contact with others. However, maintenance of the delivery of their nutrition or fluids was essential. Could the delivery frequency of their treatment be optimised in order to keep their contact with others to a minimum?

A cohort of 155 patients receiving HPN or IVF from a nutrition support team in a teaching hospital in the north of England were included. A spreadsheet was created to collate the variables which determine the optimum delivery frequency for each patient. These variables were:

- Prescription compounded or non-compounded
- Refrigerator size
- Volume of HPN/IVF
- Number of infusion days per week
- Shortest bag stability on the prescription in days

This information was collected from patients’ prescriptions and homecare provider communication. For compounded HPN the fridge capacity information supplied by a homecare provider and the volume of HPN/IVF were used to ascertain the maximum number of HPN/IVF bags the patient’s refrigerator could accommodate. This was divided by the number of feeding days per week and multiplied by 7. The optimal delivery frequency for an individual patient was the smaller of either the number calculated, or the stability of the shortest expiry bag. The homecare providers delivered weekly, fortnightly or every 4 weeks. If the optimum delivery frequency was <14 days, then a weekly delivery was required. If delivery frequency was 14<28 days then they could have a fortnightly delivery. If delivery frequency was >28 days then a 4 weekly delivery was possible. For non-compounded prescriptions optimum delivery frequency was set at every 4 weeks. The patients’ current delivery frequency, supplied by the homecare provider, was added to the spreadsheet. Where there was a discrepancy between their established delivery frequency and their optimised delivery frequency the patient was contacted by telephone and offered the opportunity to reduce their delivery frequency. For patients who accepted the offer a standard annotation was added to their electronic medical records and their homecare provider advised to make the change.

6 patients were excluded as their prescription changed during data collection and 1 patient required an increased delivery frequency. Of the remaining cohort 34% (n=50) patients were identified as having a delivery frequency that could be optimised. Of those 50 patients, 40% (n=20) were on compounded prescriptions and 60% (n=30) were on non-compounded prescriptions. Of the 50 patients contacted 86% (n=43) agreed to the change. Of the 7 patients who declined the optimised delivery frequency 5 received non-compounded prescriptions. A total of 845 deliveries per year were avoided.

This study demonstrates that there is scope to optimise the delivery frequency of patients receiving HPN or IVF and that it is largely acceptable to patients. We have demonstrated a successful system for identifying patients where there is opportunity to optimise. Most of the patients who declined the optimised delivery schedule declined due to limited storage capacity. This was particularly evident in patients who had non-compounded prescriptions who would be required to store 4 weeks’ worth of HPN and/or IVF. This method provides further protection for patients with intestinal failure who require HPN or IVF by reducing avoidable contact with others.
Tracking energy expenditure using VCO\textsubscript{2} in ventilated out of hospital arrest patients.

by R. Johnson, A. Green and M. Green. *Liverpool Heart and Chest Hospital, Thomas Drive, Liverpool, L14 3PE.*

Following publication of guidelines (2) dietetic assessment in critical care at Liverpool Heart and Chest Hospital (LHCH) was revised to include taking VCO\textsubscript{2} measurements, in order to help estimate energy requirements as the inaccuracy of predictive weight-based equations is well known (1+2).

Our aim was to investigate the changes in energy expenditure during the early stages of an ITU admission in this patient group. The objective was to determine if reduced kcals provision, as recommend by ESPEN (2) was clinically justified.

The sample population consisted of adult patients who had an out of hospital cardiac arrest and were admitted to ITU following an urgent PCI. All patients admitted between June 2020 to June 2021 who met the inclusion criteria were included, those being: patients admitted to critical care who had a minimum of 2 VCO\textsubscript{2} readings and required enteral feeding during their admission. VCO\textsubscript{2} readings for each patient were grouped by time post arrest Group 1: Days 1-3 (N= 16), Group 2: Days 3-7 (N = 18) and Group 3 (N= 10): Days 4-11. The groups were based on day of initial dietetic assessment, then subsequent reviews. Data was gathered retrospectively via an electronic record system. VCO\textsubscript{2} was multiplied by 8.19 to convert kcals as per guideline recommendation (2).

**Key Results**

1. **Group 1 vs Group 2**

<table>
<thead>
<tr>
<th></th>
<th>Days 1-3 (N= 16)</th>
<th>Days 3-7 (N= 16)</th>
<th>% increase</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean kcals</td>
<td>1726</td>
<td>1866</td>
<td>8.1</td>
<td>0.1</td>
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</table>

2. **Group 2 vs Group 3**

<table>
<thead>
<tr>
<th></th>
<th>Days 3-7 (N= 10)</th>
<th>Days 4-11 (N= 10)</th>
<th>% increase</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean kcals</td>
<td>1765</td>
<td>2113</td>
<td>19.7</td>
<td>0.003</td>
</tr>
</tbody>
</table>

3. **Group 1 vs Group 3**

<table>
<thead>
<tr>
<th></th>
<th>Days 1-3 (N= 8)</th>
<th>Days 4-11 (N= 8)</th>
<th>% increase</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean kcals</td>
<td>1422</td>
<td>2061</td>
<td>44.9</td>
<td>0.002</td>
</tr>
</tbody>
</table>

Using VCO\textsubscript{2} with this patient population demonstrates there is a significant increase in energy expenditure over time. The energy expenditure changes are more likely to be marked in this patient group due to the wide use of targeted temperature therapy (cooling) between days 1-3. The results produced would indicate that it is necessary to change energy provision particularly after day 7 of admission. In addition, it provides evidence of the inability of weight-based energy equations to accurately predict energy expenditure, increasing the risk of over or under feeding. Research involving larger patient numbers with different clinical conditions is required to ascertain if this pattern is consistent with other critically ill patient groups.

**References:**


Coronavirus disease 2019 (COVID-19) has rapidly spread across the globe. Elderly individuals and patients with comorbidities such as obesity, diabetes, and hypertension have been shown to have a higher risk of hospitalization, severe disease, and mortality. To date, little data has been published on the timely identification and correction of undernutrition in patients hospitalised with COVID-19. We previously reported a retrospective analysis of the management and 28-day outcomes of 316 consecutive adult patients with SARS-CoV-2 PCR-confirmed COVID-19 admitted to our centre, within the first wave of the pandemic between 8th January 2020 and 16th April 2020. The study was registered as a clinical service evaluation and was exempt from ethical approval. A total of 316 patients (55% male) were identified with a median (IQR) age of 75 (60 – 83) [23 – 101] years. Twenty-seven of 316 (9%) patients were healthcare workers, and 60 (19%) were admitted from a care home. The median (IQR) duration of admission was 8 (4 – 14) days, and 59 (19%) patients were admitted to critical care. In total, 84 (27%) patients died within 28 days of admission (or before discharge where admission duration >28 days).

We here present further hitherto unpublished analyses of the nutritional status, intervention and outcomes of this cohort. Gastrointestinal symptoms present at admission were: anorexia (97 [31%]), diarrhoea (64 [20%]), vomiting (43 [14%]) and abdominal pain (33 [10%]). Admission weight was recorded in 151 (48%) patients, with a median [range] 74.5kg [32.4-168.0]. Where measured (62 [20%] patients), there was significant weight loss observed during admission; median (IQR) weight 77.4kg (65.5-96) at admission and 73.7kg (61.4-94.5) last recorded weight on admission (P=0.0001, paired Wilcoxon signed-rank test). Forty-eight (15%) patients were assessed by a dietitian during their admission. Fifty-three (17%) patients received oral nutritional supplements whilst an inpatient and 38 (12%) received enteral feeding. Of those patients receiving enteral feeding, 30 (79%) had tube placement confirmed by chest x-ray.

In conclusion, gastrointestinal symptoms that are commonly associated with reduced nutritional intake were common in these patients hospitalised with COVID-19. There was evidence of reduced nutritional screening on admission compared with pre-COVID practice. This may have been associated with barriers associated with initial infection prevention and control requirements as well as focus on respiratory issues, and should be addressed in future waves of infection. Updated safety advice on enteral tube feeding including confirmation of tube placement was followed in the majority of cases. Future studies should aim to better establish the particular circumstances in COVID-19 where nutritional support impacts outcome.

References:
Feasibility and effectiveness of a multimodal hospital based oncology prehabilitation service.
by A. Petrova and A. Labey, North Middlesex University Hospital, London, N18 1QX

Prehabilitation (prehab) is considered part of the cancer rehabilitation pathway and aims to enable patients with cancer diagnosis to improve their functional baseline through a multimodal approach (1). There is currently no structured prehab at our trust.

We aimed to assess the feasibility and effectiveness of a multimodal hospital based prehab service for colorectal oncology surgical patients.

We developed a hospital based multimodal prehab service aimed at patients with a diagnosis of colorectal cancer undergoing surgery. Potential patients were identified at MDT and referred from surgical clinic at time of consent to surgery. Initial assessment was booked into a multimodal assessment clinic (dietitian and exercise physiologist) within 7 days of referral. Initial assessment included nutritional risk assessment using patient generated subjective global assessment (PG-SGA), body composition assessment using a Tanita body composition analyser and a review of patients’ past medical history for comorbidities requiring dietetic input. Physical assessment included: hand grip strength (HGS), 1-minute sit to stand (1MSTS), Duke Activity Status Index (DASI) and suitable patients were referred for a cardio-pulmonary exercise test (CPET). Quality of life (QoL) was assessed using a validated questionnaire (EQ-5D-5L). Patients were stratified into universal, targeted and specialist categories depending on the level of support required (1). Exercise diaries and heart rate (HR) watches were used to monitor patients’ compliance at home. Individual target HR zones during exercise were provided by the exercise physiologist. Patients were given a paper exercise programme, online video exercises (2) and/or general advice to increase own activity levels depending on the individual needs and preference. Individual dietetic advice was given to all patients based on the outcome of the initial assessment. All patients were reviewed weekly face to face by one or more members of the team depending on the input required for exercise and nutrition respectively. Data was reviewed for the first 3 months of the service.

Fourteen patients were referred to the service. At the time of review 6 (43%) had completed the prehab programme. From the remaining patients, 3 (21%) proceeded with neo-adjuvant chemotherapy prior to reassessment, 1 (7%) was not re-assessed due to poor compliance; and 4 (29%) were in the middle of the programme. Out of the assessed patients: 4 (66%) were on the universal pathway for both exercise and nutrition, 1 (17%) - specialist for exercise and targeted for nutrition and 1 (17%) – specialist for both. Outcomes were assessed as average change: weight +0.53kg (-0.7 - +2.6); %FFM (fat free mass) +1.1% (-1 - +2.9%); HGS +3.05kg (+0.4 - +7.8kg), 1MSTS +12 (+4 - +22), EQ 5D 5L Visual analyse scale +21% (+5 - +35%), EQ5D5L: all (100%) patients scored as improved health (health was reported better on at least one dimension and no worse in any other dimensions). The average length of prehab was 4 weeks (minimum 2, maximum 7).

Our results suggest that a multimodal prehab service in the hospital setting is feasible with potential benefit on multiple outcomes including weight maintenance, improvement in physical function and QoL markers. Additionally, the use of HR monitors and weekly follow up appears to be effective in the absence of supervised classes. Further studies with larger samples are needed.

References:
To feed or not to feed – review of post-operative feeding strategies after gastric cancer surgery and impact on outcomes
by H. Bennett and R. Harris, Cardiff School of Sport and Health Sciences, Cardiff Metropolitan University, CF5 2YB.

Post-operative feeding practices could be impacting on outcomes after gastric cancer (GC) surgery. GC patients are at increased risk of disease-related malnutrition due to the disease and the consequences of treatment[1,2]. Curative treatment is often multimodal, consisting of neoadjuvant chemotherapy (NAC), surgery, and adjuvant chemotherapy (AC)[3]. Gastrectomies are associated with nutritional side-effects[4,5], and any issues experienced can impact on the completion of the treatment pathway. Maintaining nutritional status during this time remains a challenge. Studies have reviewed post-operative nutrition with differing results, and there remains variability in practice between localities. Nutritional support for this cohort is vital, but differences in post-operative nutrition is potentially leading to varying outcomes.

The retrospective cohort study involved 44 patients who had a gastrectomy over a 12-month period within an Oesophago-Gastric Centre (OGC) in the United Kingdom. Anthropometrical data was available at four timepoints: T₀ = 1-3 weeks pre-operatively; and T₁ = ~3 weeks, T₂ = 3 months, and T₃ = 6 months post-operatively. Data was collected to determine what feeding route (no artificial nutrition, enteral nutrition, parenteral nutrition) resulted in the most optimal length of stay (LOS) and fewest complications. IBM SPSS v26 was utilised for data analysis. Baseline characteristics were reviewed and patients grouped based upon their post-operative feeding route. Patients were also stratified by resection. Non-parametric tests were used.

The variation in LOS between the three feeding groups was statistically significantly different (p=0.04), with a longer LOS associated with artificial nutrition. On average, the sample lost 9kg during their first six post-operative months. The quantity of weight loss (WL) between resections was statistically significantly different (p=0.007). 57% of patients had an in-hospital complication. 27% of the sample were known to be readmitted to hospital within six months of their surgery, with 50% a consequence of a nutrition-related issue. 89% of the sample completed NAC, and 52% who proceeded to receive AC were known to complete this. The amount of WL experienced between those who did and did not complete AC was significantly different (p=0.027). All patients with supplementary enteral nutrition completed this component of their multimodal treatment, versus half of those limited to the oral route.

Post-operative nutrition provision varied and compliance to the Enhanced Recovery After Surgery pathway in operation in the OGC was poor. The disparities may have impacted upon outcomes. The study adds to the current evidence body regarding the importance of dietetic support upon diagnosis, throughout treatment and beyond, for this cohort of patients.

References
Monitoring bone mineral density in patients with chronic intestinal failure on home parenteral nutrition – a national centre experience

by D.A. Chatterjee, N. Rezwan, N. Vernon, R. Khalid, R. Holman, M. Naghibi, S. Donnelly and S. Gabe, Lennard Jones Intestinal Rehabilitation Unit, St Mark’s Hospital, Watford Road, Harrow, HA1 3UJ, UK.

Type 3 intestinal failure (IF) is known to negatively impact bone metabolism contributing to increased prevalence of osteoporosis and associated increases in morbidity and mortality. It has been challenging to appropriately monitor for these pathologies under the restrictions imposed by the ongoing COVID-19 pandemic.

We performed a retrospective audit assessing compliance with current guidelines. All type 3 IF patients receiving home parenteral nutrition (HPN) prescribed at a national centre prior to 1st May 2021 were included. Data was collected from hospital electronic recorded, de-identified and collated on an excel spreadsheet that was securely stored on a departmental computer.

270 patients fulfilled inclusion criteria (35.5% male, mean age 54.0 ± 17.5 years). The mean age at HPN initiation was 45.8 ± 18.5 years and the mean number of years on HPN was 8.2 ± 7.2 years. The maximum duration of HPN administration in this cohort was 37 years.

DEXA scan results performed within the preceding 5 years were available for 23.0% of patients. Of these scans 96.8% of patients had evidence of reduced bone density (45.2% osteopenic, 51.6% osteoporotic). Comparing DEXA results at diagnosis and in the last 5 years, a majority (54.2%) of patients progressed or remained osteoporotic, with 8.3% showing improvement in bone density and 4.2% of patients having a return to normal bone density.

59.6% of patients had blood tests performed within the preceding 12 months. 54.4% of patients had undergone plasma vitamin D levels measurement. Vitamin D levels were found to be low (<50nmol/L) in 32.7%.

44.4% of patients were receiving vitamin D supplementation of which 86.7% were prescribed oral supplements and 13.3% intramuscular supplements. 31.3% of patients with osteoporosis were on bisphosphonate therapy.

These results demonstrate high prevalence of metabolic bone disease amongst type 3 IF patients on HPN. This highlights a potentially modifiable risk of low-trauma fracture which has a very high morbidity and mortality index. Our findings regarding the prevalence and longitudinal changes in bone density are in agreement with the published ESPEN surveys.

The results also demonstrate poor compliance with current guidelines. We believe this reflects the challenges of obtaining non-emergent scans and blood test due to COVID-related restrictions as well as our patients’ very understandable fear of exposure should they attend hospital for a face-to-face review. It is also possible that some of these tests were performed locally, due to many patients living far away from our national referral centre, and thus not visible to the audit team.

These findings have highlighted the need for greater education and prompted our group to increase our focus on metabolic bone disease during clinic interactions and to create a subsection of our database for tracking DEXA intervals for this patient cohort.

References
A multidisciplinary exploration of patients’ and their relative’s experiences of food and nutritional care: baseline data from an action research study:

by G. Yinusa, Department of Nursing Science, Faculty of Health and Social Sciences, Bournemouth University, Bournemouth, Dorset, BH8 8AJ United Kingdom

Hospital organisational culture is a major contributing factor to lapses in healthcare delivery, critically affecting all aspects of patient care [1]. Providing optimum food, hydration and nutritional care is a fundamental aspect of patient care that facilitates recovery and reduces complications associated with the adverse consequences of malnutrition (undernutrition), such as prolonged hospital stays and increased mortality, aside from significant cost implications [2]. Evidence on organisational culture in health care institutions has demonstrated a significant association with staff actions and behaviours that stem from shared ways of thinking, which has implications for patients’ experiences and service delivery [3]. While time constraints and competing clinical tasks remain challenges for hospital staff, engaging with the narratives of patients and their relatives holds potential benefits that can inform improvement initiatives in practice. This abstract draws on the preliminary data of an action research (AR) study in collaboration with a multidisciplinary team, referred as the AR team. The aim was to explore the experiences of recently discharged patients and their relatives with food and nutritional care to inform improvements to ward practice.

The study was conducted in a hospital in the United Kingdom. Semi-structured interviews were used to collect the stories (n = 8). The patients had been discharged from older adult acute wards and were all over 65 years of age (mean age 75.5 years). The patient participants (n = 7) all experienced and received food and nutritional care, and the relative participant (n = 1) had experienced caring for the patient during their hospital stay. Both the patients and the relative shared their general experiences relating to food and nutritional care, what worked well and the areas they would recommend for further improvements. The AR team (n = 16) comprised of related disciplines involved in delivering any aspect of nutritional care to patients. They included: a Registered Nurse, a Doctor, a Registered Dietitian, a Catering Manager, a Facility Manager, a Speech and Language therapist, a Mealtime Companion, an Occupational Therapist, Hospital Governor representatives, Healthcare Assistants, Ward Hostesses, and the Project Researcher. In a dialogue meeting, the AR team reflected on and engaged with the anonymised transcribed excerpts of the stories through collective clustering analysis. Post-it notes and flip charts were used to identify and cluster the critical aspects of each story linked to current practice.

Critical findings centred on the need for staff to recognise the role of mealtime companions in supporting patients’ meal intake. Other issues included challenges with meal ordering and portion sizes linked to wastage, movement and discharge, resulting in patients receiving food ordered by previously discharged patients. The AR approach allowed the stories to feed into the study and ensured that the voices and perspectives of patients and relatives as service users were heard. The multidisciplinary AR team’s engagement with the stories enabled identification of cultural dimensions within the organisation that had implications for aspects of the food and the nutritional care that patients receive. The AR approach also facilitated shared learning about contextual issues relating to nutritional care practices in such a way that was inclusive of the diverse staff perspectives. These insights contributed to the AR team’s decisions on priority areas to improve ward practices, which informed the next steps in the study. Although derived from a small sample of patients and relatives, these findings suggest that patients and relatives’ stories hold value to hospital staff as care providers for improvements in practice.

References
Assessing the impact of multivitamins in cystic fibrosis. A service evaluation.
by D.J. Sills and M. Mitchell-Whyte

Nottingham University Hospitals Trust, Wolfson Cystic Fibrosis Centre, City campus, Hucknall Road, Nottingham NG5 1PB

Cystic Fibrosis (CF) is an inherited multisystem condition which results in frequent chest infections and interferes with intestinal digestion and absorption of nutrients and other dietary components\(^1\). Malabsorption of fat-soluble vitamins, particularly vitamins A, D, E and K is common in CF\(^2\). The goal of evaluation and treatment is to correct suboptimal levels and achieve optimal biochemical values of these vitamins\(^1\).

The release of CF specific Multivitamins (Paravit-CF capsules and DEKA’s) led to changes in local practice for managing abnormal vitamin levels. To assess the impact of switching patients from individual vitamin prescriptions to combined disease specific multivitamins, baseline and follow-up data was collected retrospectively from the electronic medical records of baseline and post-switch serum vitamin A, D and E levels were compared. The number of vitamins taken daily and the cost of implementing the changes were assessed also.

130 of 193 (67%) changed from usual individual vitamins to CF specific multivitamin preparation. Thirty percent were switched to a DEKAs product, ~35% switched to Paravit-CF, 1.5% switched to a combination of DEKAs and Paravit and 34% remained on individual vitamins. Overall mean vitamin levels improved from baseline after switching to a multivitamin:

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Baseline</th>
<th>Post switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin A</td>
<td>1.49umol/L (SD 0.59umol/L)</td>
<td>1.65umol/L (SD 0.69umol/L)</td>
</tr>
<tr>
<td>Vitamin D</td>
<td>59.6nmol/L (SD 25.1nmol/L)</td>
<td>66.9nmol/L (SD 25.4nmol/L)</td>
</tr>
<tr>
<td>Vitamin E</td>
<td>19umol/L (SD 9.1umol/L)</td>
<td>20.6umol/L (SD 9.6umol/L)</td>
</tr>
</tbody>
</table>

Prior to switching over people with CF took mean 132 (SD 71) individual vitamins per month which reduced to mean 44 (SD 14) vitamins per month by switching to a combined preparation. Based on conservative estimates, this has led to an estimated mean saving of £9.34 per person per month. This equates to £14,350 per annum and when taking switch date for each person has contributed to a total saving of £38,687 since introduction. Paravit-CF contributed the biggest savings per month compared with DEKAs, with mean saving of £14.42 vs £3.73 respectively.

The approval and implementation of CF specific multivitamins at a regional CF service resulted in patient benefits from reducing pill burden whilst optimising fat soluble vitamin levels. Furthermore the change has been implemented in a cost effective manner.

References:
Malnutrition is a significant healthcare problem, estimated to cost £23.5 billion each year in the UK and so identifying patients at risk of malnutrition and implementing appropriate nutritional support is essential [1]. To gain a current perspective on malnutrition prevalence and nutritional care in the UK, a national BAPEN survey was undertaken.

This malnutrition and nutritional care survey using BAPEN’s dedicated online portal (https://data.bapen.org.uk/maw/maw-home) was undertaken across health and social care settings by the Malnutrition Action Group of BAPEN, during UK Malnutrition Awareness Week (1-31st October 2020). The survey, completed by professionals working in health or social care, mainly dietitians (85%), included details such as patient demographics, disease/condition, malnutrition screening (using the Malnutrition Universal Screening Tool (‘MUST’) [2]) and nutritional interventions (oral, enteral and parenteral nutrition).

A total of 1183 individuals (mean age 74 years, mean BMI 24.7kg/m^2; 54% female) were screened across England (83%), Wales (15%) and Northern Ireland (2%), across both hospital (76%) and community settings (24%). The main disease areas listed included, frailty (33%), neurological (17%), cancer (10%), cardiovascular (10%) and respiratory (7%). Overall, 60% of individuals were categorised as ‘low risk’ and 40% ‘at risk’ of malnutrition (medium risk (12%) and high risk (28%)). Of those ‘at risk’ of malnutrition, more resided in the community setting than hospital (46% v 38% respectively). Just over a quarter of individuals had a BMI<20kg/m^2 (11% BMI 18.5-20kg/m^2: BMI score 1; 15% BMI < 18.5kg/m^2: BMI score 2). Just under one fifth of individuals (19%) had unplanned weight loss of 5% or more, with 9% having 5-10% unplanned weight loss (weight loss score 1) and 10% having >10% weight loss (weight loss score 2), 8% scored at step 3 of MUST (acute disease effect score). Of those ‘at risk’ of malnutrition, 92% had a care plan in place, with 78% reporting having at least one food based intervention (mostly dietary counselling with a dietitian (61%)) and 59% reporting having at least one oral nutritional supplement intervention (mostly ready-made liquid 1-1.5kcal (24%) or >2kcal oral nutritional supplement (22%)). Overall, 11% received an enteral tube feed and 4% were parenterally fed.

This survey found the prevalence of malnutrition risk remains high in the UK across both hospital and community settings. Most individuals at risk of malnutrition have a nutrition care plan in place primarily involving oral nutritional support interventions.

References
COVID-19 management in a UK Tertiary Centre Intensive Care Unit: Nutritional status, intervention and outcome
by S. Gandhi¹, J. Taylor¹, S. Welsh², B. Puvaneswaran², C. Lorden³, C. Duncan², and C. Mountford³,
1. Dept of Dietetics, Newcastle Hospitals NHSFT 2. Dept of Infectious Diseases, Newcastle Hospitals NHSFT, 3. Dept of Gastroenterology, Newcastle Hospitals NHSFT 4. Department of Rheumatology, Newcastle Hospitals NHSFT 5. Translational & Clinical Research Institute, Newcastle University

Coronavirus disease 2019 (COVID-19) has rapidly spread across the globe. Large numbers of patients with severe acute respiratory syndrome associated with COVID-19 have required Intensive Care (ICU) input to manage their condition.1 Requirements such as proning patients may impact on the ability to successfully deliver nutritional support. To date, little data has been published on the nutritional management of these patients whilst on ICU.

We previously reported a retrospective analysis of the management and 28-day outcomes of 316 consecutive adult patients with SARS-CoV-2 PCR-confirmed COVID-19 admitted to our centre, within the first wave of the pandemic between 8th January 2020 and 16th April 2020.2 The study was registered as a clinical service evaluation and was exempt from ethical approval. A total of 316 patients (55% male) were identified with a median (IQR) age of 75 (60 – 83) [23 – 101] years. Fifty-nine (19%) patients were admitted to ICU, median age 60. In total, 84 (27%) patients died within 28 days of admission (or before discharge where admission duration >28 days). Of those patients admitted to IC4 (24%) died.

We here present further hitherto unpublished analyses of the nutritional status, intervention and outcomes of those patients admitted to ICU. Thirty-one (52%) of patients required intubation during their ICU stay, 6 (10%) required tracheostomy and 16 (27%) required proning during their stay. When required, proning lasted on average 2.7 days. Median length of stay on ICU was 8.5 days (range 1-51). Mean admission weight for those patients admitted to ICU was 102kg and was recorded in 26 (44%) of those admitted to ICU. This compared to the wider hospital admission cohort, where weight was recorded in 151/316 (48%) patients, with a median [range] 74.5kg [32.4-168]. Where measured (20 [34%]), there was significant weight loss observed during admission in those patients whose stay included ICU; mean (SD) weight 100kg (22.2) at admission and 91.1kg (21.4) last recorded weight during admission (P=0.04). Thirty-five (59%) of patients who were admitted to ICU received dietetic input, compared to 48 (19%) patients admitted elsewhere in the hospital. Thirty-four (58%) of patients admitted to ICU required enteral feeding, all occurring via nasogastric tube. Fifty-three (17%) of patients received oral nutritional supplements whilst in an inpatient and 38 (12%) received enteral feeding. Of those patients receiving enteral feeding on ICU, 33 (97%) had tube placement confirmed by chest x-ray. Information on feed regime was available on 30 patients on ICU. Mean (SD) prescribed feed calories was 1507 kcal/24 hours (255), compared to mean (SD) feed delivered 1321 kcal/24 hours (372) (P=0.0001). Mean (SD) prescribed protein was 86g/24 hours (20) versus mean protein delivered was 67g/24 hours (P=0.0001). Median duration of enteral feeding on ICU was 12.5 days (range 2-52).

Results indicate that enteral feeding on ICU can be successfully delivered in patients with COVID-19. Updated advice on enteral tube feeding safety including confirmation of tube placement was followed in the majority of cases.3 Future studies should aim to establish greater depth of understanding on the impact of different enteral feeding regimes on COVID-19 outcome.

References
Long-term micronutrient deficiency in oesophagectomy and gastrectomy patients. Impact of the implementation of a screening protocol on prevalence of deficiency
by A. Kidd, F. Huddy and M Phillips, Department of Nutrition and Dietetics and Oesophagogastric Unit, Royal Surrey County Hospital, Guildford, UK, GU2 4XX

Patients with localised upper GI cancers of the oesophagus and stomach can undergo oesophagectomy (OG) or total gastrectomy (TG) with curative intent. Following surgery there is an increased risk of developing vitamin and mineral deficiency (1,2,3). Whilst awareness has improved there is very little national guidance on how to manage and reduce the risks long term.

In 2014 incidence of micronutrient deficiency in patients who were at least 1-year following surgery was audited locally. We observed increased deficiency compared to general population introduced a protocol to address this. This audit was repeated in 2019.

A cross sectional prospective audit was carried out on subjects diagnosed with oesophageal or gastric cancer who had undergone a 2 or 3 stage OG or TG at least 12 months previously and who were cancer free. Levels of serum selenium, vitamin A, D, E and B12, ferritin, iron, haemoglobin, zinc and CRP, were measured by non-fasting blood test and data were gathered on vitamin and mineral supplement usage, pancreatic enzyme replacement therapy (PERT) and length of time since surgery. Data from 2014 was compared to 2019 and analysed in SPSS (version 26) using an independent samples T-test

In 2014 82 subjects were included with no exclusions. 87% had undergone OG and 13% a TG. 70% male. Mean age 65 years (range 41-85 years). Length of time post surgery ranged from 1 year – 7.6 years. Of the subjects 45% were 1-2 year post surgery, 18% were 2-3 years, 17% were 3-4 years and 20% were over 4 years post surgery. 9% subjects were taking PERT. 37% reported taking a vitamin and mineral supplement. In 2019 75 subjects were identified, one exclusion due to CRP>10. 91% had undergone OG and 9% TG. 76% male Mean age was 68 years (range 31-90 years). Length of time post surgery ranged from 1 year to 10.4 years with 24% between 1 -2 years post surgery, 13% 2-3 years, 8% 3-4 years and 55% were over 4 years post surgery. 22% were prescribed PERT. 82% took a daily complete vitamin and mineral supplement as advised in the protocol.

<table>
<thead>
<tr>
<th>Analyte</th>
<th>2014</th>
<th>2019</th>
<th>P-value</th>
<th>Analyte</th>
<th>2014</th>
<th>2019</th>
<th>P-value</th>
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</thead>
<tbody>
<tr>
<td>Iron</td>
<td>36%</td>
<td>15%</td>
<td></td>
<td>Vitamin B12</td>
<td>4%</td>
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<tr>
<td>Transferrin</td>
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<td>0%</td>
<td></td>
<td>Vitamin D</td>
<td>27%</td>
<td>16%</td>
<td>P&lt;0.001</td>
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<tr>
<td>Ferritin</td>
<td>24%</td>
<td>9%</td>
<td></td>
<td>Vitamin E</td>
<td>0%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Folate</td>
<td>3%</td>
<td>0%</td>
<td></td>
<td>Zinc</td>
<td>19%</td>
<td>6%</td>
<td>P&lt;0.021</td>
</tr>
<tr>
<td>Haemoglobin</td>
<td>18%</td>
<td>20%</td>
<td></td>
<td>Selenium</td>
<td>3%</td>
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<tr>
<td>Vitamin A</td>
<td>0%</td>
<td>0%</td>
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Table 1: Percentage of patients with low analyte in each year group and significance.

Post protocol there was increased use of PERT and prophylactic vitamin and mineral supplementation. Overall all analytes except haemoglobin improved or stayed the same with significant improvement in vitamin D and zinc deficiency. The two cohorts were similar in size, age and gender however the second cohort had a greater percentage of subjects 4 or more years post surgery. Further work should include subdivision of data to compare those taking supplements and those who do not, and data should be analysed to assess correlations with time from surgery and between micronutrients. This study suggests that implementation of a protocol to identify and correct deficiencies helped to reduce the prevalence of micronutrient deficiency.

References
Water usage in enteral feeding: Results of a PENG survey
by C. Fleming1, J. Jones2 and A. Julian1, 1Department of dietetics, NHS Greater Glasgow and Clyde, Glasgow G31 3HT, UK. 2Department of nutrition and biological sciences, Queen Margaret University, Edinburgh EH21 6UU.

Media reports about water contamination have given patients and clinicians reason to pay closer attention to the source of water used in enteral feeding. In response to membership discussions, the Parenteral and Enteral Nutrition group (PENG) of the British Dietetic Association (BDA) have surveyed members in the 1980s and 1990s by mail. These surveys aimed to investigate current practice within the UK and Ireland in relation to water usage for enteral feeding.

In 2019, with the same aim, an online survey was developed (onlinesurveys.ac.uk). The survey explored the type of water used for the hydration of patients, flushing enteral access devices, diluting medication and diluting powdered formula. The survey was distributed to dietitians and other health care professionals using the communication channels of PENG and social media platform Twitter, and remained open for three months from October to December 2019. Responses were sought from health professionals working with adult and paediatric populations, including immunocompromised patients and those receiving post-pyloric feeding as these were both perceived as higher-risk groups, and in both acute and community settings. The rationale guiding these practices was also investigated. Water types were defined using national and international guidelines1-4. Descriptive statistics were used to analyse responses.

The survey received 145 responses. Of these, 90% were from dietitians and 10% were from nurses. Seventy-seven percent of respondents were working solely with adults (n=113), and responses were equally distributed between acute and community. Sterile water was the most commonly used water type in adult hospital and immunocompromised patients, and in adult and paediatric critical care settings. Cooled boiled water was rarely used in hospital or with immunocompromised adult patients. In homely settings, tap water or cooled boiled was used almost 100% of the time, with the exception of post-pyloric flushes and balloon refills where >70% and >60% of respondents respectively used sterile water. Respondents based their decisions on local and national guidelines for specific tasks and government recommendations on the quality of drinking water and plumbing. In addition, where guidelines lacked specificity there was a trend towards cautious practice, which increased the use of sterile water.

In conclusion, there is varying practice across the UK and Ireland. Guidance on risk assessment to support local policy may reduce the use of sterile water and improve cost efficiency.

References
Nutritional autonomy in Short Bowel Syndrome and Intestinal Fistulas
by M. Kopczynska¹, A. Teubner¹, M. Taylor¹, A. Abraham¹, C.L. Hvas², S. Burden³, G. Carlson¹ and S. Lal¹,³
¹Intestinal Failure Unit, Salford Royal NHS Foundation Trust, Salford, United Kingdom ²Department of Hepatology and Gastroenterology, Aarhus University Hospital, Aarhus, Denmark ³University of Manchester, Manchester, United Kingdom

Short bowel syndrome (SBS) and entero-cutaneous or atmospheric fistulas are the commonest causes of Type 3 intestinal failure (IF). The aim of the study was to evaluate the likelihood of achieving nutritional autonomy in a large cohort from a national reference centre.

Clinical records of adult patients receiving home parenteral nutrition (HPN) between 2001 and 2018 were reviewed. Data were collected on patient demographics, clinical characteristics, gastro-intestinal (GI) anatomy and details of any surgery.

458 cases were included, with a median HPN-dependency of 2.6 years (IQR 1.2-4.9); this included 176 patients with intestinal fistula and 282 with SBS. 193/458 (42.1%) patients underwent reconstructive surgery, including fistula repair (n=70) and restoration of GI continuity (n=123). Patients undergoing surgery gained an additional 60cm (IQR 0cm – 140cm) small intestinal length (SIL), with 143 patients changing their digestive circuit from end-ostomy to small bowel in continuity with colon. 167/458 (36.5%) of the entire cohort achieved nutritional autonomy, with a probability of 13.5% at 1 year, 26.3% at 2 years, 39.5% at 5 years and 48.5% at 10 years; notably, adjusting for death as a competing factor using the Aalen-Johansen estimator reduced the probabilities to 13.3% at 1 year, 24.2% at 2 years, 34.0% at 5 years and 38.3% at 10 years. More patients undergoing surgery achieved autonomy (72.8% vs. 7.8%, p<0.001). SIL and colon in continuity were the most important predictors for achieving autonomy in the entire cohort. 290/458 (63.3%) patients had been predicted to achieve autonomy based on their final GI anatomy (115cm SIL for Group 1, 65cm for Group 2 and 35cm Group 3 SBS-IF (1)) but only 159/290 (54.8%) of these did so; those unable to achieve autonomy despite predicted adequate SIL were older (median age 59.0 vs. 49.0, p<0.001) and had a higher Charlson Comorbidity Index (median score 3 vs. 1, p<0.001).

Reconstructive intestinal surgery significantly facilitates HPN weaning in patients with severe IF. While, final bowel anatomy is the most important predictor for achieving nutritional autonomy, this may be less likely in older people with greater co-morbidity. Of note, death as a competing factor impacts on the estimation of nutritional autonomy and we would recommend obtaining probabilities using the Aalen-Johansen estimator.

References
The role of a dietitian as part of a multimodal hospital based oncology rehabilitation service.
by A. Petrova, North Middlesex University Hospital, London, N18 1QX

Rehabilitation (prehab) aims to enable patients with cancer diagnosis to improve their functional baseline in order to prepare for anti-cancer treatment through promotion of healthy behaviours with exercise, nutritional and psychological support. (1). There is limited research and guidance around the role of the dietitian within the oncology prehab setting (2)(3). This service review aims to capture the diversity of the role of the specialist dietitian as part of a newly established hospital based prehabilitation service for patients with colorectal cancer.

All patients with a colorectal cancer diagnosis consenting to surgery were offered a referral to prehab. Initial multimodal assessment was booked within 7 days. Nutritional risk assessment was completed by the specialist dietitian using patient generated subjective global assessment (PG-SGA) tool and patients’ past medical history was reviewed. Based on this, patients were divided into three categories according to current recommendations (1)(3): at low risk of malnutrition, with suspected malnutrition and with severe malnutrition. Patients at low risk of malnutrition (PG-SGA <4 and no significant comorbidities requiring dietetic input) were given universal intervention focusing on smoking cessation, reduction of alcohol and balanced diet higher in protein pre-operatively. Patients with suspected malnutrition (PG-SGA 4-8 or significant comorbidities requiring dietetic input) were given targeted advice such as high calorie and protein dietary modification. Those with severe malnutrition (PG-SGA >8 and/or having significant comorbidities requiring specialist dietetic input) were given specialist dietetic advice coordinated to the surgical procedure and relevant medical conditions. Post-operative dietary management was discussed including strategies to support recovery and/or stoma management as appropriate.

Fourteen patients were referred to the service during the 3-month period. Seven (50%) patients were found to be malnourished: 2 (14%) were identified as with suspected malnutrition and 5 (36%) – with severe malnutrition. Remaining patients (n=7) were found to be at low risk of malnutrition. The dietetic interventions in those with suspected malnutrition included: dietary modification to support hypertension management pre-operatively (n=1) and high calorie and protein dietary advice (n=1). In those with severe malnutrition the interventions included: high calorie and protein dietary advice with and without nutritional supplements with specialist dietetic input for management of obstructing tumour (n=2), chronic pancreatitis and type 1 diabetes (n=1), symptomatic lymphoma (n=1) and poorly controlled type 2 Diabetes (n=1).

The presence of a dietitian at the initial assessment provided an opportunity for early detection and timely intervention of patients especially with severe malnutrition pre-operatively. Additionally, for those not at risk of malnutrition this provided a unique opportunity to discuss post-operative dietetic management. Further audit or research with a larger number of subjects is needed to evaluate the outcomes of the dietetic intervention and the multimodal prehab.

References:
The role of Parenteral Nutrition in the treatment of children with refractory Inflammatory Bowel Disease – an old hat newly discovered
by E. Kurteva¹, F. Kiparissi¹ and J. Köglmeier¹, ‘Great Ormond Street Hospital for Children NHS Foundation Trust, WC1N 3JH London /United Kingdom

Inflammatory Bowel Disease (IBD) presenting in childhood is associated with more extensive and aggressive disease compared to adults. Achievement of sustained mucosal healing whilst maintaining adequate growth and emotional wellbeing are key strategies in the management of children with IBD (1). Since immunomodulators and biological therapy have become available treatment options have improved dramatically over the last 20 years (2). However, there is still a group of children with severe IBD refractory to medication. Parenteral Nutrition (PN) has been available to treat paediatric intestinal failure for half a century but is not part of current IBD management protocols.

The aim of this study was to evaluate the impact of PN used for gut rest on children with treatment resistant IBD and to assess its safety.

All patients with histologically confirmed IBD who received PN between January 2015 and July 2021 in a large tertiary referral centre were identified from the clinic data base. 6 children fulfilled the inclusion criteria (5/6 Crohn’s disease CD; 1/6 Ulcerative Colitis UC). Consent was obtained from the parents to include their child into the study. Data were collected retrospectively and included disease activity, IBD treatment, indication for the start of PN and duration of gut rest. Parameters of nutritional improvement, clinical and mucosal remission were assessed.

All 6 patients had severe disease activity. PN was commenced for poor nutrition status and resistance to medical treatment with corticosteroids, immunomodulators and biologics. 4/6 (66.6%) patients received PN for less than 1 year, one for 17 months and one child who remains on home PN started gut rest 12 months ago. The use of PN resulted in improvement of clinical symptoms, biochemical parameters and weight in all children. 2/6 (33.3%) achieved histological mucosal healing after discontinuation of PN, in 4/6 (66.6%) there were ongoing features of active disease. In 1/6 (16.6%) a decision was made to proceed to colectomy (UC) and 2/6 had an ileostomy formation (CD).

In our cohort of children with severe IBD PN lead to improvement of clinical and nutritional status. PN should be considered as adjunctive therapy for IBD patients refractory to medical therapy either to support remission or as bridging therapy prior to surgery.

References
1. Oliveira SB, Monteiro IM. Diagnosis and management of inflammatory bowel disease in children. BMJ 2017; 357; j2083
A multidisciplinary approach to reducing percutaneous endoscopic gastrostomy tube site infections within 30 days of placement
by S. Roberts, K. Clark, V. Theis and J. Tyrer, St Helens and Knowsley Teaching Hospitals, Warrington Road, Prescot, L35 5DR, United Kingdom

Percutaneous endoscopic gastrostomy (PEG) site infection is a known complication of PEG tube placement. Whilst difficult to know the true incidence of PEG site infections as rates vary\(^1\), it is thought that infection rates fluctuate between 5% and 25%\(^2\). Thirty day infection rates form part of an annual audit of PEG insertions at a large District General Hospital (DGH). The mean infection rate from 2018-2019 was 11.8%. In 2020, it was concerning to note that the infection rate rose to 41% (16 out of 39 cases) which led to a multidisciplinary process review.

Mean time to infection was 6.5 days post insertion (range 3-16 days). Of the 16 cases, 6 were polymicrobial. Organisms included: Staphylococcus aureus (11), mixed anaerobes (4), Group B Streptococcus (3), Group C Streptococcus (2), Streptococcus pneumoniae (1) and Streptococcus milleri (1). All those who had a PEG placed were confused and incontinent, 2 had coexisting diabetes and 1 was receiving high dose corticosteroids, all of which put them at higher risk of developing PEG site infection. Local antimicrobial policy recommends IV gentamycin at 3mg/kg body weight pre-procedure and it was noted that in 4 cases, inadequate dosing was a contributory factor. There was no operator trend identified.

It was highlighted that in 2020, the antimicrobial of choice pre-procedure was changed to Gentamycin 3mg/kg body weight from IV Teicoplanin 400mg, which had been used the preceding 2 years. The Nutrition team, in collaboration with the Microbiology department, agreed to a change in policy, reverting to IV Teicoplanin 800mg pre-procedure alongside the addition of chlorhexidine body washes 48 hours pre-procedure and 72 hours post-PEG insertion. The infection prevention nurse (IPN) team observed a PEG insertion to ensure that the procedure was carried out appropriately with surgical ANTT and performed an environmental endoscopy visit. The IPN team also visited high usage wards to perform environmental reviews and to follow up patients to monitor appropriate after care. The PEG pathway was updated to reflect the amendments and ensure that each stage of the process (pre, during and post procedure) was completed. An interim 3 month audit was performed after the relevant changes, which demonstrated success and 5/5 PEGs placed between Jan 2021 and April 2021 had no PEG site infections.

PEG site infections are a relatively common complication and regular audit is recommended to monitor practice. When infection rates increase, it is important to look at every process, identify any root causes and make the required changes to reduce the incidences as far as is reasonably practicable. The PEG pathway is an excellent way of ensuring that all stages of PEG care are clearly identified and streamlined for all those working with this patient group, to deliver the highest standards of care and reduce the risk of complication. Working together with various members of the MDT (microbiology, endoscopy, infection control, and ward staff) is crucial to reducing infections and optimising the care and management of PEG tubes.

References
Critical care dietetic outcomes during the first wave of the COVID-19 pandemic
by SC Evans, RJ Prichard and AL Jukes, Cardiff and Vale University Health Board, Cardiff

The COVID-19 pandemic led to a surge in patients being admitted to the Intensive Care Unit (ICU) and increased dietetic input was required for their daily nutritional management. Non-ICU dietitians were upskilled to meet this increased demand – resulting in an increase to 5 band 6 dietitians and 1 band 7 dietitian overseen by the band 8a clinical lead. The service also changed from a 5-day to a 7-day service. The aim of this service evaluation was to analyse changes in nutritional outcomes during the COVID-19 pandemic, and how changes to the dietetic service impacted upon dietetic outcomes. Outcomes included energy and protein provision, feed type used and prokinetic use.

Data was collected for all ICU patients under dietetic care with a confirmed COVID-19 diagnosis for the period of 22/03/2020 to 04/06/2020 (75 days). Total patient cohort equalled 66. Patients were reviewed daily until the patient was discharged from ICU or the patient passed away. All data was then retrospectively analysed using descriptive statistics, and an independent t-test was used to compare COVID-19 feed delivery to previous feed delivery data. Ethical approval was not required for this service evaluation.

Of the 66 patients, 62 required enteral nutrition (EN). Feeding was commenced within 48 hours of ICU admission in 92% of patients. Average percentage feed delivery was 82.4% for energy and protein. This total does not include additional protein supplementation; therefore, the overall protein delivery was higher, with 36% of patients being prescribed 1 to 2 20g protein supplements per day. A total of 60% of patients were initially started on a fluid restricted feed for fluid balance or due to being prone. A total of 50% of patients continued with a fluid restricted feed, with 44% of patients receiving a standard protocol feed (1kcal/ml high-protein feed) and 6% receiving a peptide or renal feed. Prokinetics were required in 35% of patients. A total of 3% of patients (n=2) required parenteral nutrition due to persistent high gastric residual volumes despite prokinetics. Of the 66 patients, 46 (70%) were discharged alive from ICU. Of these, 70% were receiving total or supplementary EN at the time of discharge from the ICU.

A number of barriers to maintaining high standards of patient outcomes arose at the onset of the COVID-19 pandemic. These included disruptions to normal MDT working, challenges in undertaking face-to-face assessments and reviews, and an increased caseload and footfall - thereby increasing the demand for ICU trained dietitians. Despite these barriers, this service evaluation demonstrates that percentage feed delivery remained relatively stable when compared to the pre-COVID 2020 audit (n = 35) - 82.4% vs. 85% respectively. An independent-samples t-test was conducted to compare feed delivery in pre-COVID and COVID-19 samples. There was no significant difference in the scores for pre-COVID (M = 85%, SD = 13.4) and COVID (M = 82.4%, SD = 16.8) samples; t(180) = -0.81, p = .42. This is despite 36% of patients requiring proning during COVID vs. 0% pre-COVID, and increased gastrointestinal intolerance evidenced by 35% of patients requiring prokinetics vs. 29% pre-COVID. These factors eliminated the ability to utilise ‘catch-up’ feeding, which significantly improves feed delivery in normal circumstances. This suggests that changes in dietetic provision of service, including delivering a 7-day service, thereby allowing more prompt management of nutritional issues and improved access to dietetic expertise, facilitated the maintenance of the pre-existing high standards of nutritional care. Achieving this degree of feed delivery necessitated the use of a variety of different feeds – to manage tolerance, fluid volume, electrolyte imbalances and ensure nutritional adequacy. Adapting feeding regimens to best meet the patients need is a key role of the dietitian, and in the absence of dietetic input it is unlikely these feeding strategies would have been utilised.

The COVID-19 pandemic presented new challenges and obstacles to every aspect of the healthcare sector; necessitating fast adaptations, novel methods of working and reinforcing the importance of multidisciplinary teams to guide patient care in the absence of evidence-based guidelines. This service evaluation demonstrates that forward-planning and the expansion of services in alignment with demand can assure that patient care need not be compromised, despite the unprecedented challenges and barriers presented by the COVID-19 pandemic.
Nutritional support for patients recovering from Covid-19: A consensus process with health and social care sector and patient representatives
by M. Hickson1, Y. A. Tronco-Hernandez1, J. Murphy2, C. E. Weekes3, A. Julian4, G. Frost4, 1University of Plymouth, Plymouth, PL4 8AA, 2 Bournemouth University, Bournemouth, BH8 8GP, 3Guy’s & St Thomas’ NHS Foundation Trust, London SE1 7EH, 4NHS Glasgow and Clyde, Glasgow Royal Infirmary, Glasgow, G31 3HT, 5Imperial College London, London, W12 0NN.

Covid-19 infection presents with highly variable symptoms many of which can affect nutritional status, such as taste changes, gastrointestinal symptoms, breathlessness, and fatigue. Therefore, diet plays a role in the treatment and recovery from Covid-19. For patients with long-Covid recovery may take months or years, and has a major impact on patients’ everyday life, putting pressure on health and social care services. Despite the growing amount of research and the important role of nutrition, available information is highly variable in quality and accessibility. The aim of this project was to map out the evidence and support available and guide decision-making in the nutrition and dietary aspects of care for adult patients recovering from Covid-19.

We used nominal group technique to gain consensus from both healthcare professionals and patients recovering from Covid-19 on what is needed to support both patients and professionals in terms of nutritional care. We adapted data collection due to lockdown restrictions by holding virtual expert panels; one panel for professionals and one for patients. Information for silent generation was e-mailed to participants ahead of Zoom (zoom.us) meetings; a whiteboard functionality replaced a flip chart, and Mentimeter (mentimeter.com) was used for anonymous voting and ranking of ideas. We held a total of six meetings (three with each panel), collected votes from each panel and thematically analysed final discussions held among both panels.

Professionals spoke about a lack of awareness and resources to address dietary issues. Patients felt that optimal nutritional intake would be an important part of recovery, but struggled to identify reliable sources of information. Healthcare professionals were not able to provide the information they desired. Both groups recognised that support for nutritional care may need to be provided by non-professionals, particularly in the community and that there is a need to identify and train these people to empower them to deliver nutrition care, as well as patients recovering form Covid-19. Both groups stated that improvements were necessary in health services for people with long-Covid in relation to nutrition and that since Covid-19 presents with highly variable symptoms and severity, a highly flexible and adaptable resource is needed to support nutritional care.

In response to these findings we have developed a virtual knowledge hub to provide appraised and updated information mapping out nutritional support for Covid-19 recovery (www.plymouth.ac.uk/research/dietetics-and-health/covid-knowledge-hub). The information is organised in two parts; one targeting patients and one for professionals. Each section starts with the relevant consensus statements generated by the expert panels, which guided the content. The content for professionals includes identification of those in need of nutritional care, assessing nutritional needs, advice on first line and more advanced dietary modifications, monitoring nutritional status and dietary change, managing symptoms linked to nutrition, and challenges for the delivery of nutritional care. For patients content includes identifying nutritional risk, managing symptoms and nutrition, improving dietary intake, understanding the evidence, where to find additional support, and finding a registered dietitian or nutritionist.

In response to themes and questions generated by the patient panel we also organised a series of public talks by experts within the field, which are freely available and incorporated into the knowledge hub. These include “Is there an anti-inflammatory diet?”, “Is there a link between food and my symptoms?”, “Psychological well-being and communicating with healthcare professionals”, and “Diet & Covid”.

These outputs could encourage others to roll out locally adapted care pathways linked to these resources, and thus optimise recovery and reduce the likelihood of further deterioration in patients recovering from Covid-19. This demonstrates a strategic and evidence based approach to address the current crisis and future problems from a nutritional perspective.
Assessment of macronutrient intake in subjects with mild to moderate pneumonia due to Covid 19 classified based on their nutritional status

by S. Varma¹, M. Patil², and D. Patel³, ¹HOD, Department of Nutrition, Belle Vue Multi speciality Hospital, Mumbai, India, ²HOD, Department of Nutrition, DY Patil Hospital, Navi Mumbai, India, ³Clinical Nutritionist, Asha Kiran JHC Hospital, Pune, India

Malnutrition, both severe and acute in covid 19 patients are particularly serious problems, may depress the immune system further indicating a poor outcome in terms of morbidity, quality of life and mortality¹. Thus, dietary intake may play a major role in determining nutritional status of patients with pneumonia due to COVID 19.

Aim was to screen and evaluate the intake of macro-nutrients in subjects who could tolerate oral intake with mild to moderate pneumonia due to Covid 19 assessed for nutritional status, fat free mass index (FFMI) and basic lung function.

A cross sectional study was carried out on 71 patients admitted to an ICU in an urban multispecialty hospital from August 2020 to January 2021. Nutritional status, lung function, body composition was assessed using Patient generated Subjective global assessment (PGSGA), Spirometry and Fat Free Mass Index (FFMI) respectively. Dietary intakes were assessed using Food record charts (FRCs).

The results show that higher proportion of subjects were unable to meet the RDI for energy (56%), protein (90%) and fat (66%); carbohydrate intake was above RDI (41%) despite of providing oral nutritional supplements in an attempt to meet the required dietary allowance and nutritional needs in these subjects. 24 (73%) subjects out of 33 under stage B & C reported lack of appetite with early satiety. Mean age of the patients was 62± 8.8 yrs. and mean BMI on admission was 21.1± 4.2 kg/m².

In conclusion subjects included in this study with better nutritional status and nutrient intakes had better lung function. Hence, early identification of malnutrition by screening, assessment with timely nutrition intervention in COVID 19 subjects by fueling of deficits in nutrient intake may preserve lean body mass, improve nutritional status, avoid deterioration of lung function due to malnutrition thus leading to a probable positive prognosis of the disease.

References
Assessing the relationship between malnutrition and length of stay in the hospital in patients with COVID 19.

by S. Varma¹, M. Patil², and D. Patel³, ¹HOD, Department of Nutrition, Belle Vue Multi speciality Hospital, Mumbai, India, ²HOD, Department of Nutrition, DY Patil Hospital, Navi Mumbai, India, ³Clinical Nutritionist, Asha Kiran JHC Hospital, Pune, India

Malnutrition is a particularly serious problem, which indicates a poor outcome in terms of morbidity, quality of life, length of stay in the hospital and mortality¹.

This study was conducted to assess the relationship between malnutrition and hospitalized duration in patients with COVID-19².

An epidemiological study was conducted where in total 250 COVID hospitalised patients from 3 hospitals in MultiSpeciality hospitals in urban setting were included in the study from December 2020 to April 2021 with mean age 59 ± 8.8 yrs. Nutritional assessment on admission was done using the “Global leadership Initiative on Malnutrition (GLIM)” assessment tool.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>No malnutrition</th>
<th>Malnutrition</th>
<th>Chi-square/ t/Z value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>&lt;65 years</td>
<td>71(62.3%)</td>
<td>10(40.0%)</td>
<td>4.186</td>
<td>0.041</td>
</tr>
<tr>
<td></td>
<td>≥65 years</td>
<td>43(37.7%)</td>
<td>15(60.0%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>Male</td>
<td>62(54.4%)</td>
<td>10(40.0%)</td>
<td>1.700</td>
<td>0.192</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>52(45.6%)</td>
<td>15(60.0%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;93%</td>
<td>98(86.0%)</td>
<td>22(88.0%)</td>
<td>2.604</td>
<td>0.107</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>6(5.3%)</td>
<td>3(12.0%)</td>
<td>2.689</td>
<td>0.047</td>
</tr>
<tr>
<td>CRP</td>
<td>≤10 mg/L</td>
<td>106(93.0%)</td>
<td>20(80.0%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;10 mg/L</td>
<td>8(7.0%)</td>
<td>5(20.0%)</td>
<td>0.684</td>
<td>0.408</td>
</tr>
<tr>
<td>PCT</td>
<td>≤0.05 ng/ml</td>
<td>58(50.9%)</td>
<td>15(60.0%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;0.05 ng/ml</td>
<td>56(49.1%)</td>
<td>10(40.0%)</td>
<td>0.742</td>
<td>0.389</td>
</tr>
<tr>
<td>IL-6</td>
<td>≤7 pg/ml</td>
<td>91(79.8%)</td>
<td>18(72.0%)</td>
<td>3.820</td>
<td>0.051</td>
</tr>
<tr>
<td></td>
<td>&gt;7 pg/ml</td>
<td>23(20.2%)</td>
<td>7(28.0%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WBC</td>
<td>≤3.49×10^9/L</td>
<td>4(3.5%)</td>
<td>4(16.0%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;3.5×10^9/L</td>
<td>110(96.5%)</td>
<td>21(84.0%)</td>
<td>8.820</td>
<td>0.001</td>
</tr>
<tr>
<td>LC</td>
<td>≤1.1×10^9/L</td>
<td>12(10.5%)</td>
<td>7(28.0%)</td>
<td>3.928</td>
<td>0.047</td>
</tr>
<tr>
<td></td>
<td>&gt;1.1×10^9/L</td>
<td>102(89.5%)</td>
<td>18(72.0%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15.67±6.26</td>
<td>27.48±5.04</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In accordance with the GLIM criteria, patients were divided into 2 groups- well-nourished and under nourished. On comparing the two groups, under nourished patients had a longer hospitalization time (16.36±5.81 days versus 31.04±6.91 days, P = 0.001). Kaplan-Meier analysis showed patients with malnutrition were more likely to be hospitalized longer compared to those with normal nutrition. Elderly patients in malnutrition group were higher than in well-nourished group, and similar pattern was seen with higher proportion of diabetics (22.8% versus 56%, p= 0.002), the proportion of low lymphocytes was higher (14.0% versus 34.4%, p=0.047), the neutrophil/lymphocyte ratio (NLR) was higher (1.88[1.15, 2.29] versus 2.39[1.81, 4.20], p=0.001).

The current findings revealed that malnutrition played a role in predicting the likelihood of prolonged hospitalisation in COVID-19 infection patients, who should be given special attention and precautions throughout clinical treatments. Malnutrition assessment in inpatients with nutritional risk thus is important and nutritional support treatment should be started as soon as possible.

References
An audit to evaluate adherence to the national standard for dietetic assessment of patients with oesophago-gastric cancer

by H. Starling, Leicester Royal Infirmary, University Hospitals of Leicester NHS Trust, Leicester, LE1 5WW, England

The nature of oesophago-gastric cancers is such that patients diagnosed frequently present with a high burden of symptoms which has both a direct and indirect impact on an individual’s dietary intake and nutritional status and if these are not addressed in a timely way, the implications of these can be far reaching, from affecting patients in their day to day life to affecting clinical treatment and outcome\textsuperscript{1-3}.

In April 2019, NHS England released new national guidance to support implementation of rapid diagnostic and assessment pathways for oesophago-gastric cancer\textsuperscript{4}. Within this timed pathway a recommendation is made that patients are seen by a Specialist Dietitian within 7 days of diagnosis.

A prospective audit was conducted to assess current compliance delivered by the current Specialist Dietitian job role. Data was collated over a 12 month period between 1\textsuperscript{st} September 2019 and 31\textsuperscript{st} August 2020. Data was obtained from multiple sources including multidisciplinary team meetings minutes, clinic lists and Dietitian activity data.

Within the audit time frame, 189 patients were diagnosed with oesophago-gastric cancer. Of these, 29 patients were excluded from the audit for a number of reasons including being an inpatient at the time of diagnosis and already under the care of the ward Dietitian, or subsequently referred following the multi-disciplinary team meeting. Of the remaining 160 patients diagnosed with oesophago-gastric cancer, 155 (96.9\%) were seen by the Specialist Dietitian within 7 days of diagnosis. The longest wait for the five patients not seen within the 7 day time frame was 13 days. The reasons for delay were related to no cross cover for leave. For those not seen by the Specialist Dietitian at their appointment, these patients are contacted by the Specialist Dietitian either by telephone or seen at a subsequent appointment.

In spite of the time period including the first national lockdown, this audit provides assurance that within the limits of being a sole practitioner the majority of patients diagnosed with oesophago-gastric cancer received dietetic assessment from a Specialist Dietitian within 7 days of diagnosis, demonstrating our local pathways are effective.

References

Establishing a nutrition round in a district general hospital neonatal unit
by R. Adamson, R. Talathoti, S. Hapuarachchi, A. Jia, M. Relato, M. Feleo, S. Soden and G. Audu, Special care baby unit, West Middlesex Hospital, Twickenham Road, Isleworth, Middlesex TW7 6AF

Early nutritional optimisation has been shown to lead to good long term growth and developmental outcomes of neonates especially preterm\(^1\). Standardisation of practice\(^2\) results in reduced introduction time of parenteral and enteral nutrition, improved use of breast milk, and reduced length of stay\(^3\). In recent years the need for multidisciplinary nutrition support team in neonatal units to achieve the best outcomes neonatal infants has been recognized\(^4\).

A multidisciplinary team (doctors, neonatal nurses and dieticians) conducted a service improvement project to determine baseline level of nutritional assessment done on babies at our level 1 neonatal unit in a district general hospital, to implement a robust tool for identifying infants at risk of malnutrition with the ultimate goal of having a weekly nutrition round by a nutrition support team.

In the 1\(^{st}\) cycle of our study we retrospectively reviewed data from babies admitted to the neonatal unit over 2 months. Babies were classified as high, medium, or low malnutrition risk. We assessed if gold standard anthropometric measurements were monitored and local feeding guidelines followed. Data was collected on those requiring parenteral nutrition (PN), and we assessed if appropriate nutritional blood monitoring (full blood count, renal and liver function and bone profile) was done.

Results showed 69 babies admitted over the study period. We found that there was poor anthropometric monitoring- in particular babies had no length measurements done. There was good adherence to biochemical assessment, initiation of PN and feeding guidelines. The findings were presented to the department, posters displayed to educate staff on gold standard anthropometric monitoring, and an infantometer was provided to facilitate length measurements.

A 2\(^{nd}\) review done 3 months later demonstrated improvement in anthropometric monitoring (Table 1). The study has allowed us to identify babies not reaching their growth potential much earlier and has allowed for early dietetic involvement and personalised feeding advice.

The next step will be to formalise the weekly nutrition round with an established nutritional support team extending to pharmacists, and a nutrition ward round template, as well as allocating nutrition champions to ensure continuity.

<table>
<thead>
<tr>
<th></th>
<th>Weight on admission</th>
<th>Weight twice weekly</th>
<th>Head circumference on admission</th>
<th>Head circumference weekly</th>
<th>Length on admission</th>
<th>Length fortnightly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-implementation</td>
<td>69/69 (100%)</td>
<td>69/69 (100%)</td>
<td>0/69 (0%)</td>
<td>1/69 (1%)</td>
<td>0/69 (0%)</td>
<td>0/69 (0%)</td>
</tr>
<tr>
<td>Post-implementation</td>
<td>44/44 (100%)</td>
<td>44/44 (100%)</td>
<td>31/44 (70%)</td>
<td>35/44 (80%)</td>
<td>7/44 (16%)</td>
<td>15/33 (45%)</td>
</tr>
</tbody>
</table>

Table 1: anthropometric data

References

Analysis of nutrition support in COVID19 critical care patients
by E. O’Sullivan¹, A. McMorrow¹, D. McCormack¹ and E. O’Connor²,
¹Department of Clinical Nutrition, ²Department of Anaesthesia, Intensive Care and Pain, St. James’s Hospital, Dublin, Ireland

The aim of this analysis was to determine route and adequacy of nutrition support in patients with COVID19 during the first 7 days of admission to an intensive care unit (ICU).

Nutrition parameters were collected for all patients admitted to ICU with COVID19 and compared to best practice guidelines¹.

Of the initial 64 patients admitted to ICU for management of COVID19, all patients were assessed by a critical care dietitian. Patients who were tolerating oral diet were commenced on oral nutrition support as appropriate. Forty eight patients (75%) required enteral nutrition (EN) or parenteral nutrition (PN). The feeding route of choice for the majority of patients was EN (89.5%). In patients with gastrointestinal (GI) intolerance where strategies to optimise tolerance were unsuccessful, supplementary or total PN was used (10.5%). Energy and protein intakes during the early and late acute phase are described below.

<table>
<thead>
<tr>
<th>Target nutrition provision¹</th>
<th>Early acute phase Day 0-3¹</th>
<th>Energy (% requirements met)</th>
<th>Protein (% requirements met)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤70% estimated requirements</td>
<td>69.8 (27.2)</td>
<td>44.2 (23.8)</td>
<td></td>
</tr>
<tr>
<td>100% estimated requirements</td>
<td>81.5 (25.4)</td>
<td>67.8 (28.4)</td>
<td></td>
</tr>
</tbody>
</table>

The most common reason for suboptimal nutrition intake in the late acute phase was GI intolerance, affecting 27% of patients. Compared with those without GI intolerance, patients who experienced feed regurgitation, vomiting or high gastric residual volumes achieved significantly less energy and protein intakes (p≤0.05). Proned position did not affect GI tolerance in our cohort (p=0.65).

Energy intakes in the early acute phase were consistent with best practice guidelines while protein provision was a challenge in both phases. GI intolerance was common which compromised nutrition intakes, though proned position did not affect these outcomes. Where strategies to improve GI tolerance are unsuccessful supplementary PN should be considered without delay to optimise nutrition intake.

References:

Disclosure of Interest: None Declared
Is nasojejunal feeding as effective as we think? An evaluation of nasojejunal feeding in the Intensive Care Unit
by M. Pattwell, R. Eckersley, L. White, L. Fixter and A. Rochford, Department of Gastroenterology, Royal Free Hospitals London NHS Foundation Trust, Pond Street, London, NW3 2QG.

Early enteral feeding is important in maintaining the integrity of the gastrointestinal tract mucosal barrier and associated with less bacterial translocation and decreased stimulation of the systemic inflammatory response and subsequent improved outcomes in intensive care (ICU) patients. Enteral feeding by nasogastric (NG) tubes is the preferred route of nutritional support for most ICU patients. However, ICU patients with delayed gastric emptying and poor intestinal motility may not tolerate gastric feeding and may therefore benefit from post-pyloric feeding via nasojejunal (NJ) tubes.

We reviewed the effectiveness of 35 NJ tube placement in 24 patients on ICU between January and March 2021. The M:F ratio was 4:1, median age 69 years (30–80 years) and 54% of patients were non-White British. 10 patients (42%) had diabetes and 54% had COVID-19 as part of their admitting diagnoses.

The median BMI was 25 (range 20 – 32.3) and none of the patients were identified as high risk for refeeding syndrome at the time of NJ tube insertion. Nutritional information was unavailable on 5 patients. Of the remaining 19 patients, 26% of patients (n=5) were commenced on parenteral nutrition (PN) within 48 hours of NJ insertion. Only 1 patient was able to meet their nutritional requirements enterally via NJ tube at 5 days; a further 2 patients had their nutritional requirements met with supplemental PN.

In 8 of 22 referrals the indication for NJ tube insertion was because an NG tube could not be passed. The evaluation revealed discrepancies in adherence to protocols for high gastric residual volumes and prokinetic use. Documentation surrounding decision making, requesting and inserting an NJ tube was poor and probably reflects the complexity of the patients, involvement of multiple clinical teams, and various documentation modalities (i.e., verbal, written and different electronic systems). There was clinical dispute regarding the indication for NJ tube insertion in 23% of cases (documented in 3 of 13 referrals for NJ tube insertion).

Where documentation was available 43% of patients (n=10) had an NJ tube placed on the day of request; the median time from request to insertion was 1 day (range 0-10). 5 patients had more than one NJ tube inserted (median 3; range 2–5). There was variation in experience and expertise of the endoscopists placing the NJ tubes.

NJ tube feeding is considered to be less expensive and have less complications than PN. However, our evaluation has revealed a range of issues relating to both the insertion and use of NJ tubes in an ICU setting. The true resource ‘cost’ of NJ tube insertion is probably underestimated in the literature and the complications of PN probably overestimated in the context of modern ICU and nutrition support team clinical practices. We suspect that our clinical experience is not unique and that more research is needed in this area. We are using this work to educate clinical teams, standardise documentation, provide better support and supervision for endoscopists, and raise awareness of the benefit and need for supplemental PN where nutritional requirements are not consistently reached enterally.

References
Nutritional comparison of surge one and surge two COVID-19 patients in an adult intensive care unit
by M. Dawson, L. Stokes, A. Kralevich and C. Hanlon, University Hospitals of Leicester NHS Trust, Infirmary Square, Leicester, LE1 5WW, UK.

It has been a hugely challenging task proving nutritional support in adult intensive care units during the COVID-19 pandemic. We therefore reviewed the nutritional parameters of patients admitted to intensive care during both surges of the virus to provide detailed information and to ensure we are fully informed to provide the best service in future surges.

Retrospective data was collected from 168 patients using dietetic electronic handovers from 04.10.20 to 04.04.21 and compared to the data collected for 122 patients in surge one, (data collected 20.03.20 to 8.5.20). This was analysed using an excel spreadsheet. The results are outlined in table one below:

| Table one: Summary of patient demographics and BMI of Covid-19 patients on an adult critical care unit |
|-----------------|-----------------|
| Gender          | Surge one       | Surge two      |
|                 | 77% male, 23% female | 68% male, 32% female |
| Age             | 28-77 years, mean 57 | 21-80 years, mean 55 |
| Diabetes        | 19%             | 23%             |
| CVD             | 32%             | 37%             |
| Nil PMH         | 34%             | 14% (nb 74% of these had BMI >25 |
| BMI Available   | 80%             | 85%             |
| Mean BMI kg/m²  | 30.4            | 30.6 range 16.6-75 |
| BMI <25 kg/m²   | 15%             | 18%             |
| BMI 25-29.9 kg/m² | 30%             | 34%             |
| BMI >30 kg/m²   | 38%             | 47%             |
| BMI >40 kg/m²   | 7%              | 10 %            |

The critical care ventilation plan for these patients had been reviewed¹ and this impacted the route of feeding as follows: Nasogastric feeding on admission: 50.6% (96%), oral nutritional support: 35% (4%), oral nutritional support with subsequent NG feeding: 11% (3%), parenteral nutrition: 1.8% (0), PEG: 0.62% (0). Using data collected from surge one, we were able to prepare training for the dietetic team with regards to the demographics of the patient and the impact on nutritional care. This is particularly important with regards to the challenge of meeting energy and protein requirements of obese patients². We reviewed the difficulties gathering accurate weights from the first wave and purchased new patient transfer scales®. This allowed us to gain weights that we would not have been able to. More patient heights were available as dietitians were present on the unit in surge two (remote working in surge one) and were able to do bedside measures of ulna length where a height was unavailable. Using surge one data we were prepared for high numbers of patients requiring enteral feeding on admission. However there was a different picture in surge two with more patients awake, using high flow oxygen therapy or on a CPAP hood. This brought different challenges with meeting macro and micronutrients orally. Patients with breathing difficulties were not keen to consent to an NGT and when they did, the NGT insertion procedure was tricky in those patients with high Fi02. We reviewed our range of macronutrient supplements and started using an oral protein supplement containing 30 mls, 10 g protein and 100 kcal to help with this. We attended MDT meetings to discuss feeding route and for further surges we plan to implement a standard operating procedure for enteral feeding patients on CPAP.

References
Improving compliance of the ‘Malnutrition Universal Screening Tool (MUST)’ within an acute care of the elderly ward
by J. Hargan, University Hospital Hairmyres, 218 Eaglesham Road, East Kilbride, G75 8RG

Prevalence of malnutrition in acute setting is thought to be 29% on admission, however, older adults are considered to be particularly high risk especially those with multiple comorbidities or frailty\(^1\). The MUST tool has been validated for use in the acute setting to identify patients at risk who may require additional nutritional support with/without the input of a Dietitian\(^2\). NICE guidelines advise that clinical staff screen all patients for malnutrition on admission or on transfer to a ward within 24 hours and ongoing weekly\(^3\). An initial data collection was carried out in September 2020 to identify current practice of MUST on a care of the elderly ward which identified compliance rates of as little as 34%, furthermore 67% of patients did not have a recorded weight. These results were relayed back to the consultant and charge nurse responsible for the ward to discuss ways to aid compliance and improve patient care. The aim of this audit was therefore to identify if changes made were successful in improving compliance.

Data was collected within one morning (08/04/21). Ward staff were not aware of the audit taking place to avoid bias. The following parameters were obtained;

- Was a MUST obtained within 24 hours, if so was there a MUST at a later date?
- Was there an actual weight (if estimated, was a reason given)
- Was the MUST fully completed?

Improvements were seen in compliance to both weight measurements and MUST following implementation of training and visual prompts, demonstrating an increase by 47% and 9% retrospectively (see figure 1). The most significant change can be seen in obtaining a weight for patients (43% increasing to 90%). This has been achieved by the addition of yellow sheets to doors as prompts for weight and BMI. Unfortunately, it has been noted on this audit that despite majority of patients being weighed, the sections following this were not completed which affected the overall MUST compliance (34% increasing to 43%). This was evident particularly in the most recent MUST scores (within the last 7 days), however it should be noted that not all staff had completed online MUST training at this time so further re-audit will be attempted to assess the improvements following this. The changes implemented by the ward has improved awareness and compliance to all of the above measures, however further work in this area is required to meet clinical guidelines.

Figure 1. Percentage of patients with weight recorded and completed MUST

![Figure 1](image)

References


Severe Intestinal Failure (SIF) Teams care for complex and clinically vulnerable patients requiring home parenteral support (nutrition +/- Intravenous fluids) (HPS). All centres should offer patient telephone support and encourage patients to self-manage, with guidance on when to contact the team. Understand activity related to this HPN management will help define the clinical workforce resource required to support this group.

Patient electronic records were assessed at two time points (Period A: Sept 2018 – Feb 2019, Period B: Sept 2020 – Feb 2021). All patients who received HPS for either of the periods in full were included (table 1). Activity related to nurses patients homecare communication was excluded.

Table 1: HPN Activity

<table>
<thead>
<tr>
<th>Type</th>
<th>PERIOD A</th>
<th></th>
<th>PERIOD B</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 30</td>
<td>Mean (range)</td>
<td>n = 39</td>
<td>Mean (range)</td>
</tr>
<tr>
<td>MDT SIF outpatient appointment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Face 2 Face</td>
<td>40</td>
<td>1.3 (0-2)</td>
<td>51</td>
<td>1.5 (0-3)</td>
</tr>
<tr>
<td>• Telephone/Video</td>
<td>40</td>
<td></td>
<td>18</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Telephone Contact</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• SIF team initiated</td>
<td>112</td>
<td>2.1 (0-5)</td>
<td>194</td>
<td></td>
</tr>
<tr>
<td>• Patient/Carer initiated</td>
<td>64</td>
<td>1.6 (0-10)</td>
<td>91</td>
<td>2.3 (0-8)</td>
</tr>
<tr>
<td></td>
<td>48</td>
<td></td>
<td>90</td>
<td>2.6 (0-14)</td>
</tr>
<tr>
<td>Remote</td>
<td>82</td>
<td>2.7 (1-7)</td>
<td>159</td>
<td>4.1 (1-8)</td>
</tr>
<tr>
<td>Admissions to hospital</td>
<td>19</td>
<td>0.6 (0-4)</td>
<td>21</td>
<td>0.5 (0-3)</td>
</tr>
<tr>
<td>Prescription Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Prescription Changes</td>
<td>54</td>
<td>1.8 (0-6)</td>
<td>112</td>
<td>2.9 (0-8)</td>
</tr>
<tr>
<td>• Homecare company pharmacy queries</td>
<td>29</td>
<td>1.0 (0-4)</td>
<td>45</td>
<td>1.1 (0-4)</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>0.8 (0-4)</td>
<td>68</td>
<td>1.7 (0-5)</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>147</td>
<td>4.9 (0-18)</td>
<td>191</td>
<td>4.9 (1-20)</td>
</tr>
</tbody>
</table>

Twenty two patients received HPS for both periods. Remote monitoring and activity related to prescription management is increasing. This activity is out-with funded outpatient appointments. Local discussions are required to capture this activity more formally such as setting up virtual and telephone clinics.

All activity related to HPS monitoring needs to be captured. This is a challenge for the Intestinal Failure Registry. Further work is required to fully evaluate the changing focus of HPS support in terms of patient safety and experience and to help inform on workforce resource for this patient group.
Longitudinal analysis of quality of life of patients on home parenteral nutrition at a regional centre
by L. Gemmell, C. Hankins, J. Leeds, C. Kirk, N. Thompson, H. Leyland, and C. Mountford, Home Parenteral Nutrition team, Freeman Hospital, Newcastle upon Tyne, NE7 7DN

Home parenteral nutrition (HPN) is the primary treatment for patients with intestinal failure (IF). Quality of life (QOL) of patients receiving home parenteral nutrition is well documented by Baxter et al. A QOL assessment tool (HPN-QOL©) has been developed and validated specifically for this patient population. We assessed the QOL in our HPN cohort in 2016 and throughout 2019-2020. This study assesses the impact of HPN on QOL over time in this cohort. We aimed to determine if there was a significant change in relation to different aspects of QOL.

This service evaluation study was carried out in all patients on HPN without a palliative indication within a regional centre. Patients were sent the HPN-QOL© questionnaire with a prepaid return envelope. Reminders were sent out to those who did not return questionnaires initially. The questionnaire includes functional and symptom scales, global health status/QOL scales and 2 single items, all scales are transformed to scores between 0-100.

QOL data from 2016 were available for 53 patients. Of these, 16 patients have since died and a further 4 patients underwent restoration of gastrointestinal continuity and therefore discontinued HPN treatment. Repeat QOL questionnaires were sent to the remaining 33 patients. 27 patients responded (82%) and their data analysed. The median age was 57 and 12 were male (44%). Aetiology as follows: Inflammatory bowel disease (IBD) 8, Ischaemia 8, Motility 4, Radiation enteritis 2, Malignancy 1, Other 4. Median days on TPN were 5 in 2016 vs. 5 in 2019, p=0.151.

Table 1. QoL scores

<table>
<thead>
<tr>
<th>Domain</th>
<th>2016</th>
<th>2019</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coping</td>
<td>52.8 (44.4 - 66.7)</td>
<td>47.2 (33.3 - 66.7)</td>
<td>0.263</td>
</tr>
<tr>
<td>Ability to eat and drink</td>
<td>50.0 (25.0 - 66.7)</td>
<td>50.0 (20.8 - 66.7)</td>
<td>0.326</td>
</tr>
<tr>
<td>Emotional function</td>
<td>50.0 (25.0 - 66.7)</td>
<td>50.0 (25.0 - 58.3)</td>
<td>0.323</td>
</tr>
<tr>
<td>Employment</td>
<td>16.7 (0.0 - 33.3)</td>
<td>0.0 (0.0 - 16.7)</td>
<td><strong>0.027</strong></td>
</tr>
<tr>
<td>General health</td>
<td>75.0 (50.0 - 100.0)</td>
<td>50.0 (50.0 - 75.0)</td>
<td>0.083</td>
</tr>
<tr>
<td>Ability to holiday/travel</td>
<td>25.0 (12.5 - 46.9)</td>
<td>25.0 (0.0 - 35.9)</td>
<td>0.376</td>
</tr>
<tr>
<td>Nutrition team</td>
<td>100.0 (66.7 - 100.0)</td>
<td>100.0 (66.7 - 100.0)</td>
<td>0.843</td>
</tr>
<tr>
<td>Physical function</td>
<td>25.0 (16.7 - 41.7)</td>
<td>25.0 (16.7 - 41.7)</td>
<td>0.465</td>
</tr>
<tr>
<td>QoL</td>
<td>-6.7 (-24.3 - 5.83)</td>
<td>-10.0 (-23.3 - 3.3)</td>
<td>0.548</td>
</tr>
<tr>
<td>Sexual function</td>
<td>16.7 (0.0 - 33.3)</td>
<td>0.0 (0.0 - 16.7)</td>
<td>0.250</td>
</tr>
<tr>
<td>Weight</td>
<td>66.7 (33.3 - 66.7)</td>
<td>33.3 (0.0 - 100)</td>
<td>0.38</td>
</tr>
<tr>
<td>Immobility</td>
<td>46.7 (33.3 - 53.3)</td>
<td>33.3 (20.0 - 53.3)</td>
<td>0.37</td>
</tr>
<tr>
<td>Fatigue</td>
<td>66.7 (33.3 - 100)</td>
<td>66.7 (33.3 - 79.2)</td>
<td>0.49</td>
</tr>
<tr>
<td>Sleep pattern</td>
<td>33.3 (33.3 - 100)</td>
<td>66.7 (0.0 - 66.7)</td>
<td>0.88</td>
</tr>
<tr>
<td>Other pain</td>
<td>50.0 (33.3 - 83.3)</td>
<td>66.7 (35.4 - 79.2)</td>
<td>0.45</td>
</tr>
<tr>
<td>Financial issues</td>
<td>33.3 (0.0 - 50.0)</td>
<td>33.3 (0.0 - 33.3)</td>
<td>0.51</td>
</tr>
</tbody>
</table>

A significant reduction was seen in QOL scores in relation to employment 16.7 (2016), 0 (2019-20) p=0.027 and a trend towards reduction in general health. Overall QOL score is lower in 2019-2020 but not significantly (table 1). One point of note is that the scores for the nutrition team start high and remain high which is very encouraging, 100 (2016), 100 (2019-2020) p=0.843. Other domains of function and symptoms are not significantly different in this small cohort. Looking at individual patient changes will be more valuable as we continue to monitor QOL over time.

References
Micronutrients deficiency in paediatric IBD patients receiving Vedolizumab
by N. Heikal and J. Köglmeier, Great Ormond Street Hospital for Children NHS Foundation Trust, London, UK

Children with Inflammatory Bowel Disease (IBD) are at risk of malnutrition due to reduced oral intake, enteral nutrient loss and malabsorption (1). Micronutrient deficiencies are associated with poor quality of life and cognitive dysfunction (2). Regular monitoring of iron and vitamins B12 and D has been recommended, but clear guidance regarding how and when to screen for micronutrient deficiency, particularly in patients on different treatment regimes, is lacking. The aim of this study was to assess the micronutrient levels of paediatric IBD patients receiving Vedolizumab, an anti-integrin antibody, before and after starting therapy.

Children with a diagnosis of IBD who received at least 4 doses of Vedolizumab over a 2 year period (2019-2021) at large tertiary referral centre were identified from the IBD database. Age, sex, ethnic background and disease phenotype were recorded. Serum levels of vitamins B12 and D, iron, copper, selenium and zinc three months before starting Vedolizumab and after a minimum of 4 doses were retrospectively collected from the electronic patient records.

14 children (8 female) fulfilled the inclusion criteria, the median age 14. 6/14 patients (43 %) had a diagnosis of Crohn’s disease, 5/14 (36%) Ulcerative Colitis and 3 (21%) IBD-U. Iron levels were checked in 93% of patients before the start of Vedolizumab and on treatment followed by vitamin D (before treatment: 93%, follow up: 57%) and vitamin B12 (before treatment: 79%, follow up: 50%). Copper, selenium and zinc were never screened in 11 patients (79%).

Amongst those who had their levels checked iron deficiency was found in 5/13 (38%) children prior to treatment. On follow up, the iron levels of all these had returned to normal. Low levels of vitamin B12 were seen in only 1/11 (9%) child before treatment and in a further one on follow up. Vitamin D deficiency was found in 8/13(62%) patients before treatment, 5 (63%) of those patients did not have follow up the remaining 3 had normal levels on follow up. None of the participants screened (3/3) had a low copper. Selenium was found deficient in 3/3 (100%) patients before treatment and 2/2(100%) on follow up. A low zinc was recorded in 2/3 (66%) before treatment and 1/2 (50%) on follow up.

Our results shows that micronutrient deficiencies are a persistent problem in children with IBD despite biological therapy. Regular monitoring of iron, vitamins D and B12 is recommended and deficient patients should be started on adequate supplementation. Given the relatively common occurrence of trace metal deficiencies, we also propose regular screening for low levels of copper, selenium, and zinc, although our cohort was small and larger studies should follow.

References:
Use of Patients Know Best as a tool to improve patient engagement and deliver a digital dietetics service to kidney patients
by K. Durrans, J. Barker, Hull University Teaching Hospitals NHS Trust, Hull Royal Infirmary, Anlaby Road, Hull, HU3 2JZ

Patient initiated follow up is being supported by NHS England and NHS Improvement\(^1\) to offer flexibility with follow up care and promote self-management and enable shared decision making. As a means of undertaking this, citizen held health records via web passed portals have become a new feature within clinical services, especially during the Covid-19 pandemic. It has been discussed elsewhere\(^2\) what benefits may be gained from using digital web based portals to improve patient engagement and self-management by patients with kidney disease. As a team of kidney dietitians, the citizen health held record known as Patients Know Best (PKB) was adopted as the portal of choice for use with patients as a means of patient initiated follow up and service improvement.

A six month pilot phase was undertaken between September 2020 - March 2021 in which willing and interested patients had the opportunity to register on to the Kidney Dietitians’ PKB page. Upon registering the patients were able to use a two way message function which means direct access to their kidney dietitian, a full library of information ranging from YouTube tutorials, departmental information leaflets, links to charity websites, free cook books available on the internet and links to other platforms such as Humber Health Apps and Patient View. Dietitians had the ability to electronically undertake nutritional screening, bowel assessment questionnaires using PKB and could also send 24hr food recalls and 5 day food diaries (known as consultations) for completion ahead of booked appointments via telephone or video. PKB is also being used as a teaching aide during face to face and remote consultations to promote patient empowerment and self-care\(^3\).

Data from the pilot phase showed that 49 patients had registered with the platform. In terms of instant messaging, 43% of messages had been instigated by the patient. Approximately 90% of messages received by the dietitians were read and responded to with 24 hours. Data also revealed that 100% of consultations initiated by the dietitian had also been completed within 24 hours enabling timely intervention.

Due to the success of the pilot phase, a mail shot has now been sent to all dialysis patients (circa 400) offering them the opportunity to register with the Kidney Dietitians PKB site and a further consultation has been designed and added to PKB for audit data collection purposes.

References
1. ‘Patient initiated follow up: Giving patients greater control over their hospital follow up care’ Last accessed from https://www.england.nhs.uk/outpatient-transformation-programme/patient-initiated-follow-up-giving-patients-greater-control-over-their-hospital-follow-up-care/ on 02.07.2021
3. ‘The ‘future is bright’ for patients of the kidney dietetics service’ Patients Know Best last accessed from https://patientsknowbest.com/2021/04/26/hull-kidney/ on 02.07.2021
An evaluation of nutritional status and specific nutritional issues during a rehabilitation period post COVID-19 infection
by A. Browne¹, L. Fallon¹, A. Wrenne¹, H. Mellett¹, S. Brady¹, C. Cunningham².
¹ Department of Clinical Nutrition, St James’s Hospital, Dublin, Ireland
² Department of Medicine for the Elderly, St. James’s Hospital, Dublin, Ireland.

Patients recovering from COVID-19 infection are at a high risk of malnutrition, reduced nutritional intake and decline in muscle mass and strength.¹

The aim of this service evaluation is to describe baseline characteristics, quantify risk of malnutrition, provide an overview of nutritional status and nutritional related outcomes for patients recovering post COVID-19 infection on rehabilitation wards.

Data collection occurred between the 1st of February and the 1st of July 2021. This cohort included all patients who were recovering from COVID-19, who were referred to dietetic service and transferred to a rehabilitation ward. Demographic data and nutritional parameters were gathered from electronic records, and dietetic assessments.

A total of 54 patients were included: 59% male, 41% female. Ages ranged from 46 to 95 years with average age of 79.9 years and average length of hospital stay of 92 days. One fifth of those included had an ICU stay. Where data was available on sarcopenia risk, 50% were identified as at risk of sarcopenia. Of those where serum 25-hydroxyvitamin D was checked, 45% had insufficient vitamin D levels. A nutrition focused physical exam was completed for 18 patients (one third of the cohort). Using this exam, 61% were diagnosed with moderate or severe malnutrition. At least 15% of patients experienced significant weight loss between their admission to the hospital compared to their weight on admission to post COVID-19 rehabilitation ward. Of those where Malnutrition Screening Tool was completed on admission to COVID-19 rehabilitation ward, 33% were identified as at risk of malnutrition. On discharge from the dietetic caseload, the proportion of those identified at risk of malnutrition using this tool decreased to 18%. During the period from admission to COVID-19 rehabilitation ward and discharge from dietetic service, 42% gained weight, 54% maintained their weight, 4% lost weight. Of those with data available regarding nutritional intake on admission to COVID-19 rehabilitation ward, 28% met energy requirements and 44% met protein requirements. On discharge from dietetic service these proportions increased to 66% meeting energy requirements and 74% meeting protein requirements. The average kcal intake on admission to COVID-19 rehabilitation increased from 1531kcal to 1778kcal on discharge and the average protein intake increased from 67g on admission to post COVID-19 rehabilitation to 75g on discharge.

These results demonstrate the high prevalence of malnutrition and high risk of sarcopenia in patients admitted for rehabilitation post COVID-19 infection. With dietetic input, improvements were observed in patient’s nutritional intake, and nutritional outcomes such as weight and malnutrition risk. These results illustrate the need for early dietetic input in those recovering post COVID-19 infection to optimise nutritional status and nutritional outcomes.

References:
Implementation of the Royal Pharmaceutical Society Professional Standards for Homecare to invoice management of Home Parenteral Nutrition
by S. L. Zeraschi, G. Juuremaa, D.C. Moss and C.A. Smillie, Pharmacy Department and Intestinal Failure Teams, St. James’s University Hospital, Beckett Street, Leeds, LS9 7TF, UK

Home Parenteral Nutrition (HPN) is a high tech homecare service. Patients are under the care of specialist Intestinal Failure teams, and funding for homecare is provided by NHS England. The Hackett report in 2011 sought to improve financial and clinical governance arrangements for patients receiving medicines via the homecare route. A workgroup developed Professional Standards for Homecare Services (Royal Pharmaceutical Society, 2013). Standard 9.2 refers to Financial governance, and states “payments due to that contractor under the homecare service are not unreasonably withheld or delayed”, and “product access and contract pricing is in accordance with their service specification”.

In this large specialist centre, the process to manage invoices was seen to add delays in making payments to homecare providers. In addition, there was little check in place to give assurance that the homecare providers were invoicing according to the framework contract prices, and according to the prescription.

When a prescription was prepared, the HPN pharmacist would update a spread sheet with the details of that prescription. On receipt of every invoice, the pharmacist or team coordinator would identify the patient, and check the invoice against the spread sheet for accuracy. If approved, the patient NHS number and checker signature were added to the invoice, and sent to the invoicing team to process for payment. “HPN kits” (HPN +/- HPN nursing) were booked out to the patient on the pharmacy system (JAC). Invoices then went to finance to pay the homecare provider, and invoice NHS England. Any invoices in query were followed up by the HPN pharmacist with the homecare provider. It is estimated that the HPN pharmacist and team coordinator would spend approximately one day per week checking invoices, plus time to deal with queries.

A new process was developed that removed reliance on clinician checking of invoices prior to payment. A homecare pharmacy assistant practitioner raises a purchase order number (PON) for the products and services required using JAC. The PON is annotated onto the prescription, and then sent to the homecare provider. Invoices with the corresponding PON are received directly into the pharmacy invoicing team and booked out to the patient on JAC. Instead of HPN kits, individual separate costs per band / item / service are booked, enabling an audit trail of what the patient has been prescribed. Invoices are then sent to finance for processing. Any invoices with queries are set aside for frequent, regular follow up by a specialist homecare pharmacy assistant practitioner.

The overall time spent processing invoices may not have been reduced, however, the delays in processing invoices have been eliminated. Having a designated person to liaise with homecare providers on a regular basis allows early identification of trends in errors, and rapid resolution of queries. Payment of invoices has become more efficient and timely, and ensures that specialist clinician time can be spent on direct patient care. The process was assessed against the Homecare Standards Audit Toolkit, to ensure compliance with the standards and new standard operating procedures support the process.

References
Can British Association of Parenteral and Enteral Nutrition online modules support undergraduate inter-professional nutrition education?
by E. Macaninch and K. J. Martyn, Education and Research in Medical Nutrition Network (ERimNN), School of Health Sciences, University of Brighton, BN1 9SF, UK and Brighton and Sussex Medical School, Sussex University, Brighton.

During 2020-21 medical and nursing undergraduate courses were mainly taught online. Online learning is not new, and while this was challenging to students and educators it provided an opportunity to review existing resources and for collaborative evaluation and module development. Despite the importance of nutrition education for all health professionals the difficulties in increasing nutrition content within curricula is well documented. We wanted to explore the experiences of students as they engaged with nutrition modules produced by the British Association of Parenteral and Enteral Nutrition (BAPEN), drawing on the student experiences of online learning over the last year as a potential learning resource to assist with implementation of the UK Undergraduate Curriculum In Nutrition for Medical Doctors.

We utilised a collaborative approach to complete an independent educational evaluation of BAPEN online modules completed as part of an 8-week student selected component on the value of on-line learning within medical education and with nursing student volunteers. An educational evaluation survey consisting of open and close-ended questions was developed by the teaching team to assess medical student confidence in their Knowledge, Attitudes and practice (KAP) of clinical nutrition prior to (‘pre-course’) and after completing BAPEN online modules (‘post-course’). Participants completed Likert-type questions, with a scale ranging from 1 (Very Unconfident) to 5 (Fully Confident). Free text responses explored the students’ views on suggested improvements and opinions on the utility and placement of BAPEN modules. Open-ended responses and reflections were organised using thematic analysis.

Fifteen medical students and fifteen nursing students participated in the review. The results were shared with the BAPEN teaching team to assist with the re-design of current BAPEN modules. Emerging themes include: 1. Student acceptability of BAPEN modules, with an appreciation of the improved flexibility, efficiency, reliability, and equitable accessibility of materials. 2. A blended learning preference to supplement modules with face-to-face discussion, clinical exposure and practice to consolidate and integrate learning. 3. The importance of interactivity to include case studies, quizzes and visual aids. 4. The importance of variety to include visual, auditory and kinaesthetic activities to maintain interest and to appeal to different types of learners.

This collaborative educational review offers a potential practical solution to aid nutrition curriculum implementation, utilising available online resources, to reduce the need for lecture space, provide a more flexible resource for students in different locations and to ensure consistency across all UK medical schools. This can potentially assist with exam preparation for the new UK wide medical licencing exam and can potentially support a universal foundation for safe nutrition clinical practice.

BAPEN modules can provide standardised and flexible nutrition education, with potential to include in UK medical and nursing undergraduate learning. Co-production with students may improve student acceptability but wider student and faculty appraisal is warranted.

References:
3. BAPEN E-Learning Portal (accessed 30th June, 2021 at e-Learning Portal (bapen.org.uk)).
4. AFN Inter- Professional Working Group On Medical Nutrition Education. UK Undergraduate Curriculum In Nutrition for Medical Doctors Published: October 202.
Micronutrient deficiencies following surgery for oesophagogastric cancer - is there a need for introduction of a novel nutritional pathway?
by M. Boland, F. MacLeod and C. Deans, on behalf of the Upper GI Surgical Team, Royal Infirmary Edinburgh, 51 Little France Crescent, Edinburgh, UK, EH16 4SA

Micronutrients are essential for optimal health. Deficiencies may result in reduced psychological wellbeing, increased fatigue, reduced performance status and consequently impaired quality of life. Management of micronutrients is an area often overlooked in standard pathways for patients who have undergone surgery for oesophagogastric cancer. Improved outcomes and survivorship following radical treatment for these patients mean we can no longer overlook micronutrient deficiency which may have a detrimental effect on patients quality of life and wellbeing following surgery (I). We hypothesised that micronutrient deficiencies are common among patients following surgery for oesophagogastric cancer. Our aim was to investigate micronutrient deficiency in post-operative patients and to then use this data in formulating a nutrition pathway providing guidance on supplementation and monitoring for this patient group.

Blood samples were collected from patients attending the outpatient clinic for routine post-operative review over a six month period. Micronutrient levels were measured for each patient (vitamins A, B1, B2, B6, B12, D, E, copper, zinc, selenium, parathyroid hormone (PTH), folate, iron studies, calcium and phosphate). The time interval from surgery was recorded and patients were asked to report if they were consuming supplementary vitamins.

Data was collected for 40 patients; 25 oesophagogastrectomy patients, 15 subtotal/total gastrectomy patients. The median time interval from surgery was 8 months (19 patients were within 6 months of surgery and 13 patients were longer than 18 months following surgery). Eight patients were taking supplementary iron tablets, 4 were taking additional vitamin D and 13 were receiving vitamin B12 injections.

Thirty-seven (93%) patients had at least one micronutrient deficiency. Vitamin D deficiency was the commonest deficiency (24 patients; 60%) followed by zinc (22 patients; 55%). Six patients with vitamin D deficiency had elevated PTH concentrations. Nineteen (48%) patients were found to have low haemoglobin of mixed aetiology.

In this small data set there was no association between type of surgery (oesophagectomy vs gastrectomy) and micronutrient deficiency. Similarly there was no association between micronutrient deficiency and longer time interval following surgery, except for PTH where elevated concentrations were associated with longer time interval post-operatively (p=0.005, Pearson correlation).

Micronutrient deficiency is common following surgery for oesophagogastric cancer. Vitamin D deficiency is especially common with some patients developing long-term sequelae represented by elevated PTH. Zinc deficiency and anaemia of mixed aetiology were also common. We devised a novel nutritional pathway to address the micronutrient deficiencies that were identified. We feel that all patients with upper gastrointestinal cancer should receive multivitamin and mineral supplementation with high dose vitamin D.

References
Prevalence of vitamin D deficiency in critically-ill COVID-19 patients
by L. Stokes and M. Dawson, Leicester Royal Infirmary, University Hospitals of Leicester NHS Trust, Infirmary Square, Leicester, LE1 5WW, UK.

The role of vitamin D in supporting the body’s immune response to respiratory viruses has become a topic of significant interest during the COVID-19 pandemic, especially for critically-ill patients with severe respiratory failure. We therefore were interested in examining the prevalence of vitamin D deficiency in adult patients admitted to our critical care unit due to COVID-19 infection during the second surge of the virus in the UK.

Due to vitamin D being a negative acute phase reactant and serum concentration falling in the presence of a systemic inflammatory response, and following local multidisciplinary discussion involving a Consultant Biochemist, a pragmatic recommendation was made to consider assessing for vitamin D deficiency in patients with (a) a deranged serum adjusted calcium, phosphate or alkaline phosphatase, or (b) evidence of vitamin D supplementation prior to hospital admission.

Retrospective data was examined for 168 patients admitted to critical care from 04.10.20 to 04.04.21 and analysed using an excel spreadsheet. Local diagnostic cut-off values determined if serum vitamin D level was deficient, suboptimal or adequate.

Table 1 below summarises the results for 33/168 patients (19.6%) who had a serum vitamin D result available.

<table>
<thead>
<tr>
<th>Serum vitamin D (nmol/l)</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deficient</td>
<td>&lt;25</td>
</tr>
<tr>
<td></td>
<td>17 (51.6%)</td>
</tr>
<tr>
<td>Suboptimal</td>
<td>25-50</td>
</tr>
<tr>
<td></td>
<td>8 (24.2%)</td>
</tr>
<tr>
<td>Adequate</td>
<td>&gt;50</td>
</tr>
<tr>
<td></td>
<td>8 (24.2%)</td>
</tr>
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</table>

Acknowledging the small number of tests within our patient population, our results demonstrate a high prevalence of patients (>50%) with a vitamin D level indicative of deficiency. If combined with those with suboptimal levels, this increases further to 75.8%.

Interestingly, of the 134 patients (80.4%) with no serum vitamin D result, there was a high prevalence of recognised risk factors for deficiency such as age, presence of obesity and non-white ethnicity. It is also key to consider the impact of reduced sunlight exposure due to seasonality and COVID-19 lockdown restrictions on the vitamin D status of the whole UK population, which led to reissued government guidance\(^1,2\) that more people should consider taking a daily vitamin D supplement.

Recent clinical guidance identifies that at present, there is little evidence available for vitamin D for preventing or treating COVID-19 but it acknowledges that a low vitamin D status is associated with more severe clinical outcomes\(^3\). We support the recommendation that further research is required in this area, including patient outcomes, and if routine vitamin D supplementation could benefit critically-ill COVID-19 patients.

References
Implications of pre-operative NG fasting on nutrition in major burn patients: an audit of practice
by B.H. Khera, N. Lancaster and C. Lewis, Northern Regional Burn Centre, Royal Victoria Infirmary, Queens Road, Newcastle-upon-Tyne, NE1 4AP, UK.

Background
The hypermetabolic response seen following a major burn injury increases protein and energy requirements, necessitating the early establishment of enteral feeding. Early gastric feeding reduces the risk of gastrointestinal bacterial translocation, ileus, gastric ulceration and addresses the increase metabolic demands of the patient. Nasogastric feeding is commonly employed as a first line method of enteral feeding. However this needs to be stopped pre-operatively during the fasting period in a cohort of patients who attend the operating theatre frequently on their road to recovery, thereby resulting in missed calories and protein. Post-pyloric feeding such as Nasojejunal (NJ) feeding is an alternative method of enteral feeding that can continue during surgery and can be used in gastric stasis.
In this audit we want to determine the calorie and protein loss in major burns patients at the Northern Regional Burn Centre who have had enteral feeding via the nasogastric route.

Methods
A retrospective analysis of the NG feeding and fasting times was carried out for major burns patients at the Royal Victoria Infirmary in Newcastle from 2019 to 2021. Nine patients were identified and their NG feeding prescriptions and delivery times were looked at. The number of calories and protein prescribed by the dietitian were compared against the amount missed when the NG feed was paused. A percentage loss was calculated for each parameter.

Results
Of the 9 patients analysed over the 3-year period, the calories lost ranged from 2226kcal to 23,929kcal. Of the individual prescribed calorie intake, the calorie loss was from 7% to 39% with a mean calorie loss of 17.6%. The protein lost ranged from 143g to 1,240g. Of the individual prescribed protein intake, the protein loss was from 7% to 40% with a mean protein loss of 19.4%.

Conclusion & Intervention
The use of NG feeding in major burns patients in ITU results in large calorie and protein loss when feed is stopped during the fasting period preoperatively. NJ feeding is an alternative method of enteral feeding and should be considered in major burn patients. We recommend that the addition of NJ feeding as an alternative method of enteral feeding to the NUTH burns nutritional policy would help optimise the management of major burns patients by minimising nutritional losses.
Malnutrition risk and the need for dietetic intervention post COVID-19 infection on a care of the elderly rehab ward
by Michelle Savage, L. Dooley, S. Brady and H. Mellett, Clinical Nutrition Department, St James’s Hospital, Dublin, Ireland.

Patients recovering from COVID-19 are at high risk of malnutrition, reduced nutritional intake and decline in muscle mass and strength with many requiring significant rehabilitation. The aim of this service evaluation is to quantify the risk of malnutrition and provide an overview of nutritional status and outcomes with dietetic input on a care of the elderly rehab ward.

Demographics were collected from patient electronic records. Malnutrition risk, handgrip strength and Vitamin D levels were measured along with calculation of nutritional requirements.

Of sixteen patients on the rehab wards post COVID-19, 81% (n=13) required dietetic input.

<table>
<thead>
<tr>
<th>Total number of patients (N)</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age (Years)</td>
<td>77 (61-92)</td>
</tr>
<tr>
<td>Gender (%) Male: Female</td>
<td>69:31</td>
</tr>
<tr>
<td>Average BMI (kg/m2)</td>
<td>24.6 (17.8-42.3)</td>
</tr>
<tr>
<td>Active patient on dietetic caseload on transfer to rehab ward</td>
<td>69% (n=11)</td>
</tr>
<tr>
<td>MST ≥2 (%)</td>
<td>50</td>
</tr>
<tr>
<td>At risk of sarcopenia (%)</td>
<td>69</td>
</tr>
</tbody>
</table>

Table I. Patient demographics

There was an average weight loss of 5.1kg (6.6%) (p=0.64). Eighty one percent had a reduction in their BMI, with 31% moving into a lower BMI category. Measurably reduced and impaired muscle function was evident when handgrip strength was measured. Eighty five percent required oral nutrition support. Additional advice for dysphagia, diabetes and renal disease was provided to 65% of patients. Following dietetic intervention, energy and protein intake improved in all patients. Sixty four percent were either insufficient or deficient in Vitamin D.

The data obtained demonstrates the high prevalence of malnutrition in patients on a rehab ward post COVID-19. Furthermore the data highlights the clear need for dietetic intervention in this nutritionally vulnerable group to optimize nutritional status.

References
Nutrition in critical care: An audit of protein and energy intakes compared to international recommendations
by E. O’Sullivan¹, F. Barron¹, C. Hughes¹, A. Wrenne¹, E. O’Connor,² ¹Department of Clinical Nutrition, ²Department of Anaesthesia, Intensive Care and Pain, St. James’s Hospital, Dublin, Ireland

Adequate protein and energy provision in critical care is associated with better clinical outcomes. The aim of this audit was to evaluate compliance with achieving recommended protein and energy targets in our Intensive Care Unit (ICU) and to explore the reasons for any deficits identified.

Nutrition parameters were collected on patients admitted to our ICU between March and May 2021. Inclusion criteria were requirement for nutritional support and mechanical ventilation with an ICU length of stay ≥ 4 days. Patients with COVID19 were excluded. Protein and energy intakes were compared to best practice guidelines¹.

51 patients met the inclusion criteria: 53% male, 47% female. Mean age was 59.6 years and mean length of stay was 19.9 days (range 5-61 days). Protein and energy intakes achieved as follows:

<table>
<thead>
<tr>
<th>Requirements achieved</th>
<th>Protein (% of patients)</th>
<th>Energy (% of patients)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>35% (n =18)</td>
<td>37% (n=19)</td>
</tr>
<tr>
<td>≥ 80%</td>
<td>69% (n=35 )</td>
<td>77% (n=39)</td>
</tr>
<tr>
<td>&lt; 80%</td>
<td>31% (n=16 )</td>
<td>23% (n=12)</td>
</tr>
</tbody>
</table>

Table 1: Protein and Energy requirements achieved.

Of the patients who received < 80% of their nutritional requirements, the main barriers to achieving targets identified were fasting and constipation in this cohort.

Cumulative deficit ranged from 0 - 903g protein and 0 - 12717kcal over duration of ICU stay. Mean deficit was 315g protein and 2945kcal. Of concern, 12 patients had a deficit of > 500g protein and 7 patients had > 5000kcal deficit.

While 69% of patients met ≥ 80% protein requirements and 77% of patients met ≥ 80% energy requirements, we have identified areas to consider to improve nutritional adequacy including increasing awareness of minimising fasting times and the introduction of a bowel management protocol.

References:

Disclosure of Interest: None Declared
Quality of life of patients on home parenteral nutrition at a regional centre
by L. Gemmell, C. Hankins, J. Leeds, C. Kirk, N. Thompson, H. Leyland, and C. Mountford, Home Parenteral Nutrition team, Freeman Hospital, Newcastle upon Tyne, NE7 7DN

Home parenteral nutrition (HPN) is the primary treatment for patients with intestinal failure (IF). Quality of life (QOL) of patients receiving home parenteral nutrition is well documented by Baxter et al. A QOL assessment tool (HPN-QOL©) has been developed and validated specifically for this patient population. Other QOL assessment tools have been developed. We assessed the QOL of our current cohort throughout 2019-2020.

This was a service evaluation study carried out in all patients on HPN without a palliative indication within a regional centre. Patients were sent the HPN-QOL© questionnaire with a prepaid return envelope. Reminders were sent out to those who did not return questionnaires initially. The questionnaire includes functional and symptom scales, global health status/QOL scales and 2 single items, all scales are transformed to scores between 0-100. Analyses compared QOL scores by aetiology, sex, age (55 or less vs >55), bags per week (2-4, 5 and 6-7), stoma (yes or no) and duration of HPN (<2 years vs >2 years). Statistical analysis was performed using the Kruskal-Wallis test.

88/137 (64%) patients returned their questionnaire. The median age was 63 years and 33/88 (37%) were male. Aetiology as follows: Inflammatory bowel disease (IBD) (n=30), Ischaemia (n=17), Motility (n=12), Malignancy (n=9), Radiation enteritis (n=2) and Other (n=18). Patients on 6-7 bags PN/week had poorer QOL scores for ability to eat and drink compared to those on 5 or less (33.3, p=0.008) and those on 5 bags PN/week were less fatigued compared than those on 2-4 and 6-7 (50.0, p=0.05). Patients with motility disorders reported a significantly poorer QOL for ability to eat and drink (33.3, p=0.004), GI symptoms (77.8, p=<0.001) and other pain (66.7, p=0.025). IBD patients reported less concerns in relation to their weight (0.0, p=0.024). Patients with a stoma reported better QOL scores for ability to eat and drink (50.0, p=0.004), GI symptoms (22.2, p=<0.001) and other pain (50.0, p=0.042) yet a poor QOL score for employment (0.0, p=0.011). QOL was not shown to be significantly associated across aetiologies with other domains of functions and symptoms.

Despite a high percentage of returned questionnaires, this study is limited by representing only a snapshot of HPN patients and QOL measures. Subgroup analysis particularly by aetiology involved small numbers, and therefore it is difficult to draw definite conclusions. In the current cohort of patients on HPN we found that those patients on 5 bags/week were less fatigued. Patients with a stoma reported less GI symptoms and other pain. It is important to note that patients with motility disorders have poorer QOL associated with symptoms of pain compared to other aetiologies of IF. All of these factors need to be considered and conversations tailored when discussing options for further treatment of IF and changes to HPN regimens. QOL should be assessed on a longitudinal basis to identify areas of improvement for HPN service and personalised care.

References
Optimisation of an inpatient parenteral nutrition formulary in a secondary care hospital
by P.Y.P. Chu, S. Patel, E.L. Noble, A.P. Holehouse, J.E. Scantlebury and S.L. Zeraschi, Intestinal Failure Team, Bexley Wing, St James’s University Hospital, Leeds Teaching Hospitals, Beckett Street, Leeds LS9 7TF, United Kingdom.

Compounding units, both in hospital aseptic units and nationally, are under significant pressure. This has led to a national drive to standardise prescribing of parenteral nutrition (PN). The aim is to reduce the need for custom, bespoke bags and maximise the use of standard multi-chamber PN. Nutritional requirements recommended by PENG also changed in 2018 – both of these factors led to the critical evaluation of the suitability of inpatient parenteral nutrition bag range on the hospital formulary.

The ideal route for PN administration is via a central vascular catheter as osmolarity limits options for peripheral administration. Target nutritional requirements for our cohort were calculated and a suitable range of standard multi-chamber PN bags available on the market reviewed. A combination of electrolyte containing, and electrolyte free PN was selected. Although it may seem logical to select electrolyte free standard PN bags for in-house aseptic manipulation, this must be balanced with the risk of introducing microbial contamination because each in-house electrolyte addition increases this risk. Assessing aseptic pressures in conjunction with the flexibility to change electrolyte content in electrolyte free standard PN for patients with biochemical instability was also required.

Unlicensed PN bags with trace elements/vitamin additions were selected to release aseptic capacity. These had the advantage of extended expiry dates in comparison to standard multi-chamber PN (manipulated in-house under the Section 10 exemption). However, using unlicensed PN placed restrictions on changes to the electrolyte components, as they could not undergo further aseptic manipulation in-house. Storage and nomenclature of PN also required consideration to reduce wastage and picking error. Unlicensed PN had been selected to fulfil the nutritional demand for the build-up phase of PN feeding. Electrolytes, macro-ingredients and volume were the three factors to balance out in order to rank for suitability for PN build up for type 1, 2 and 3 intestinal failure (IF) patients.

Outsourcing PN externally was an option to explore if an in-house aseptic unit was not available. However, this would be a less flexible option, with reduced ability of change in response to alterations in clinical progress; therefore it was vital to include standard multi-chamber bags to optimise nutrition.

As a centre for managing type 2 and 3 IF patients requiring home PN, the inpatient hospital formulary had to cater for those working up for discharge in order to trial the use of standard multi-chamber bag, either as a standalone regimen, or as part of a ‘blended’ approach where a mix of standard and custom bespoke PN bags were used.

This abstract summarises the key features essential to optimise a hospital trust’s PN formulary. Consideration must be given to patient variability, IF types, aseptic capacity, storage, usage volume, in addition to outsourcing potential.

References
Critically ill patients with and without SARS-CoV-2 better achieve energy and protein targets with a high-energy, high-protein peptide-based enteral tube feed; insights from a multicentre clinical audit performed during the COVID-19 pandemic

by B. Green¹, M. Phillips², L. Morgan³, K Hughes⁴, E. Terblanche⁵, S. King⁶, A. Fiddes⁷, K. Atwal¹, G.P. Hubbard¹, R.J. Stratton¹,².

¹Medical Affairs, Nutricia, BA14 0XQ, UK; ²Royal Surrey County Hospital, GU2 7XX, UK; ³The Grange University Hospital, NP44 8YN, UK; ⁴Nevill Hall Hospital, NP7 7EG, UK; ⁵St George’s Hospital, SW17 0QT, UK; ⁶Cheltenham General Hospital, GL53 7AN, UK; ⁷Northumbria Specialist Emergency Care Hospital, NE23 6NZ, UK; ⁸Faculty of Medicine, University of Southampton, SO16 6YD, UK.

Meeting energy and protein requirements in critically ill patients is important for prognosis, yet difficult to achieve as a consequence of disease, management and/or altered nutritional intake[1]. Improvements in achieving energy and protein requirements with a high-energy, high-protein peptide-based tube feed were observed in community patients with impaired gastrointestinal function[2]. To establish whether this remained true in the critical care setting, where feeding intolerance is observed frequently in patients with[3] and without SARS-CoV-2[4], a retrospective multicentre audit was performed.

Adults (> 18years) with or without SARS-CoV-2, admitted to critical care across 6 UK hospitals between May 2020 and December 2020, were retrospectively included if they received a peptide-based enteral tube feed (Nutrison Peptisorb Plus HEHP®, Nutricia Ltd), containing 1.5kcal/ml and 7.5g protein/100ml (herein referred to as HEHP). Data were collected from 15 critically ill patients (52±12y; 87% male), with mean length of hospital stay being 26days (range: 7-49days). Of these, 10 were SARS-CoV-2 positive, with the remainder having pancreatitis (n=3), delayed gastric emptying (n=1) or unconfirmed diagnosis (n=1). HEHP was used second line (after whole protein) and indications (multiple were cited for some) for use included tolerance issues (n=10), elevated energy and protein requirements (n=5) or due to primary diagnosis (n=2). Estimated energy and protein intakes (% of requirements achieved) were recorded before and during use of HEHP. In addition, Dietitians were asked whether HEHP allowed patients to better meet their nutrient target

Mean intake of HEHP was 2008±461kcal/day and 100±23g protein/day provided over a mean of 12days (range: 3-29days). The percentage of estimated energy and protein targets achieved increased albeit non significantly with the use of HEHP (from 76% before vs 87% during use of HEHP for both) and the direction of effect remained true regardless of SARS-CoV-2 status. Two thirds (67%, n=10 of 15) of Dietitians reported HEHP helped patients better meet their nutrient targets and 87% (n=13 of 15) of Dietitians perceived the high protein content of HEHP as beneficial for this patient group. Gastrointestinal tolerance (anecdotal reports) remained largely unchanged in approximately half of SARS-CoV-2 positive patients when using HEHP yet improved for others including non-SARS-CoV-2 patients.

Enteral tube feeding in critically ill patients poses numerous difficulties, especially in SARS-CoV-2 positive patients. This audit in critically ill patients demonstrates that a high-energy, high-protein, peptide-based enteral tube feed can help complex patients better achieve energy and protein targets in patients with and without SARS-CoV-2.

References
OC57

Tracheal and Gastric pH study: Is pH testing for NGT confirmation in the critically ill still safe?
by JP. McNally-Reilly, S. Giannaraki, J. Wilcox, NA. Barrett, R. White and L. Wandrag, Adult critical care, Guy’s and St Thomas’ NHS Foundation Trust, London, SE1 7EH, United Kingdom

Delivering enteral feed or medications through a naso-gastric feeding tube (NGT) placed into the lung causes major morbidity.¹ To prevent this from occurring an accurate means of assessing NGT placement is essential. In the UK, the National guidelines for assessment of NGT position includes the measurement of gastric aspirate pH (<5.5) and assessment of tube placement using x-ray if indeterminate.¹ However there is little evidence to support this as a safe approach in critically ill patients.² The aims of this study were to determine the prevalence of acidic tracheal pH in critically ill patients to assess the safety of the current first-line aspirate pH method of NGT confirmation in critical care.

Simultaneous pH measurements were taken for aspirates obtained from the NGT, subglottic port and tracheal samples in 106 ventilated patients from June - November 2019 at a university-affiliated, tertiary hospital. The pH from the three sites was obtained and recorded once per nursing shift and electronically entered. Any sample taken as a non-directed bronchial lavage (NBL) also had the pH recorded. Baseline demographic data, relative time of NBL to sampling, and presence of medications used to suppress gastric acid production were recorded. Patient’s notes were reviewed by the authors for history or suspicion of aspiration, and documented episodes of emesis. Institutional approval was given for this work Descriptive statistics were used to describe the distribution of pH from each site with specific note made of any instances of pH <5.5. Spearman’s correlation were performed between subglottic and tracheal aspirate data.

Data were included for 106 patients. Demographics include: mean age of 58.9 years, 78.3% referred from a medical speciality, average APACHE II score 14.6, average SOFA score 7.2, and 28.9% mortality rate overall. Analysis of all aspirates collected demonstrated a significant proportion within both subglottic and sputum aspirates of a pH <5.5, 5.3% and 6.3% respectively, see Table 1. Fifteen patients accounted for the 27 acidic subglottic aspirates and four patients for the 7 sputum aspirates. Of note, there was a large proportion of NGT aspirates with a pH >5.5, 70.8%. Analysis of simultaneous sputum and subglottic demonstrated a positive correlation, r= 0.52 (Confidence Interval 0.31 - 0.69), p < 0.0001.

Table 1 - Summary of data points collected from subglottic, nasogastric and sputum aspirates

<table>
<thead>
<tr>
<th></th>
<th>Subglottic</th>
<th>Nasogastric</th>
<th>Sputum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>513</td>
<td>510</td>
<td>111</td>
</tr>
<tr>
<td>Mean pH</td>
<td>6.5</td>
<td>5.3</td>
<td>6.9</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.4</td>
<td>1.8</td>
<td>1.6</td>
</tr>
<tr>
<td>No. pH &lt; 5.5</td>
<td>27</td>
<td>149</td>
<td>7</td>
</tr>
<tr>
<td>Percentage pH &lt; 5.5</td>
<td>5.3</td>
<td>29.2</td>
<td>6.3</td>
</tr>
</tbody>
</table>

This study demonstrated a large number of acidic samples outside of the gastrointestinal tract, 5.3% subglottic and 6.3% sputum, with a simultaneously high proportion of aspirates from the gastrointestinal tract not being acidic (70.8%). Given that the pH in tracheal and subglottic examples was moderately correlated, it is possible that the acidic pH in the airway was due to micro-aspiration past the cuff of the endotracheal tube.³ ⁴ This raises the possibility that any patient with significant glottic dysfunction and either macro- or micro-aspiration may have an acidic tracheal pH, and raises doubts about the safety validity of pH testing as a means of confirmation of correct placement of an enteral feeding tube in this population. The elevated pH in the gastric samples is likely to be due to the use of protein pump inhibitors as a medication for stress ulcer prophylaxis in the critically ill patient cohort. The data presented suggests that pH testing as a means of confirmation of NGT placement in the critically ill may not be a safe first-line confirmation method. There is an urgent need to develop a safe method to confirm NGT placement in the critically ill.

References
Characteristics and nutritional outcomes of patients recovering from COVID-19 infection post intensive care admission
by M. Savage¹, S. Brady¹, M. Fitzmaurice¹, and H. Mellett¹, ¹Clinical Nutrition Department, St James’s Hospital, Dublin, Ireland

Patients transferred out of intensive care recovering from COVID-19 infection are at high risk of malnutrition¹. Untreated malnutrition has the potential to increase length of stay and increase morbidity and mortality. To inform service planning we aimed to describe nutritional status and dietetic outcomes of patients recovering from COVID-19 infection post ICU admission.

Baseline data was collected retrospectively from patient electronic records and included age, gender, comorbidities, weight, height, Body Mass Index (BMI), Vitamin D status, type of nutrition support, length of stay and discharge destination.

Of 51 COVID-19 patients transferred out of ICU, 71% remained as inpatients and had further dietetic follow up.

<table>
<thead>
<tr>
<th>Mean age (years)</th>
<th>57.7 (21-90)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (% Male:Female)</td>
<td>67:33</td>
</tr>
<tr>
<td>Average length of stay on the ward (days)</td>
<td>14.3</td>
</tr>
</tbody>
</table>

Table I. Patient demographics

Of those with data sets available, 82% had a decrease in weight during their ICU stay with an average loss of 7.6kg (9% body weight). Thirty percent moved into a lower BMI category over the course of their ICU stay. On discharge from hospital and dietetic service, 50% were weight stable and 29% had gained weight following dietetic input.

Seventy two percent of patients required ongoing artificial nutrition support on transfer out of ICU. Prior to discharge home, 82% required advice on a high protein, high calorie diet with 25% of these requiring additional advice for therapeutic diets such as diabetic diets, no added salt diet, dietary advice for stoma management, renal dietary advice and modified consistency dietary advice. In terms of follow up, 11% were referred to community dietetics, 8% returned to dietetic outpatient clinics and 18% were stable on nutrition care plan and discharged from dietetic caseload at ward level.

The data obtained highlights the deterioration in nutritional status and risk of malnutrition in this cohort of patients post COVID-19 infection. Ongoing nutrition support and dietetic input should be considered as integral on transfer from ICU to ward level in preventing, treating and diagnosing malnutrition.

References
Virtual pump trouble shooting for home parenteral and enteral nutrition patients.
by Y. Houston  Fresenius Kabi Ltd, Cestrian Court, Maner Park, Eastgate Way, Runcorn, WA1 7NT

Community nursing support is provided for patients receiving Enteral, Parenteral and Intravenous Therapies in the United Kingdom and Ireland by a homecare company with a dedicated team of Advice Line (AL) nurses, supporting patients and nurses during the ‘out of hours’ periods. One aspect of this role is to help patients trouble shoot infusion devices via telephone call; to prevent interruption to their prescribed therapy. A Virtual Remote Assistance (VRA) process was developed using existing video calling technology to enable the nurse to visualise the infusion device and improve troubleshooting success rates and prevent hospital admission due to therapy interruption.

When planning the VRA processes, we had three key aims for the initiative. Firstly, to reduce the potential of negative clinical impact due to missed or delayed treatments, as a result of the Advice Line Nurse unsuccessfully trouble shooting the infusion device over the telephone. Secondly, video calling technology has become increasingly familiar to the public as a result of the COVID 19 pandemic. We were keen to use this upturn in technology usage to provide an additional support option for patients to access. Finally, to reduce the number of infusion devices inappropriately returned for inspection, as having pumps held in the service pool reduces the number available for distribution and it has a cost implication.

During Q1 of 2021, the AL team took 485 incoming calls related to patient’s infusion devices, of these, only 8.2% (N=40) calls needed to be escalated to Virtual Remote Assistance. Of those offered VRA, 30% of patients (N=12) declined participation. Of those who declined 7 did not have a device capable of completing the VRA, 3 declined with no reason and 2 could not make the connection work on their device.

The AL nurses were unsuccessful in resolving the issue with 13 patients (32.5%) who were then offered care advice as per protocol. Following clinical assessment 6 patients were advised to attend hospital and 7 were able to be managed at home until a replacement device could be delivered to them, this resulted in partial missed doses for all 7 patients.

The AL nurses were successful in troubleshooting the infusion devices in 15 instances (37.5%) after converting to VRA. The successful trouble shooting of the infusion devices meant that 15 patients were able to carry on their treatment at home uninterrupted and avoiding potential hospital admission for fluid management. Trouble shooting these infusion devices and enabling the patients to continue their infusion uninterrupted has improved their experience and health outcomes.

As a Homecare provider, our aim is to support patients with their long-term conditions at home. The introduction of this new service area has meant that we have been able to ensure that more patients can continue to receive their therapies safely at home without disruption. Given the climate of a global pandemic it is important that the homecare provider has been able to prevent 15 hospital admissions; which not only has protected our patients but has also supported the NHS in reduce the demand for services and costs.
Nomogram reliability for predicting survival in patients with incurable cancer referred for home parenteral nutrition

by C. Kirk1,2, H. Leyland2, N.P. Thompson2, C. Mountford2, C. Hankins, H. Cook2, J. McDonald2 and L. Gemmell2. 1Newcastle NIHR Biomedical Research Centre, Newcastle Upon Tyne Hospitals NHS Foundation Trust. 2Department of Gastroenterology, Newcastle upon Tyne Hospitals NHS Foundation Trust.

In the presence of bowel obstruction, enterocutaneous fistula, short bowel, or severe mucosal disease, patients with incurable cancer are increasingly being referred for consideration of home parenteral nutrition (HPN). The decision to commence such treatment largely relies on expert opinion rather than robust data showing survival outcome. To address this shortcoming, a nomogram to predict median survival length in palliative cancer patients treated with HPN has been developed and validated.1 The nomogram is based on Glasgow prognostic score (CRP & albumin), primary cancer, metastases and Karnofsky performance status. The aim of this study was to assess the reliability and clinical value of the nomogram.

The nomogram was applied ambidirectionally to adult patients referred for palliative HPN between 1/3/15 and 7/7/20 at one tertiary HPN centre. Patients receiving chemotherapy or radiotherapy at the point of referral or during HPN treatment, and patients with neuroendocrine tumours were excluded. Intraclass correlation coefficient (ICC) was used to measure the reliability of the nomogram.

35 patients were identified. Eight patients were excluded due to commencing chemotherapy. Of the 27 remaining patients, 15 (66%) were female. 16 (59%) patients had primary GI cancers, six (22%) ovarian, and five (19%) other forms of cancer. Overall mean survival was 114 days (22-433) versus 104 days (30-200) for predicted survival (p=0.746). The nomogram over predicted survival in 59% of cases and under predicted in 33%. The predictions for seven patients (26%) were within 20% of their actual survival, 12 patients (44%) were within 50%, and the remaining patients between 50 and 248%. The ICC was 0.327 with a confident interval o =-0.64-0.627, indicative of poor reliability.2

Although the p value suggests no significant difference between predicted and actual survival length, our study is limited by the small sample size. We considered a 20% variance between predicted and actual survival clinically acceptable; only a quarter of patients were within this range. Our study therefore does not support the use of the nomogram to predict survival in patients referred for palliative HPN and we should continue to use clinical acumen when considering such treatment. Further multi-centre research with larger sample sizes is needed before applying the nomogram to clinical practice.

References
The use of technology to aid the formation of home parenteral nutrition contingency prescriptions
by C.A. Smillie, R. Haywood, C.F. Donnellan and P.Y.P. Chu, Nutrition team, St James’s University Hospital, Beckett Street, Leeds, LS9 7TF, UK

The COVID-19 pandemic represented a substantial risk to the continued supply of compounded home parenteral nutrition (HPN) to patients with intestinal failure. NHS England requested that all patients receiving HPN have a contingency prescription that could be supplied if their homecare provider weren’t able to supply their compounded prescription. The formation of contingency prescriptions and subsequent communication of the plan to both the patients and those involved in their care, was a significant undertaking. Could technology aid in the formation of the contingency prescriptions, improve communication between members of the multidisciplinary team (MDT) and standardise the accompanying written administration plan?

An existing spreadsheet developed in-house was used which contained all the commercially available multi-chamber bags (MCBs) and terminally sterilised fluids (TSFs) on the market. A deficits tab was added to the workbook that calculated the weekly differences between the patient’s usual compounded prescription and a proposed contingency prescription. Drop down menus auto populated the contents of the MCBs and TSFs into the spreadsheet. This tab was printed, reviewed by other members of the MDT and was risk-assessed.

A tab was created which transferred the selected MCBs and TSFs onto a contingency template to send to homecare providers. This included custom instructions e.g. drug name, dose/volume, form, directions/frequency and total supply per week. Patient information was copied from the compounded formulation request and pasted into the contingency template. The template could then be exported to a separate document, allowing additions of line locks / other medication usually on the prescription.

A further tab facilitated the production of a written administration plan for the contingency regimen. Patient information was auto populated from the order template, while drop down menus restricted the bags used to only those that had been selected on the deficits tab. Custom administration instructions were auto populated into the plan. A table showed how many of each bag per week are required, and this counted down as the written plan was populated.

Once the written plan was populated, the spreadsheet calculated the number of each type of ancillaries required each week. A breakdown of daily calories and electrolytes supported the user in spreading the prescription as equally as possible across the week.

Further alterations were made using an export function prior to sending to the patient and the homecare provider.

The development of this spreadsheet has significantly improved the efficiency of the process for creating contingency prescriptions for patients on compounded HPN and produced a robust method for communicating the proposed regimen between members of the MDT. It has successfully standardised our wording on the contingency order templates and written administration plans whilst eliminating transcription errors.
Patients with very severe Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) can experience difficulty maintaining their nutrition and hydration. In the most severe cases it is not uncommon. The commonest reason is simple debility. Dysphagia, severe gastrointestinal problems in tolerating food, possibly indicative of Mast Cell Activation Disorder, and conditions such as gastroparesis may also be contributing factors. These patients require enteral or parental nutrition. In our experience there is often a delay in implementing Clinically Assisted Nutrition and Hydration (CANH), until the malnutrition becomes life-threatening. Clinicians are often unaware severe ME/CFS can present with this problem, and have a tendency to view the symptoms as purely psychological. Of the literature found, only brief reference is made to the issue in the 2021 NICE Guidelines [1] and the 2004 Paediatric Guidelines [2] from the Royal College of Paediatrics and Child Health. Staff and volunteers at a UK based charity supporting people with severe and very severe ME/CFS had become aware of the problems accessing CANH.

The charity created a questionnaire for members who had experience of being enterally or parentally fed. In summer 2019 an invitation was placed in the charity’s newsletter inviting members meeting the criteria to complete the questionnaire. From the responses, five anonymized case reports, were written. Despite very low Body Mass Indexes and high Malnutrition Universal Screening Tool (MUST) scores, when admitted to hospital, all five cases suffered significant delays in nutritional intervention. Clinicians only intervened, when the malnutrition and dehydration became life-threatening. The primary clinical need was neglected in favour of psychiatric intervention and all of the five cases were deemed, incorrectly, to be suffering from Anorexia Nervosa. Their dysphagia was also felt to be a psychological manifestation. The clinicians involved appeared unaware that severe ME/CFS can lead to difficulties maintaining nutrition and fluid requirements. Failure to recognise this resulted in clinical inertia and put the patients at risk of diseases related to malnutrition, and of refeeding syndrome[3] when intervention finally occurred.

Alongside NICE Guideline 206 which states the possible need for tube feeding in patients with ME/CFS, all the patients met the criteria for tube feeding as set out in NICE Guideline 32 [4]. Reluctance to tube feed can occur because of the concern that the patient will become dependent on it. However, the case reports show this was not the case.

Patients with ME/CFS require domiciliary medical care. Positive improvements occurred in all cases with the involvement of a Home Enteral Nutrition Service (HENS). Concerns have been raised around the safety of siting Nasogastric tubes (NGTs). However, a large study has shown that with the correct protocols in place appropriately trained nurses can accurately site NGTs in the community [5].

Clinical practice in the care of patients with severe ME/CFS needs to be improved and a guideline with an early warning system put in place for prompt escalation to tube feeding as soon as a patient develops nutritional difficulties. The inclusion of severe ME/CFS in national nutritional guidelines would bring about recognition of the condition, helping to ensure a proactive approach be adopted.

References:
1. ‘National Institute for Health and Care Excellence (NICE) Myalgic encephalomyelitis (or encephalopathy)/chronic fatigue syndrome: diagnosis and management. NICE Guideline 206 2021 Available online: www.nice.org.uk/guidance/NG206
Going Digital in a Pandemic! Transforming Dietetic Services by the use of digital platforms to deliver safe and sustainable care during COVID-19 and beyond

by R. Gibson, S. Perry, K. Durrans, S. Goodwin, C. Hargraves, A. Hanning, T. Buckton, A. Morrell, S. Murray, C. Levesley, P. Suffolk, L. Worville. Hull University Teaching Hospitals NHS Trust, Castle Hill Hospital, Castle Road, Cottingham, East Yorkshire, HU16 5JQ

In April 2020, with the realisation that dietetic practice had to change when covering critical care units, a group of specialist dietitians led the development of a hand held digital dietetic record that could be safely use within the critical care unit avoiding the use of paper and it being transferred off the COVID critical care unit. Being digital enabled remote working, decreased footfall and increased safety for patients and staff. This was the first step in a journey that saw the transformation from a paper based system to one that is entirely digital across all dietetic areas within inpatient and outpatient settings and in both in adults and paediatrics by the end of 2020.

Together with the introduction of video patient consultations, video conferencing applications and electronic prescribing, our approach to provide dietetic intervention has changed dramatically. It has enabled a dietetic service to embrace remote working which has been helpful during periods of self-isolation e.g. virtual; ward rounds, group sessions, 1:1 education, interviews, training and development.

Collaborative working included the newly developed “digital dietetic group” and the “H Digital” trust group and DXC technologies to develop a clinical data capture (CDC) form. The clinical basis followed the layout as advised in the Model and Process for Nutrition and Dietetic Practice\(^1\) to ensure that data capture was relevant and followed a standard process. The purpose of the Model and Process is to describe, through six steps, the consistent process dietitians follow in any dietetic intervention. It articulates the specific skills, knowledge and critical reasoning that dietitians deploy, and the environmental factors that influence the practice of dietetics. This does not take away dietitians’ autonomy. Instead, it enables a consistent approach to dietetic care, with the service user at the centre. This completed form was available as a complete ‘dietetic’ digital record.

A key objective within the Organisation’s Digital Strategy and it will reduce risks by enhancing clinical effectiveness and patient safety. The wider multi-professional team found dietetic digital records invaluable, to be able to access 24/7 allowing for continuity of care when unable to speak directly to the dietetic team this included alternative feeding regimens and clinical reasoning that subsequently influenced treatment decisions and allowed for patient care out of hours. This led onto working with trust digital team on electronic prescriptions for oral nutritional support and enteral feeds, digital patient lists (for caseloads), digital design of food and fluid charts for the organisation. The enhancement in clinical safety and patient care where is it required has been phenomenal and an exciting journey we are keen to share. The design will enable dietetic outcomes to be collected directly from digital record.

References
The nutrition multi-disciplinary (MDT) clinic at a district general hospital (DGH) runs monthly and includes a gastroenterology consultant, dietitian and nutrition nurse specialist. Patients that are seen typically have complex nutritional problems including gastroparesis and short bowel syndrome and require review by multiple members of the MDT.

29 Patients attended the Nutrition MDT Clinic between April 2019 and March 2021. 3 of these have since passed away, 9 of these patients have been discharged from our care and 4 patients have only been seen once and therefore were deemed inappropriate to take part in the survey. 13 patients were contacted by telephone to take part in a questionnaire to evaluate the effectiveness of the nutrition MDT clinic. 12 of these agreed to take part. 1 was unable to be contacted so could not be involved.

Nine statements were given by the above participants, who had to respond with strongly agree, agree, neither agree nor disagree, disagree or strongly disagree to the following statements:

1. The Nutrition MDT clinic is better than a normal outpatient clinic
2. The Nutrition MDT clinic is helpful to me
3. I feel listened to in the Nutrition MDT clinic
4. I feel the Nutrition MDT are knowledgeable
5. I feel my symptoms have improved since being under the care of the Nutrition MDT
6. I feel able to ask questions in clinic
7. I have the time to address all my issues in clinic
8. I feel able to contact the Nutrition Team outside of the Clinic room
9. I find it easy to contact the Nutrition Team when I am at home

10 (83%) patients strongly agreed and 2 (17%) agreed that the Nutrition MDT clinic is better than a normal outpatient clinic and that the Nutrition MDT clinic is helpful to them. 11 (92%) participants strongly agreed and 1 (8%) participant agreed that they feel listened to in the Nutrition MDT clinic and feel that the Nutrition MDT is knowledgeable. 7 (58%) patients strongly agreed and 5 (42%) patients agreed that their symptoms have improved since being under the care of the Nutrition MDT. All patients agreed that they feel able to ask questions in clinic, that they have the time to address all their issues in clinic, that they feel able to contact the Nutrition Team outside of the clinic room and that they find it easy to contact the Nutrition Team when they are at home.

Patients clearly benefit significantly from an MDT approach in relation to their nutrition, with involvement from a consultant gastroenterologist, dietitian and nutrition specialist nurse. Having 3 professionals in one clinic streamlines the approach to patient care and provides patients with a breadth of clinical expertise producing clear multifaceted plans, with clear lines of communication outside of the clinic room with the use of nutrition nurse helpline that is always responded to promptly.
The nutritional management of people living with Amyotrophic Lateral Sclerosis (ALS): a cross-sectional survey of UK Dietitians’

by S. White¹, N. Zarotti², D. Beever³, M. Bradburn³, P. Norman⁴, E. Coates³, T. Stavroulakis, D. White³, A. McGeachan², I.A. Williams³, G. Hackney³, V. Halliday³, and C. McDermott² on behalf of the HighCALS research group.

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²Sheffield Institute for Translational Neuroscience (SITraN), The University of Sheffield, Sheffield, S10 2HQ, UK.
³School of Health and Related Research (ScHARR), The University of Sheffield, Sheffield, S1 4DA, UK.
⁴Department of Psychology, The University of Sheffield, Sheffield, S1 2LT, UK.

People living with Amyotrophic Lateral Sclerosis (pwALS) face many challenges to taking adequate nutrition and hydration (1). Reduced dietary intake, combined with raised resting energy expenditure (REE) (2), contribute to the high prevalence of malnutrition in ALS (3), with low BMI and weight loss being independent prognostic indicators of survival (4). There is a lack of evidence focusing on the nutritional management of people living with ALS.

This study reports the responses of UK dietitians to a survey exploring the nutritional management of pwALS. The survey was distributed online using snowball sampling technique between September and November 2018. Of the 130 dietitians responding to the survey, 87% were currently providing dietetic care to pwALS. Dietitians most frequently reported (66%) that pwALS formed 20% of their total patient caseload. Less than half (42%) of dietitians reported that nutritional screening took place in their organisation and 44% reported referrals were made too late. With regards nutritional assessment, the majority (83%) used predictive equations for resting energy expenditure (REE) not validated in ALS. Most dietitians (91%) reported that they would set a weight gain goal for pwALS with a BMI under 18.5kg/m². However, only 28% reported that they would set a weight gain goal for those with a BMI between 18.5 and 25.0, and none would do so for those with a BMI greater than 25kg/m², instead recommending weight maintenance or even weight loss. Only 23% of dietitians reported that the ‘food first’ approach was effective in ALS. Most dietitians (43%) reported that pwALS were not weighed frequently enough.

The reported lack of nutritional screening and late referral for dietetic input may result in the risk factors associated with malnutrition in ALS not being identified in a timely way. Reliance on estimates of REE not validated for pwALS and setting conservative weight goals may not be in line with the current evidence base. Further research is required to better understand the optimal nutritional management in ALS and the development of nutritional interventions to improve outcomes for pwALS.

References

Audit of management of vitamin D deficiency in adult in-patients
by S. Ngui, C. Mutekeri, and P. Mistry, University Hospital Southampton NHS Trust, Tremona Road, Southampton, United Kingdom, SO16 6YD

Background: 1 in 5 people are vitamin D deficient in the UK[1]. It is a global public health issue that is overlooked and under-managed. Rickets and osteomalacia are classic manifestations of vitamin D deficiency. Recent studies have shown an association between vitamin D deficiency and fatal non-musculoskeletal conditions, including cancer[2]. Vitamin D status is determined by assay of serum 25-hydroxyvitamin D, 25(OH)D. Serum level <30nmol/L denotes deficiency, whereas 30-50nmol/L, with risk factors outlined by the Royal Osteoporosis Society (ROS) indicates insufficiency[2]. Both require high dose supplementation.

Aim: To evaluate the management of Vitamin D deficiency and ROS guideline compliance in a UK teaching hospital, with the following audit standards -

1. 100% of patients who were started on a loading dose of vitamin D had a level of 25(OH)D < 30nmol/L or <50nmol/l with risk factors listed in the ROS guideline.
2. 100% of patients who needed a rapid correction of vitamin D deficiency received loading regimens of approximately 300,000 units.
3. 100% of patients who received intramuscular (IM) vitamin D were intolerant of oral formulations.
4. 100% of patients received a treatment plan to start maintenance doses at least a month after loading dose completion.
5. 100% of patients have a plan of monitoring adjusted plasma calcium one month after starting vitamin D supplementation.

Method: All patients admitted to a UK teaching hospital between April and September 2020 were reviewed retrospectively, using the electronic prescribing system (JAC) and discharge letter. Microsoft Excel was utilised for data collection and data analysis. Patients who died during treatment or received Vitamin D as an out-patient were excluded from this audit.

Results: 122 patients were reviewed. Findings are outlined in Table 1 below:

<table>
<thead>
<tr>
<th>Standard</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard 1</td>
<td>89% of patients (n=108) received a loading dose of vitamin D as per ROS guideline.</td>
</tr>
<tr>
<td>Standard 2</td>
<td>41% of patients (n=50) who had vitamin D deficiency received 300,000 units loading dose.</td>
</tr>
<tr>
<td>Standard 3</td>
<td>100% of patients (n=2) who were intolerant of the oral formulation received IM vitamin D.</td>
</tr>
<tr>
<td>Standard 4</td>
<td>63% of patients (n=73) had a treatment plan to start maintenance doses of vitamin D.</td>
</tr>
<tr>
<td>Standard 5</td>
<td>30% of patients (n=36) had a plan of monitoring adjusted plasma calcium.</td>
</tr>
</tbody>
</table>

Conclusions: Inconsistent compliance of audit standards was identified in this audit. This demonstrates the need for further education and training on Vitamin D replacement. We plan to create prescribing protocols on JAC to enable the prescribing of loading regimes of 300,000 units as a treatment course. Also, a template for vitamin D could be created for healthcare professionals to attach to discharge letters for patients who were started on a loading dose during their hospital admission to facilitate a maintenance plan. Re-audit would be valuable following these interventions.

References
Applying learning from 1st to the 3rd wave of the COVID19 pandemic: nutritional provision in critical care
by C. Hughes¹, F. Barron¹, E. O’Sullivan¹ and E. O’Connor², ¹Department of Clinical Nutrition, ²Dept of
Anaesthesia, Intensive Care and Pain, St. James’s Hospital, Dublin, Ireland

The aim of this analysis was to compare route and adequacy of nutrition support in patients with COVID19
admitted to an intensive care unit (ICU) between March-June 2020 (T1) compared to January-April 2021 (T2).

Parameters related to nutrition support were collected from the records of all patients admitted to ICU with
COVID19 with length of stay of ≥7days on mechanical ventilation requiring artificial nutrition support. Data was
collected during the late acute phase which was defined as day 4-7 post intubation. Energy and protein intake was
compared to calculated estimated nutritional requirements.

35 patients met the inclusion criteria in T1, 94% were on enteral nutrition (EN), 3% parenteral nutrition
(PN) and 3% EN+PN. In T2, there were 54 patients (92% EN, 2% PN and 6% EN+PN).

<table>
<thead>
<tr>
<th></th>
<th>March – June 2020 (N=35)</th>
<th>January – April 2021 (N=54)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy (% requirements met)</td>
<td>85 (24)</td>
<td>96 (23.0)</td>
<td>0.022</td>
</tr>
<tr>
<td>Protein (% requirements met)</td>
<td>68 (28)</td>
<td>79 (26.1)</td>
<td>0.076</td>
</tr>
</tbody>
</table>

Table I: Comparison of nutritional requirements achieved in T1 vs. T2.

Of patients who achieved <70% of energy and protein requirements in T1 (n=17) 35% had constipation or
ileus and 47% had GI intolerance (high gastric residual volumes or vomiting). In T2 (n=19), 84% experienced
constipation or ileus and 63% had GI intolerance. 35% of patients in T1 had hypernatraemia vs. 47% in T2 and
41% in T1 had hyperglycaemia vs. 100% in T2 despite only 12% and 32% of patients respectively having a
history of diabetes.

Despite a higher incidence of GI intolerance in T2, a statistically significant improvement in achieving
energy targets was noted. Learning from T1 showed that where strategies to improve GI tolerance are unsuccessful
supplementary PN should be considered without delay to optimise nutritional intake. There was a clinically
significant trend in protein intake which may be attributed to prompt initiation of modular protein supplements or
perhaps an earlier transition from fat-based sedation. Meeting protein requirements while preventing overfeeding
remains a challenge in the ICU.

Disclosure of Interest: None Declared
How to successfully award a whole health community enteral feeding contract
by C. Steele, Leicester Royal Infirmary, University Hospitals of Leicester NHS Trust, Leicester, LE1 5WW, UK

This abstract outlines the processes adopted in going out to tender for a whole health community enteral feeding contract and the evaluation methodology applied. The UK Enteral Nutrition market is a small specialist market with only a handful of main suppliers. The project team were aware of a number of instances where NHS Trusts have encountered difficulties with their procurement processes and we had previously struggled with going to tender. A project group was set up to review the requirements, develop a product and service specification and devise an appropriate procurement process and tender documentation. The project group comprised of three organisations which were a large acute teaching Trust, a community, mental health and learning disability Trust and the counties Hospice. The core project group included Dietitians, Pharmacists and Medical Physics staff who were supported with professional advice from wider Dietetic teams, Speech and Language Therapists, Consultants, Specialist Nurses, Infection Prevention and Control and Information Governance. A representative from the Clinical Commissioning Groups also attended the project meetings for support and guidance. The project was co-ordinated by the Procurement Managers from the organisations.

Due to the overall value of the contract it was necessary to run a full on line Official Journal of the European Union tender using the Open Procedure. The project group arranged for a Commercial Procurement Collaborative team to facilitate the tender process on our behalf. Legal advice was also sought from a leading legal firm with expertise in the enteral nutrition market. The project group undertook pre-market engagement with the enteral nutrition market as part of developing the product and service specification and procurement process. Prospective bidders were invited to a supplier event where the Trusts provided an overview of their aims and objectives. Bidders were able to present a brief overview of their organisations and provide feedback on some general queries raised by the Trusts. The collaborative team supported the project group to publish draft versions of the product and service specifications under a Prior Information Notice. Prospective bidders had the opportunity to provide feedback on these documents which was used to further develop and refine the specifications.

It was agreed that the contract length would be three years with extensions for two years and then a further year as this would be more attractive to the suppliers. The tender included provision of enteral feeds and nutritional products, enteral feeding pumps, consumables and related support services, and provision of a home delivery service. The tender evaluation process used was as follows:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Criteria</th>
<th>Scoring Methodology</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Eligibility Criteria</td>
<td>Standard Selection Questionnaire testing bidders general eligibility and capacity to bid for and provide the contract</td>
<td>Pass/Fail Fail status does not allow moving to Stage 4</td>
</tr>
<tr>
<td>2</td>
<td>IT Evaluation</td>
<td>Questionnaire testing bidders ability to provide a suitable IT system</td>
<td>Pass/Fail Fail status does not allow moving to Stage 4</td>
</tr>
<tr>
<td>3</td>
<td>Pump Testing</td>
<td>Range of tests completed by Medical Physics Clinical Technologists on samples of bidders pumps to test their functionality, feature tests, suitability and safety. Bidders to provide 2 pumps and associated consumables for testing</td>
<td>Pass/Fail Both pumps were required to attain a pass Fail status does not allow moving to Stage 4</td>
</tr>
<tr>
<td>4</td>
<td>Quality</td>
<td>Evaluation of the bidders responses to quality questions using assessment and moderation</td>
<td>Scored 0 – 4 with criteria set for each question</td>
</tr>
<tr>
<td>5</td>
<td>Commercial</td>
<td>Evaluation of bidders price submission</td>
<td>Score calculated using the following mechanism Lowest bid total price/ current bid total price x 100 x Weighting for Commercial (30%)</td>
</tr>
</tbody>
</table>

This tender process took over two years with the contract awarded in March 2021 to take effect from July 2021 with key benefits of a standard and specialist nutrition and diet product range, infusion device upgrade, company support, compliance with Information Governance and cost savings.
Paediatric transitional care process within a homecare parenteral nutrition service
by J. Nobrega, R. Marques  Fresenius Kabi and Calea, Cestrian Court, Eastgate Way, Runcorn, Cheshire WA7 1NT

Working in partnership with the NHS as a national homecare nursing service supporting both adult and paediatric patients at home receiving parenteral nutrition, we developed a transition training programme with a major centre for young adults between the ages of 13-15yrs on long term parenteral nutrition. The programme was coordinated jointly with nursing leads from the homecare nursing service and clinical nurse specialists for children with intestinal failure. Using the knowledge and guidance of both institutions we developed a transition programme that supports both the young adult and the parent or carers through the process of training and independence. Demonstrating independence and increasing the two young adults’ confidence through knowledge in self caring for their own lines and parenteral nutrition enables a positive transition process for all involved. We aimed to complete the programme before they commenced their GCSEs and allow the young adults time to socialize with their peer group in environments away from the home.

The first transitional programme was completed during summer 2019. During the project continuous reviews and analysis of the programme were conducted, enabling the development of different techniques for each individual young adult. Due to the success of the programme now the homecare nursing service can invite more young adults to be part of the transition programme.

The programme is designed to commence during a school holiday to maximise focus time for the young adult and runs over one calendar year. Six hours of training is planned for each technique, these being disconnection from intravenous infusions, connection to intravenous infusions as well as dressing and needle free connector change. The young adult is trained using the applicable adult protocol from their base hospital. Over the course of the transition period, regular meetings are scheduled between the patient, homecare nursing service and discharging hospital.

Long term, this programme will reduce the need for training within the hospital and therefore the use of hospital resources, need of admissions for carer relief and will enable the young adult to take full responsibility of their own care for parenteral nutrition. Young independent adults once trained will have the ability to socialise with their peers, move on to university or apply for full time jobs. Parents or carers will be confident to start to transition themselves from having lived their lives around the young adult and caring for their parenteral nutrition to post transition stage being there for moral support and guidance only if needed. The transition programme has demonstrated through training in their own environment and at the pace that suits the individual and parent or carers, increased knowledge, confidence and a transition that gave all those involved the ability to live independently.
Empowering patients with cancer: self management of nutrition related issues.

Malnutrition in those with cancer is prevalent. Cancer, treatment and medication side effects can impact nutritional status affecting tolerance to treatment, fitness for surgery and overall quality of life. With a population of 1.4 million people and around 13,000 new cancer diagnoses in the North of Scotland each year, nutrition education to address concerns at an early opportunity is vital to improve patient outcomes. North Cancer Alliance funded a 23-month regional dietetic post to develop an education resource to support and empower patient self-management of first-line nutritional issues experienced prior to, during or after cancer surgery or treatment.

The shared development of a regional resource for the six health boards in the North of Scotland aims to streamline practice and reduce variation in nutrition information available to cancer patients.

A multi-modal web resource has been developed through collaborative working and a patient-centred process. Current practice and service user needs in obtaining access to nutrition in cancer information were mapped out using surveys and semi-structured interviews across the North of Scotland health boards. Staff and service user feedback through engagement sessions, local cancer service support groups and professional comment fed into the edits of this resource.

With a wide geographical spread, 24 hour access to accurate information online will help patients across the North of Scotland to get the right information at the right time and in the right place. The educational tool for professionals and patients, could be used to up-skill others working in cancer care to address universal nutrition concerns at a teachable moment. As a recognised resource offered at diagnosis and throughout the patient’s cancer journey, imparting nutrition information will become a common theme in healthcare discussions. Introducing a digital resource will help to manage first-line nutrition concerns, enabling dietitians to redirect their time to respond to those with targeted and specialist needs. Better access to information on nutrition related side effects, secondary prevention measures and signposting to other cancer support services links with the national cancer strategies to help people live well with and beyond cancer. The work also supports the integration of health and social care services aligning with the principles of Realistic Medicine.

With growing numbers of people living with cancer and the long-term side effects of treatment, digital delivery of accurate, safe and effective information is key supporting self-management of nutrition issues improving patient care. Following evaluation of its use and given priority to embed this resource in current services, it has the potential to support a once for Scotland approach for nutrition in cancer information.
Nutrition Support in the Intensive Care Unit during the COVID19 pandemic

by F. Barron¹, C. Hughes¹, E. O’Sullivan¹ and E. O’Connor², ¹Department of Clinical Nutrition, ²Dept of Anaesthesia, Intensive Care and Pain, St. James’s Hospital, Dublin, Ireland

The aim of this analysis was to determine nutrition support needs and characteristics of COVID19 patients assessed by critical care dietitians during the COVID19 pandemic.

Nutrition parameters were collected for all patients admitted to the intensive care unit (ICU) with COVID19 with length of stay (LOS) >48hrs. Data was compared from March-June 2020 (T1) to January-April 2021 (T2).

The patients who met the inclusion criteria (n=64 in T1 and n=77 in T2) were assessed by a critical care Dietitian: 100% required nutrition support. Mean age in T1 was 60.6yrs (66% male) compared to 63.1yrs in T2 (62% male). Mean BMI was 29.6kg/m² vs. 30.2kg/m². In T1 72% required mechanical ventilation vs. 78% in T2, remainder on non-invasive ventilation (NIV). Average ICU LOS was 16days in T1 and 25days in T2. During T1 78% transferred to ward level care, 48% in T2 and all these patients required ongoing nutricion at ward level. In T1 41% were discharged from ICU on enteral nutrition which increased to 48% in T2. Type of nutrition support during ICU stay is described in the table below.

<table>
<thead>
<tr>
<th>Type of nutrition support</th>
<th>March-June (n=64)</th>
<th>Jan-April (n=77)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral nutrition support (ONS)</td>
<td>34%</td>
<td>17%</td>
</tr>
<tr>
<td>Enteral nutrition (EN)</td>
<td>55%</td>
<td>58%</td>
</tr>
<tr>
<td>ONS + supplementary EN</td>
<td>6%</td>
<td>12%</td>
</tr>
<tr>
<td>Parenteral nutrition</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>EN + supplementary PN</td>
<td>5%</td>
<td>12%</td>
</tr>
</tbody>
</table>

Table I: Comparison of type of nutrition support in T1 vs. T2.

All COVID19 patients with and ICU LOS >48hours were assessed by a critical care Dietitian. Patient profile was similar in both cohorts and all required nutrition support either by ONS, EN, PN or a combination of these. All patients on NIV required ONS with increasing numbers being commenced on supplementary EN in T2. More patients also required supplementary PN in T2. On transfer to ward level care 100% of patients required nutrition support highlighting the need for on-going dietetic input.

Disclosure of Interest: None Declared
An investigation into the need and feasibility of a volume-based enteral feeding protocol on neurosurgical wards
by C. Rafferty, Department of Nutrition and Dietetics, Beaumont hospital, Dublin, Ireland

Adequate nutritional intake is vital in the recovery process for neurosurgical patients and enteral feeding is often required to achieve this. The purpose of this study was to assess if patients on neurosurgical wards miss feed targets due to interruptions in feeding times and the potential feasibility of introducing volume-based feeding to optimise nutritional intake for this patient group i.e., setting a goal volume to receive over a 24-hour period rather than the traditional rate-based approach.

A retrospective audit was completed to compare recommended enteral feed volumes with the actual volume received for 10 neurosurgical patients across a 14-day period. Questionnaires were provided to nursing staff on neurosurgical wards and dietetic staff to assess opinions on the benefits or concerns surrounding the introduction of volume based enteral feeding.

It was found that on average patients received 89% of recommended feed volumes during the study period, with daily targets achieved ranging from 0-120%. Causes for the various interruptions in feeding times included fasting, issues confirming nasogastric tube (NGT) position, patients undergoing procedures/investigations and dislodged NGTs. Nursing and dietetic staff agreed that volume based enteral feeding would be beneficial, however, concerns were raised regarding tolerance and confusion around recalculating rates.

Neurosurgical patients who rely on enteral nutrition support are receiving inadequate nutrition due to interruptions in feeding times. Volume based enteral feeding may be beneficial in overcoming this, however, a robust protocol and adequate training for nursing staff would be essential to optimise its efficacy and safety.

References
Reduce, reuse, recycle: Improving patient experience and environmental impact
by S.A.L. Williams¹, S. Oldham¹, A.C. Morgan¹ and F.W. McCarten², ¹Gloucester Royal Hospital, Great Western Road, Gloucester, GL1 3NN, ²NUTRICIA, White Horse Business Park, Trowbridge, Wiltshire BA14 0XQ.

The Trust declared a climate emergency in 2019¹, recognising the impact of climate change and the need for urgent action towards the aim of achieving carbon neutrality before 2050. The Trust has targeted several areas, with the reduction of waste as a key goal¹.

The Home Enteral Feeding Team (HEFT) cares for over 450 people living in their own home with a feeding tube. Providing care to enterally fed patients requires a range of ancillary items which need to be thoroughly cleaned for administration of feed, medications and fluids. The HEFT has received feedback from patients and families that high volumes of waste are generated from ancillary items, some of which are single-use; and that the storage and disposal can pose significant logistical problems with financial implications.

In response to patient feedback and in line with the Trust’s sustainability targets, the HEFT are partnering with a feed company, who have set a sustainability target to become zero net carbon by 2050²,³. The feed company have identified their containers as one of the largest contributors to plastic waste in their portfolio and have commenced a trial of alternative reusable containers, which have been shown to reduce use of single-use containers by 75%²,³.

The HEFT have partnered with the feed company to trial the use of reusable containers with patients, and will be conducting additional surveys to gather data on waste reduction and patient experience in line with the Trust’s sustainability pledge¹. The aims of the project are to:
- Reduce waste generated by single-use containers
- Reduce carbon emission from delivery vans by reducing the size and frequency of deliveries required
- Improve patient experience of using containers.

Guidelines to identify clinically suitable patients have been created and communicated. Eligible and interested patients have been given the choice to trial reusable containers and are being contacted by the HEFT to receive instructions on the use of them. Baseline data will be collected through mixed method questionnaires to capture patient motivation to trial reusable containers, alongside their experience using single-use containers, waste disposal and delivery and storage of equipment.

Approximately 2 months after the transition, a second questionnaire with quantitative and qualitative elements will be conducted to gather further information. Results are expected early 2022.

References:
Early nutritional screening, appropriate first line advice and prescribed oral nutrition support across organisational boundaries. New oral nutrition support pathway striving for seamless delivery of care from Hospital into Community Care

by R. Gibson, P. Kingston, S. Perry, K. Durrans, C. Hargraves, S. Murray, S. Rust, A. Ramirez, J. Morgan, C. Hughes, N. Woods and C. Grantham, Hull University Teaching Hospitals NHS Trust, Castle Hill Hospital, Castle Road, Cottingham, East Yorkshire, HU16 5JQ

In the UK, approximately 3 million people are malnourished or at risk of malnutrition. Malnutrition is a major public health issue with costs the NHS over £19 billion per year in England alone. We know 93% of malnutrition happens in peoples own homes, 5% in care homes and 2% in hospital. It is also understood that 30% of inpatients are at higher risk of becoming malnourished in hospital.  

As many departments, demand for dietetic services has outweighed capacity, in part due to improved rates of nutritional risk screening across the organisation. The Trust uses an internal validated nutritional screening tool but community partners largely use MUST (Malnutrition Universal Screening Tool). Within our Dietetic team, we identified a number of treatment strategies needed to ensure timely care, patient empowerment and patient safety with a focus on improved nutrition to help recovery across organisational boundaries from the acute admission and into primary care. Patients who are identified as malnourished or at very high risk of malnutrition, have specialist requirements should have immediate referral to a dietitian. Oral nutritional supplements are now prescribed appropriately whilst in hospital and post discharge in line with national and local guidelines. Communication between different healthcare professionals and settings is essential for the seamless delivery of care and hospital teams discharging patients with an identified risk of malnutrition should communicate this in writing to primary care teams. As a team, we decided to encompass nutrition and dysphagia scores as an inpatient on discharge letters. This was be achieved by working closely with the pharmacy, Speech and Language, catering, nursing and medical teams to develop and implement a clear process for all adult inpatients to improve ward based nutritional care and appropriate prescribing, based on their individual risk of malnutrition. We have developed and implemented a discharge process that provides patients with a nutrition pack (malnutrition pathway leaflets, cover letter +/- Care Homes information) +/- nutritional supplements on discharge. The process was developed with local CCGs, GPs, PCN Pharmacists and community dietetic services. Outcomes measured include; appropriate prescribing, access to snacks and supplements, clinical outcomes including length of stay (LOS), readmission rates and timely access to first line advice. Baseline audit information revealed only 8% of inpatients received the a first line nutrition leaflet, this has increased to 13% just 6 weeks post implementation, patient first line snacks has increased to 5 different categories as choice available has increased. Oral nutritional support (ONS) is now solely prescribed using the agreed ONS pathway. Early indications suggest a direct improvement in patient care and choice.

References
3. ‘Pathway for using ONS in the Management of Malnutrition’ Last accessed from: https://www.malnutritionpathway.co.uk/library/ons_pathway.pdf on 29.06.2021
4. ‘Nutritional considerations for primary care teams managing patients with or recovering from COVID-19’ BDA and optimising nutritional prescribing last accessed : https://www.elmmb.nhs.uk/_resources/assets/attachment/full/0/21337.pdf 02.07.21
Supporting the NHS during the Covid-19 pandemic to reduce hospital admissions and reducing the risk of Covid-19 infections between nurses and patients
by H Dickinson and Y Houston, Fresenius Kabi and Calea, Cestrian Court, Eastgate Way, Runcorn, Cheshire WA7 1NT

As a national nursing service providing community nursing support for patients receiving enteral, parenteral nutrition and other intravenous therapies employing over 300 nurses, it was important to support the NHS during the Covid-19 pandemic.

An NHS support campaign was launched which began by implementing a guiding principle across our service in relation to sending patients to hospital. The guiding principle was framed around keeping the patient at home safely to avoid admission. The guiding principle was: ‘why hospital, why today’. This was communicated out across our nursing service and our standard operating procedures were updated to reflect this.

To help raise awareness to this initiative we also launched a logo. This was added to the email footers of the nursing team and shared with our NHS partner hospitals. We increased the nursing service offering to further support admission prevention, to include the following:

• Blood taking visits
• Additional drug administration
• Virtual patient assessments and training
• Support/facilitate virtual clinics
• Condensed patient training to aid reduced number of visits for training
• Rapid discharge for nursed patients

We reduced the number of nursing visits our patients were having to reduce the risk through contact:

• Patients were offered training for themselves or a carer
• Where clinically safe and in agreements with the referring centres and our patients, we reduced patient’s visits to once a day from twice per day by administering 24-hour infusions, thus reducing contact and exposure to nurses and patients

We offer a 24-hour nurse Advise Line to support our patients and nurses in the community. As part of the ‘Why Hospital Why Today’ initiative, the Advice Line worked hard to find ways to keep patients safely at home rather than advising hospital, along with discussions with the manager on call were able to reduce the number of out of hours hospital admissions.

We also considered our patients mental health and well-being. Our patient cohort is a vulnerable group and they were being isolated from family and friends as well as reduced nursing visits which could impact on their mental health and well-being. We initiated weekly supportive calls to all our patients which were well received.

During 2020 at the height of the pandemic, 27 hospital admissions were avoided, 6 patients completed the condensed patient training package, 160 patients had amendments to their prescription regime to reduce number of nurse visits, 63 patients initiated 24-hour parenteral nutrition infusions, halving their contact with nurses.
Nutrition is a fundamental aspect of care, is a basic human right and there is an expectation that all patients receive optimal nutritional care.

The Nutrition Steering Group identified that there were safety concerns and patient experience issues relating to the all aspects of nutritional care that an acute hospital provides. In order to understand this further, a decision was made to benchmark the service provision against national and local standards to enable a gap analysis to be undertaken and the development of an options appraisal.

National guidance was reviewed. NICE Guidance¹ states that ‘All acute hospital trusts should have a multidisciplinary nutrition support team which may include….and a nutrition steering committee working within the clinical governance framework….all acute hospital trusts should employ at least one specialist nutrition support nurse’. The advice in NICE guidance is not specific.

The review of the organisation of nutrition services within a number of hospital trusts was undertaken to enable benchmarking. Within the majority of Acute Hospital Trusts, nutrition services appear to have been developed in a piecemeal way, developing individual professional groups, such as Dietetics, Gastroenterology and Speech & Language Therapy, in isolation from the perspective of the wider nutrition multidisciplinary service. A Gold Standard Nutrition Service appears to be implemented by those Trusts with designated Intestinal Failure Units and Home Parenteral Nutrition Services.

The result is that there are a variety of options for organising Nutrition Services across the country making benchmarking difficult and identification of an excellent service within an acute hospital subjective.

The nutrition steering group drafted a Nutrition Strategy based around clinical inputs, services and outcomes. A comprehensive Nutrition Risk Register was developed. A business case and options paper was developed including the risks and safety concerns, the benchmarking summary and the potential costs to the organisation. A solution of replication of the triumvirate model already implemented across each care group and review of all clinical staff within nutrition in a staged approach to implementation was provided. This was presented to multiple Board Level groups for discussion.

The outcome of the submission is that the first stage of the business case was approved, which has enabled the appointment of a Trustwide clinical and service lead, a lead nutrition practitioner, 3 Nutrition specialist practitioners and 3 nutrition support workers. This group of staff are currently being recruited and improvements and outcomes are already apparent.

The Five Year Nutrition Strategy has been approved and a review of the non nursing aspects of the service is being undertaken. The aim has been to develop a Gold Standard Nutrition Service in an Acute General Hospital, to enable benchmarking nationally. It is important to share this work and enable the benchmarking to start at the Bapen conference.

References
The challenge of meeting protein requirements in critically ill patients in the COVID era

by S. Verdaasdonk, K. Lomax, A. Morgan, M. Price and L. Fixter.

Department of Dietetics, Royal Free Hospitals London NHS Foundation Trust, Pond Street, London, NW3 2QG.

Critically ill patients often face progressive and rapid losses of body and muscle mass due to hypermetabolism and increased protein catabolism. Certain population groups (such as obese patients or those requiring Continuous Renal Replacement Therapy (CRRT) require a higher protein provision as advised by both ASPEN\(^1\) and ESPEN\(^2\). Furthermore, critically ill patients often receive significant energy provision from non-nutritional sources such as propofol. As a consequence, calorie provision via enteral feed is commonly restricted to avoid overfeeding, and protein provision to the patient is further compromised.

Retrospective data was collected for 58 patients who were either confirmed or suspected of COVID-19 and admitted to the Intensive Care Unit (ICU) during April 2020. 31\% (n=18) of patients were unable to meet their protein requirements from the feed formula alone, based on initial dietetic assessment. Recommended protein requirements were not achieved in any patients who were obese (n=10; defined as BMI ≥30 kg/m\(^2\)) or receiving CRRT (n=6). The maximum protein provision for obese patients was 1.5g/kg IBW and 1.6g/kg for patients receiving CRRT. The situation was exacerbated for patients receiving high dose propofol (defined as >10 ml/hr), where protein provision decreased to 0.8 – 1.2g/kg and 1.1 – 1.3g/kg respectively.

In the non-obese, non-CRRT ICU population, the available enteral feeding regimes were appropriate to meet the majority of patients’ protein requirements (as shown in Figure 1). However the review almost certainly overestimates protein provision, as percentage feed delivery was not assessed and the results assume 100\% feed delivery. We know from previous audits on our unit that feed delivery is often <80\% of target, and although this review was based on COVID-19 patients, the ‘typical’ patients in ICU often have specific nutrition requirements, which includes high protein.

The challenges faced during COVID-19 has raised awareness of the importance of protein delivery in ICU and our review highlights the need to continually monitor and augment protein delivery in critically ill patients. The findings support the need for a high protein supplement in specific population groups; particularly those who may be obese, require CRRT or are receiving high dose propofol in an ICU setting.

References

Mitochondria are organelles found in every cell of our body, except for red blood cells, and regulate energy metabolism, apoptosis, and oxidative stress. Proteins controlling these processes are encoded by nuclear or mitochondrial DNA [1]. Mutations in this DNA may result in mitochondrial disease, which are a group of incurable, multi-systemic, and progressive diseases, including mitochondrial depletion syndromes (MDS) [1]. This is a case study on the nutritional management of a patient diagnosed with encephalomyopathic MDS caused by mutations in the nuclear gene RRM2B, required for mitochondrial nucleotide synthesis [2].

This patient was diagnosed as a teenager upon presenting with ptosis and had weakness of his upper and lower limbs, which limited his mobility. He was referred to Nutrition and Dietetics aged 47 years in October 2017 due to being at high risk of malnutrition (Table 1). On initial presentation the patient was on a soft diet secondary to dysphagia, and at high risk of refeeding syndrome [3]. Our primary aims were to (i) manage refeeding risk and (ii) improve his nutritional status and body weight to maintain functional status. His nutritional requirements were estimated using Henry equation. There is a paucity of evidence regarding the nutritional management of this patient group, however, NICE (2006) guidelines for nutrition support for adults and ESPEN (2018) guidelines for clinical nutrition in neurology are frequently used for this patient group [3,4].

The patient’s bodyweight increased by 7% over 3 months using food fortification and oral nutritional supplements (ONS) to meet his estimated nutritional requirements. After discontinuing ONS, his bodyweight had increased by a total of 11% over 6 months and he was discharged. The patient was referred back to our service a year later following an episode of severe aspiration pneumonia that resulted in admission to ICU and subsequent placement of a percutaneous endoscopic gastrostomy (PEG) feeding tube. He had been established on level 4 pureed diet and normal fluids, which later progressed to increased aspiration risk, and his BMI had once again significantly decreased. He had also commenced non-invasive nocturnal ventilation.

Our aims were to (i) meet his estimated nutrition requirements, (ii) promote weight gain, and (iii) maintain functional status. This was achieved via bolus feeding with 4 Ensure TwoCal daily alongside level 4 pureed diet taken at risk by patient choice. Either bolus or continuous tube feeding is recommended for this patient group to avoid a catabolic state and hypoglycaemia [2,5]. His fluid requirements were met via the gastrostomy. Although supplementation with vitamins, including riboflavin and thiamin, may be practiced, these have shown little benefit in slowing disease progression [2]. Despite an increase in the patient’s bodyweight, weakness of his respiratory muscles and reflux from gastrostomy feeding resulted in repeated occurrences of aspiration pneumonia. Unfortunately, this would see the patient succumb to his condition at 51 years, 2 years after commencing gastrostomy feeding.

The role of nutrition in supporting patients with mitochondrial diseases places Dietitians as key members of the multidisciplinary team. This case study highlights the importance of regularly monitoring patients’ nutritional status and bodyweight throughout their disease course. Although the heterogeneous nature of mitochondrial diseases makes this challenging to study, the need exists for disease-specific nutrition guidelines.

### Table 1: Anthropometric and nutritional information of a patient with mitochondrial depletion syndrome.

<table>
<thead>
<tr>
<th>Date</th>
<th>Weight (Kg)</th>
<th>BMI (Kg/m²)</th>
<th>Estimated energy requirements (kcal)</th>
<th>Estimated protein requirements (g)</th>
<th>Estimated energy intake (kcal)</th>
<th>Estimated protein intake (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19/03/21</td>
<td>51.2</td>
<td>17.1</td>
<td>1280 – 1792</td>
<td>41 – 78</td>
<td>1900 – 2000</td>
<td>82 – 87</td>
</tr>
<tr>
<td>25/03/19</td>
<td>43.3</td>
<td>14.6</td>
<td>1083 – 1516</td>
<td>35 – 65</td>
<td>2000</td>
<td>78</td>
</tr>
<tr>
<td>12/04/18</td>
<td>48.6</td>
<td>16.3</td>
<td>1165 – 1631</td>
<td>37 – 70</td>
<td>1500 – 1800</td>
<td>40 – 48</td>
</tr>
<tr>
<td>19/10/17</td>
<td>43.4</td>
<td>14.5</td>
<td>1825 – 2225</td>
<td>53 – 81</td>
<td>1920</td>
<td>60</td>
</tr>
</tbody>
</table>


A Quality Improvement Project to optimise nutrition in COVID-19 patients receiving CPAP therapy in a ward based setting
by I. Davies¹, H. Hartnett¹, V. Alderman¹ and J. Agbetile¹,
¹Homerton University Hospital, Homerton Row, London, UK, E9 6SR

Patients receiving Continuous Positive Airway Pressure (CPAP) therapy for severe COVID-19 are at high risk of malnutrition¹₂. This is related to poorer outcomes and longer durations of hospital stay³. British Dietetic Association guidance recommends nasogastric (NG) feeding for all COVID-19 patients on CPAP⁴. The aim of this Quality Improvement Project (QIP) was to optimise nutrition in COVID-19 patients receiving CPAP therapy in a ward-based setting at a UK District General Hospital.

The QIP included 222 patients in total across four QI cycles. Four domains: meeting nutritional requirements (outcome measure), dietitian review, accurate weight and NG feeding (process measures) were studied. Whether patients were reviewed by dietitians, weighed and NG fed was determined for all 222 patients. Meeting of estimated nutritional requirements could be determined in 108 patients. Interventions included use of a local nutrition pathway, COVID-19 diet sheet, NG feeding and involvement of dietitians at a daily multi-disciplinary meeting. Descriptive statistical analysis in the form of a Chi-Squared test was used to compare the first two COVID19 waves. No ethical approval was required.

Results showed significant improvement in the proportion of patients reviewed by dietitians, accurately weighed and NG fed between the first two waves of COVID19 (p<0.05). Comparing the 1ˢᵗ to the 4ʰ QI cycle; meeting requirements improved from 50% to 68%, dietitian review from 29% to 91%, accurate weights from 44% to 87% and NG feeding from 6% to 65%.

These improvements were achieved through novel approaches, rapid implementation of new guidance and multi-disciplinary working. Next steps should include introduction of a standardised care proforma and study in future QI cycles. These interventions could be trialled in other inpatient wards to deliver wider benefit.

This QIP was successful in optimising nutrition in this cohort of patients and thereby delivering better patient care.

References:
Stepwise application of a pilot prehabilitation program for colorectal cancer patients prevents nutritional decline and improves patient-reported outcomes

by S Hall, L Cox, R Scarpinata, T Singhal, F Smedley and E Ypsilantis.

King’s College Hospital, Princess Royal University Hospital, Orpington, United Kingdom

Prehabilitation refers to a multimodal preoperative strategy aiming to enhance patients’ functional capacity. Evidence for the implementation of a prehabilitation program has demonstrated favourable patient reported and healthcare cost outcomes (Gillis et al. 2018). A stepwise implementation of a pilot prehabilitation program was undertaken in a colorectal unit.

Prehabilitation was offered to a cohort of all newly diagnosed colorectal cancer patients planned for curative treatment. Patient demographics, oncological characteristics, anthropometric data, frailty scores and patient-reported global health assessment were recorded at baseline and during follow up after intervention and treatment (surgery). Crude clinical outcomes included hospital length of stay (LOS), morbidity, mortality, readmission rates.

39 patients were treated ‘straight to surgery’. Time available for dietetic prehabilitation was a median 14 days (2-62) and for physiotherapy prehabilitation 10 days (1-31). One third of patients had experienced significant weight loss pre-operatively. Dietetic prehabilitation impeded further decline: there was no difference in median Body Mass Index (BMI) between baseline and 6 weeks post-op. Physiotherapy prehabilitation seemed to confer an observed improvement trend in the Rockwood frailty score (RFS): Baseline median RFS = 1.5 (range 1-4), Follow-up median RFS = 2, (range 1-5, ns). Similar trend was observed in self-reported general health scores: Median ED5q5L score at follow up was 90% (range 70-99%), improved from median baseline pre-op score 75% (range 50-83%, ns). Favourable clinical outcomes were recorded with no mortality or re-admission. The total hospital LOS did not differ from historical data.

Prehabilitation can impede the nutritional and functional decline of colorectal cancer surgery. Holistic clinical approach to prehab and physiotherapy-targeted tailoring to individual patient needs can build on the above preliminary experience.

References:
Assessing the severity of pre-operative malnutrition in cancer patients due to undergo potentially curative surgery. A review of a virtual dietetic prehabilitation service.

by L. Cox. King’s College Hospital NHS Foundation Trust

Malnutrition is associated with increased pre- and post operative complications. Dietetic prehabilitation aims to improve surgical outcomes by assessing patients’ nutritional status and instituting early educational and dietetic interventions. In this review, we aimed to assess the severity of nutritional risk in both colorectal and hepatobiliary cancer patients referred for potentially curative surgery and understand the need for dietetic prehabilitation as part of cancer services.

All patients were nutritionally assessed using the Patient Generated Subjective Global Assessment short form and patients were triaged as universal (score <4, low nutritional risk), targeted (score 5-9, medium nutritional risk) or specialist (score >9, high nutritional risk).

20 patients with hepatobiliary cancer and 53 patients with colorectal cancer were referred for surgical intervention between 12th February 2020 and 5th November 2020. In the hepatobiliary cohort, 15/20 patients (75%) required targeted or specialist dietetic prehabilitation. Median weight was 75kg (47kg-114.8kg) and median BMI was 22.9kg/m² (15.7-34.3kg/m²). 5/20 (25%) patients had a BMI less than 20.0kg/m². 12/20 patients (60%) had experienced >5% unintentional weight loss over the past 6 months. 13/18 patients were started on pancreatic enzyme replacement therapy pre-surgically. 1 patient was admitted for pre-surgical nutritional optimisation.

In the colorectal cohort, 21/53 (40%) required targeted or specialist dietetic prehabilitation. Median weight was 74.2kg (44kg-121.35kg) and median BMI was 24.9kg/m² (18.3-41.7kg/m²). 3/53 (6%) patients had a BMI less than 20.0kg/m². 14/53 (26%) patients experienced >5% unintentional weight loss over the past 6 months. 18/53 patients required low fibre dietary modification due to risk of colorectal obstruction. No patients from either cohort lost further weight prior to surgery.

A large proportion of patients with colorectal and hepatobiliary malignancy referred for surgical resection are at high nutritional risk. A prehabilitation program can identify patients at nutritional risk and initiate early interventions to optimise pre-operative nutritional status, and provide education on dietary aspects important for post operative recovery. Findings from this review highlight the importance of robust dietetic screening and the importance of early referral to a Prehabilitation or Oncology Dietitian to meet the unmet nutritional needs of pre-surgical hepatobiliary and colorectal cancer patients.

References:


Peripheral parenteral nutrition in adult acute care- Evaluation of a midline catheter service
by C. Morrison\(^1\), J. Williams\(^2\) and D. Oliver\(^3\)
\(^1\)Dept of Nutrition and Dietetics, The James Cook University Hospital, Middlesbrough, TS4 3BW
\(^2\)Dept of Infectious diseases, The James Cook University Hospital, Middlesbrough, TS4 3BW
\(^3\)Dept of Gastroenterology, The James Cook University Hospital, Middlesbrough, TS4 3BW

Peripheral parenteral nutrition (PPN) is routinely used in the acute hospital setting, in patients with an inaccessible or non-functioning gastro-intestinal tract. Benefits of PPN include the relative ease in establishing peripheral access, which may reduce delays in establishing nutrition support and risks associated with central venous catheter placement \(^1\). This study’s objective was to compare clinical outcomes, following the introduction of a local midline catheter service, and a change in practice from using peripheral cannulas for PPN in adult patients. This is the first evaluation of the midline catheter service for PPN since its introduction in 2019.

This retrospective study design compared patient safety and clinical outcomes, for two four-month periods in 2018-2019 (peripheral cannula group) and 2020-2021 (midline catheter group). Indications for PN and catheter-related complications were defined and adapted from the 2010 UK National Confidential Enquiry into Patient Outcome and Death (NCEPOD) report focused on PN, ‘A Mixed Bag’ \(^2\). Data was collected from medical, dietetic and electronic notes. In-line with NICE guidance,\(^3\) there was no minimum duration of PN for inclusion in the study. Statistical analysis was performed using Fisher exact test and un-paired t-test, along with data summaries.

Data on 42 patients receiving PPN were collected. Twenty patients received PPN via a peripheral cannula and 22 patients via a midline catheter. The median duration of PPN was 8.7 days. A higher incidence of catheter-related complications was observed in the peripheral cannula group compared to midline catheters (p=0.007). Line displacement was more common amongst peripheral cannulas (p=0.002), however, observed differences in phlebitis and extravasation rates were not shown to be statistically significant. Patients received a higher percentage of prescribed PPN when administered via midline catheters (p=0.003). Compliance with documentation standards was found to be very poor, with 11% midline care bundles fully completed. Underfeeding was found to be a common limitation of PPN and 43% patients unable to meet full energy and nitrogen requirements.

This study has shown that midline catheters have a crucial role to play in the delivery of PPN. Fewer line-related complications were observed, and patients received a higher proportion of PN prescription when PPN administered via midline catheters compared to peripheral cannulas. Ongoing education and re-audit is required to improve documentation and line-care standards. Improving access to dedicated line insertion services are considerations for wider service and organisational development.

References:
Urinary sodium monitoring and dehydration in patients on home parenteral nutrition: an audit
by S. James1, J. Tyrrell-Price1, C. Atkinson2 and A. Ness3, 1Department of Gastroenterology and Nutrition, University Hospitals Bristol and Weston NHS Foundation Trust, Bristol, BS2 8HW, UK. 2National Institute for Health Research Bristol Biomedical Research Centre, University Hospitals Bristol and Weston NHS Foundation Trust and University of Bristol, BS2 8HW UK.

Fluid balance management is a challenge in patients on home parenteral nutrition (HPN). Fluid imbalance can readily lead to fluid overload or dehydration. Dehydration can cause electrolyte disturbance and renal dysfunction1. Current UK guidance recommends that serum and urinary electrolytes are monitored every two to three months in patients on HPN. A urinary sodium (Na) of <20mmol/L is the recommended trigger for a review for dehydration assessment2. This audit aimed to estimate the frequency that a low urinary Na is encountered in a HPN population, and how often that is associated with dehydration.

This was a retrospective audit of adult patients receiving TPN or home fluids managed by hospital A throughout the period 01/07/2020 – 01/07/2021. Patients receiving magnesium infusions only were excluded. We used clinical notes (including inpatient notes, discharge summaries, clinic letters, MDT outcomes and telephone correspondence records) and the results database to assess urinary Na concentration, renal function, reason for any hospital admission to hospital A and any comments about hydration status.

52 adult patients were receiving either TPN or home fluids throughout the entire audit period. 37 were female, 15 were male. The age range of patients was 19-88 years old, with 22 patients aged 50 or younger and 30 patients over the age of 50. Underlying aetiology included Crohn’s disease (29%), dysmotility (25%), short bowel syndrome (15%), high output fistula/stoma (13%), miscellaneous (12%) and radiotherapy induced complications (6%). Ten patients had no urinary Na measurements during the study period. Among the remaining 42 patients there were 157 measurements of urinary Na. In 30 patients (57%) it was documented in the clinical notes that either the patient or doctor was concerned about dehydration. In four of these patients there were no urinary Na measurements. Urinary Na was <20mmol/L in 40 samples (25% of all urinary tests) in 20 patients (48% of those with a urinary Na measurement). In six patients (14%) a urinary Na <20mmol/L was related to deterioration in renal function, defined by a rise in creatinine from baseline by >20%. In 15 (36%) patients, dehydration was thought to be the likely cause of a urinary Na <20mmol/L based on clinician opinion in medical notes. There were 60 hospital admissions in 26 patients (50 %), but none were primarily due to dehydration (indications for admission included line infection, surgical complications and vomiting). 21 (40%) patients were documented to use additional fluids on top of their standard regular prescription.

Among patients on TPN or home fluids who had urine samples tested for electrolytes over a period of one year, low urinary Na concentration was observed in nearly half of them and reflected dehydration a third of the time. Measurement of urinary Na concentration varied amongst patients and did not follow current guidance in all cases (i.e., some patients had no urinary Na measurements). Although dehydration was not a reason for hospital admission in this population, around 15% of people with low urinary Na had an observed deterioration in renal function. Very few other studies have examined the frequency of dehydration in a HPN population. In a one-year period, a group in the US showed that 26% of patients on home parenteral support had an episode of dehydration. This group demonstrated successful treatment at home of twice as many episodes of dehydration following the introduction of a protocol to identify and treat dehydration in the home setting3. Ensuring frequent monitoring as per guidelines to allow early detection and prompt treatment of this common issue could improve quality of life and long-term outcome in people on HPN.

References:
Improving the recycling of medical nutrition product packaging in primary and secondary care: initial survey results and plans for implementation of educational support.

by J. Callaghan\textsuperscript{a}, J. Taylor\textsuperscript{a}, E. Baker\textsuperscript{a}, G. Steel\textsuperscript{a}, P. Coulson\textsuperscript{a}, A. Johnston\textsuperscript{a}, N. Wayne\textsuperscript{a}, J. Brown\textsuperscript{b}, \textsuperscript{a}The Newcastle upon Tyne Hospitals NHS Foundation Trust, NE7 7DN, \textsuperscript{b}Nutricia Ltd, White Horse Business Park, Trowbridge, Wiltshire BA14 0XQ

In June 2019, the Trust were the first healthcare organisation in the world to declare a climate emergency, committing to be net zero carbon by 2040\textsuperscript{1}. Across the city, it is estimated that 455,382 units of medical nutrition products in plastic packaging are used per year, with approximately half used in primary care and half in secondary care. All this packaging is recyclable, however further work is needed to understand if recycling is taking place in practice. With the NHS representing 5\% of the UK’s carbon footprint\textsuperscript{2} the Dietetic department proposed a sustainability project focussing on recycling of medical nutrition product packaging across the Trust which was approved as part of the Trust ‘SHINE’ (Sustainable Healthcare in Newcastle) programme.

In January 2021, a subgroup of the Trust’s Nutrition Steering Group (including Dietitians, Nurses, Waste Manager) joined representatives from the contracted enteral tube feed company to form a collaborative working group, to conduct baseline surveys to understand current levels of recycling and to measure the potential impact of future interventions. In primary care an online survey was conducted for completion by care homes, and enteral tube feeding homecare nurses completed a questionnaire with home enterally tube fed (HETF) patients in July/August 2021. In secondary care an online survey was conducted of ward staff on selected hospital wards identified as high users of medical nutrition products.

In primary care, 28 home enterally tube fed patients across the city responded to the questionnaire (approx. 10\% of the local HETF population). Half of the patients (14/28) currently recycle 50\% or more of their medical nutrition product packaging, however the other half (14/28) recycle none or very little. When asked “What would encourage you to recycle more?”: 43\% (12/28) said more or clearer information on what can be recycled; 18\% (5/28) stated that more options for recycling at home were needed; 25\% (7/28) stated that ‘nothing’, and a small number stated they did not have enough time to recycle (2/28). In secondary care, 104 staff from adult and paediatric wards across 2 hospitals completed the online survey (mostly nurses (77/104), also cleaning/housekeeping and other staff). The majority regularly recycled at work (95\%, 99/104), knew what could be recycled (80\%, 83/104), and were aware what medical nutrition packaging could be recycled (63\%, 66/104). Staff reported that different medical nutrition packaging types were regularly recycled by those who used or disposed of them: oral nutritional supplements (61\%, 54/88), tube feeds (58\%, 49/84), containers (53\%, 42/80), giving sets (81\%, 71/88), liquid infant feeds (60\%, 32/53), thickeners (52\%, 33/63), baby bottles (57\%, 28/49) and cardboard box packaging (99\%, 87/88). When asked what prevented them from recycling more: poor awareness (48/104); time (31/104); and lack of recycling facilities (20/104), were most common. When asked what would encourage more recycling (multiple answers could be given): more information (109); and more recycling facilities (52), were most common. Results from the care home surveys are due later in 2021.

Educational support on how to recycle medical nutrition product packaging is planned to coincide with National Recycle Week in September 2021, highlighting; the aim of the project, medical nutrition product packaging recyclability, and instructions on how to recycle it. This will be provided as information at managers meetings, articles in newsletters, posters and stickers, and leaflets and guidance provided by enteral tube feeding homecare nurses to HETF patients. After implementation of the educational support, follow up surveys are planned in 12 months’ time to measure behaviour changes, identify any outstanding educational support required and evaluate the success of the project. Further publications are planned to share findings as this project progresses and a checklist will be made available to support other Trusts interested in undertaking similar projects.

References:
Nutritional care the patient’s perspective: Data from a national survey of patients with diseased related malnutrition.

by A.L. Cawood¹, E.R. Walters², C. Wheatley³, L. Anderson⁴, T.R. Smith⁵. ¹Faculty of Medicine, University of Southampton, Tremona Road, Southampton, SO16 6YD; ²Faculty of Health Sciences, University of Southampton, University Road, Southampton, SO17 1BJ; ³PINNT charity, Christchurch, Dorset, BH23 2XS; ⁴Buckinghamshire Healthcare NHS Trust, Aylesbury, Bucks, HP21 8AL; ⁵Department of Gastroenterology, University Hospital Southampton NHS Foundation Trust, Tremona Road, Southampton SO16 6YD.

The NHS long term plan seeks to encourage greater self-management of long-term conditions, which is an important concept in the context of the finite healthcare professional resource. Disease-related malnutrition (DRM) affects over 3 million people in the UK with most living in the community and is one such condition where patients could, in part, self-manage. Self-screening for malnutrition risk is validated and reliable using the Malnutrition Universal Screening Tool (‘MUST’). Supporting patients with first line management strategies could aid adherence to treatment interventions. However, there is little describing patient experiences of self-management of DRM. A survey to gain insights from patients with DRM, who may or may not have received oral nutritional support, including oral nutritional supplements (ONS), was created to explore patient experiences and perceptions of nutritional care.

A nationally representative, cross sectional, online survey was undertaken, between 19th March and 9th April 2021. 100 adults (61% female, 39% male; 50% >65 years, 50% <65 years; 50% received ONS, 50% not receiving ONS), across England (84%); Scotland (9%); Wales (5%), and Northern Ireland (2%) completed the survey. The survey comprised a series of ranking questions about: a) understanding around nutrition in illness and recovery, b) worries or concerns about nutrition, eating or weight, c) advice about nutrition, d) views on self-management of malnutrition, and e) experience with ONS. Data was analysed using SPSS version 24 and presented as the highest-ranking responses.

This research was conducted as part of a collaborative project with the Patients Association.

All respondents stated that advice on nutrition and eating when you have an illness or disease is important (19%) or very important (81%). The most quoted concerns about nutrition included, “having a poor appetite” (41%), “a health care professional (HCP) has told me I am at risk of malnutrition” (32%), and “I am unable to eat my usual amount of food” (30%), with the least quoting “I have a low BMI” (11%). Most respondents reported “speaking to their GP” (57%) or “searching the Internet” (41%) about these concerns. When given advice or information to manage concerns most found this very helpful and helpful (62%), stating it “somewhat improved my eating, nutrition or weight” (34%). Around half (51%) would like to be able to monitor their risk of malnutrition at home with 24% unsure. A high proportion of respondents stated they knew their current weight (76%), previous weight 3-6 months ago (66%), and height (89%), which would allow them to undertake self-screening with ‘MUST’. Preferred sources of advice about monitoring malnutrition risk at home were from an HCP (56%), website (45%) or leaflet (33%). This was similar to the ranking of being provided information on self-management of malnutrition (from an HCP 48%, on a website 44%, in a leaflet 34%). In those who were prescribed ONS, most were told to take 1-2 per day (72%), every day or most days (84%). Around a third (34%) were advised to continue with ONS until their next appointment with 26% told to take for 1 month. 64% were given some verbal advice about ONS with the remainder not recalling being provided any advice. Respondents reported they would have liked advice from a HCP (46%) or leaflet (44%) on how ONS can help them (65%), when (54%) and how long (52%) to take them, how to use them (50%), how to know if they are helping (45%), why you have been given them (44%) and what to do if you don’t like them (41%).

This small but significant survey’s findings suggest patients in the UK recognise the importance good nutrition plays in the management and recovery from illness or disease. It suggests there is a drive from patients to be able to monitor and manage their own malnutrition risk, supported by information from HCPs, websites, or leaflets. Further work is needed to understand how to provide information which empowers patients to identify their own risk and understand the best strategies to improve the self-management of DRM.

Acknowledgment: Educational grant from Nutricia.
The development and use of e-learning modules to support care home staff caring for enterally tube fed patients

Education is increasingly being accessed digitally, as demonstrated by the success of e-Learning for Healthcare or e-LfH, a health education England programme developed in partnership with the NHS and professional bodies. Within digital learning, e-learning is a popular medium as it offers users an opportunity to learn at one’s own pace, at a convenient time and place, revisiting as often as required, giving flexibility, and freedom to continue a professional development journey. A plan was therefore formed to develop e-learning to provide important support for enteral tube feeding for care home staff in a simple, convenient, and easily accessible format. Before development of the e-learning, qualitative and quantitative research was undertaken with key stakeholders to assess the acceptability of e-learning for care home staff in the field of enteral tube feeding. Following launch of the e-learning, views and feedback were analysed.

Qualitative interviews were conducted with six care home managers across the UK to understand the challenges faced in providing education on enteral tube feeding for care home staff. Difficulties identified included: releasing staff from day-to-day activities; high turn-over of staff resulting in frequent training required for new employees; access to workplace digital devices, and; staff unable to complete their full duties until training was completed and documented. An online survey was conducted to gain quantitative information from an enteral tube feed companies’ homecare nurse team to evaluate the concept of online e-learning for care home staff. 13 homecare nurses responded, (approx. 10%) and 80% felt online training would be valuable for care home staff. Using these learnings an enteral tube feeding e-learning course was developed by the company’s homecare nurse team consisting of six, short interactive modules. Six Dietitians across the UK in both acute and community settings were consulted on the content, which they reviewed and refined ensuring a balanced view of practices and procedures were included. COVID-19 accelerated the requirement for online learning as face-to-face activity and care home access was restricted and the modules were launched earlier than planned in March 2020. A simple registration process granted access to the modules through a variety of electronic devices such as tablets and laptops.

Between March 2020 to July 2021, 5,152 individuals registered and completed at least one module, with 3,661 (71%) completing the introductory course and the first 3 modules. Several NHS Trusts have added the e-learning link to their intranet sites as mandatory training for new starters. Feedback has been positive: “E-learning is going down a treat at the moment”; “11 of my staff completed the training. We found it really useful, the system was easy to navigate, gave us information that we didn’t know and helped us to understand the different types of feeding systems available. I would recommend this training as we all felt it gave us more confidence in supporting a person using a feeding system”.

The high uptake of the e-learning and positive feedback demonstrate that these e-learning modules are a popular and acceptable form of education for care home staff and are suitable to be used across a variety of settings. The initial research helped to ensure that the e-learning modules which were developed, fully met the needs of care home staff and therefore provide important support in a simple, convenient, and easily accessible format.

References:
Investigation and follow up of patients under “hospital A” receiving home parenteral nutrition with liver function test (LFT) derangement
by S. Sivapalan, A. Jukes, T. Pembroke and R. Hewett, CF14 4XW, Cardiff

Investigations to help identify the cause of abnormal routine serum LFTs (Alkaline phosphatase (ALP), Alanine Transferase (ALT) and Bilirubin) may be sub-optimal in patients on home parenteral nutrition (HPN), despite the risk of patients developing intestinal failure associated liver disease. Suboptimal investigation and follow-up of patients may lead to a delay in multivisceral transplant referral and be associated with adverse outcomes.

In this retrospective audit, we examined the electronic health records from 123 patients at “hospital A” receiving HPN from January 2020 to July 2021 to determine the proportion of patients with LFT derangement who had been appropriately investigated (liver blood screen, ultrasonography, CT, MRI, and FibroScan). Clinical follow-up was also evaluated by ascertaining if patients with LFT derangement had undergone hepatology review, had a liver biopsy, or if a multivisceral transplant (MVTP) referral had been made (or considered) where indicated.

Seventy-eight patients (63%) were found to have evidence of LFT derangement during the audit period. These included patients with persistently (two or more) abnormal LFTs (n=54), single previous (not current) derangement (n=22) and current LFT derangement (n=2). Of these, 31 patients (40%) underwent sub-optimal investigation. 27 patients (35%) did not receive imaging during clinical investigation, but had blood tests. 4 patients (5%) were not investigated with either imaging or liver screen. ALP was the most frequent deranged LFT, with elevated levels seen in 17 of 31 patients (55%), including 12 patients with persistently deranged LFTs. 51 patients (65%) underwent imaging; fatty liver was identified in 9 (18%), overt cirrhotic changes in 4 (8%) and liver enlargement in 1(2%). Of the 4 patients with cirrhosis on imaging, 2 had already been referred for MVTP, one had declined referral and one was not suitable due to current heavy alcohol intake.

Our findings show that a significant minority of HPN patients with evidence of LFT derangement were sub-optimally investigated. However, this applied to a much smaller number of patients with persistently abnormal LFTs, and these were often an isolated raised ALP. All patients with cirrhosis had been previously identified, therefore illustrating the importance of investigating abnormal LFTs in HPN patients.

References:
Introduction of the liver frailty index, (LFI) in liver transplant assessment
by R Thomson, S Burnside and S McPherson, Nutrition and Dietetics Department, Institute of Transplantation, Freeman Hospital, Newcastle upon Tyne Hospitals NHS Foundation Trust, NE7 7DN, England

Frailty has become a growing area of interest due to its association with adverse outcomes in liver cirrhosis and transplantation. There is no gold standard tool for measuring frailty in liver transplantation, but its measurement is recommended in evaluating transplant candidacy and suitability\(^1\). In particular the model for end stage liver disease, (MELD) does not adequately capture all the physiological components that contribute to morbidity and mortality in cirrhotic patients\(^1\). There is an independent association between frailty and mortality after adjustment for liver disease severity\(^2\).

The aim was to incorporate the liver frailty index, (LFI) tool into all the liver transplant assessments at this regional liver transplant unit\(^3\). The LFI incorporates 3 measurements: balance, hand grip strength and five timed chair stands and has been validated in America to predict wait list mortality in cirrhotic patients awaiting liver transplantation\(^4\). The LFI was conducted by the Dietitian, alongside other routine measurements including, timed up and go, mid upper arm circumference, tricep skin fold thickness, mid upper arm muscle circumference, hand grip strength, body mass index and a full dietary assessment. A LFI score of \(\leq 3.2\) indicates a patient is robust, 3.3-4.4 pre frail and \(\geq 4.5\) frail.

The LFI has been incorporated into all the liver transplant assessments from December 2019 to date. 57 patients LFI scores were analysed between December 2019 and May 2020. Of these patients, 2/57 were deemed robust, 47/57 as pre frail and 8/57 patient’s frail. The median LFI score for this cohort was 4.06, compared to 3.8 for the American cohort\(^3\). Malnutrition, a component of frailty, was identified in 25/57 of patients by subjective global assessment, (RFH-GA). Of the 8 frail patients, only 1 of these patients was listed but passed away within a month. 5 of the 8 frail patients were not listed due to the primary reason of frailty/poor nutritional status. Of those deemed pre frail, 19/47 were listed, 16/47 not listed and 12/47 decision deferred. The 2 patients identified as robust were listed. A total of 13 patients were deferred. A target of prehabilitation and reassessment was identified in 5/13 of these patients. A greater TUG score was positively correlated with a higher LFI score. Of this cohort, 9 patients have been transplanted, (up to November 2020). Due to small numbers no link between outcomes and complications can be observed.

The LFI is now routinely incorporated into the liver transplant assessment programme and forms part of the MDT transplant assessment meetings individual patients PowerPoint presentation. The use of the LFI tool has helped facilitate clinical decisions regarding transplant suitability and provides a guide to assist with specific patient clinical management, in particular highlighting the need for prehabilitation. The longitudinal scoring aspect of the LFI has also been used to highlight improvements or deterioration when deferred patients return for re assessment and consideration for listing.

Future work would look at LFI and waitlist mortality, the development of the prehabilitation service and review liver transplant outcomes in relation to frailty. A therapy services prehabilitation pathway with the aim to improve patient outcomes and care is currently being developed within the trust.

References:
Serial complications following percutaneous endoscopic gastrostomy
by T.Y. Lim, A. Charlesworth, D. Dewar, G. Walker and M. Jennings, University Hospital Lewisham, Lewisham High Street, London, SE13 6LH, UK

Percutaneous endoscopic gastrostomy (PEG) is the modality of choice for long term enteral nutrition. Although generally considered safe, PEG tube placement can be associated with many potential complications. We present a case study of a 23-year-old woman with a background of cerebral palsy and learning difficulties who developed serial complications following multiple PEG - insertions.

Initial PEG insertion was performed in 2007. As per her medical records she had undergone several endoscopic and surgical replacements prior to presenting to our hospital in 2016 with a buried bumper (BB). BB is known to occur in 1% of PEG placements. The PEG was changed under general anaesthesia without surgical excision. Optimal site as indicated clinically via transillumination was at the previous site of BB.

A year after this PEG she presented with symptoms of loose stools and abdominal pain. Serum tests revealed hypokalaemia, hypoalbuminaemia and thrombocytopaenia. Abdominal X-ray showed faecal loading. Stool microscopy and culture was negative. Following electrolyte correction, intravenous hydration and laxatives, she was discharged.

Two-months later she was re-admitted with concerns of a further BB. OGD failed to visualise the gastrostomy. A flexible sigmoidoscopy showed that the PEG tube was in transverse colon. This explains her symptoms of diarrhoea, abdominal pain and weight loss. The bumper was removed endoscopically and the gastrocolic fistula was clipped. She was treated with empirical intravenous antibiotics and parenteral nutrition. A new PEG was placed a month later, and she made a successful recovery.

This case highlights the need to consider possible complications of PEG tube insertion even after a long period of uncomplicated feeding. The patient never appeared to have had any signs of peritonism or sepsis. Gastrocolocutaneous fistula is a rare complication and usually occurs in the first few months after insertion1,2. We stipulate that reinsertion of a gastrostomy into an existing buried bumper might predispose the patient to a higher risk of tube migration3. Alternative devices such as balloon secured devices, or Corflo gastrostomies with a thicker flange may have a lower risk of buried bumper4.

Therefore, it is important to ensure maintenance of long-term PEG management and staff training.

References:
The Trust provides cancer services for patients across the region. Approximately 300 patients each year receive radiotherapy for head and neck cancer, approximately 50% of these patients have enteral feeding tubes placed. Historically, Dietitians provided support for all patients with enteral feeding tubes receiving radiotherapy treatment and the local nursing service provided by the enteral tube feeding contract provider provided community clinical support. Due to increasing patient numbers and increased Dietetic workload, a new “enteral feeding tube nurse clinic” was introduced, run by the local enteral tube feeding homecare nurse, with the intention of supporting patients with enteral feeding tubes. This clinic has been running since 2019 and is a “drop-in clinic” which both staff and patients can access for support, including troubleshooting advice on feeding tubes, moving patients from bolus feeding to pump feeding or even giving patients reassurance that they are caring for their enteral feeding tube correctly. This is a unique service built in conjunction with the Dietetic team, designed to meet local patient’s needs.

In 2020 a review took place to evaluate the level of patient satisfaction of care from the enteral feeding tube nurse clinic, to establish the confidence of patients in caring for their feeding tubes and to explore feedback from patients to develop the service further. The review took the form of a patient questionnaire, given to patients during the last week of their radiotherapy treatment. Survey questionnaire forms assessing: the patient’s satisfaction with the support and service (5-point scale: 1 not at all satisfied - 5 very satisfied); how confident they felt after receiving the support (5-point scale: 1 not at all satisfied - 5 very satisfied), and; about their experience overall (free text), were handed out to patients in clinic over a 6-week period.

The questionnaire was completed by 12 patients. For satisfaction with the support and service 10/12 (83%) of patients scored 5: very satisfied, with the remaining 2 patients scoring 3: neutral. Comments from patients included: “nurses always willing to help”, “excellent nurses, great, quick, professional job-no fuss”, “help available whenever it is needed”, “very happy with the care provided”, “every time I have requested their help, I have had a prompt reply and always each problem has been addressed”. For confidence with enteral tube feeding procedures, 100% of patients scored 5: very confident. Comments from patients included: “I feel much happier with the tube”, “very confident in cleaning and rotation, and excellent instructions from nurses”. When asked about their experience overall, patient comments included “Thank you for all your support”, “expert care, friendly, informative”, “fantastic prompt treatment”, “grateful that I have had the support”, “friendly, professional staff are always willing to help and always have said ‘if you need me, just ask, at any time’”. Due to Covid-19 the clinics had to temporarily stop, however the Dietitians and Consultants missed the instant and direct access to the homecare nurse for enteral feeding tube support, suggesting that the clinic was also highly valued by the healthcare professionals working at the clinic. In August 2021 the clinics started again and there are plans to expand the service later this year.

In summary, the enteral feeding tube nurse clinic was positively evaluated by the patients attending the radiotherapy clinic. The overwhelming feedback was that having contact with an enteral tube feeding homecare nurse at least weekly throughout their radiotherapy treatment allowed them to have rapid access to support, advice, reassurance, and training if their feeding requirements changed. Due to the success of this clinic, development of similar clinics in other areas should be considered.
PEG placements during the COVID-19 pandemic
An audit of the procedures performed by a single consultant operator at a tertiary teaching hospital
by N.D. Pantzaris and J.A Stewart, University Hospitals of Leicester, Digestive Diseases Centre, Leicester, UK, LE1 5WW

PEG feeding provides a valuable nutritional access for patients with a functional gastrointestinal tract. The aim of this project was to audit all the PEG procedures performed by a single consultant operator during the Covid-19 pandemic including the indications, outcomes and complications.

All the procedure reports were accessed to identify the patients, indications and immediate outcomes. For every patient, all the letters from all specialties were accessed for the dates following the procedure through the clinical records platforms to identify any later complications.

A total of 92 procedures were performed between 15/3/2020 and 31/4/2021 in a total of 84 patients. Lists were operating at less than half capacity compared to pre Covid-19. 65 were planned PEG insertions, 17 were planned removals, and 10 were planned replacements. 5 of the procedures were for PEG-J insertion or replacement.

The main indication was Head and Neck Ca in 59/92 procedures followed by CVA 9/92, chronic nausea/vomiting/gastroparesis in 6/92, dysphagia with or without aspiration risk in 4/92, MND in 4/92, CNS tumour post-op (pineal gland) in 2/92, cerebral palsy in 1/92, multiple sclerosis in 1/92, neurodegenerative disorder in 1/92, neuromuscular disorder in 1/92, chronic pancreatitis in 1/92, cystic fibrosis in 1/92, depression with poor oral intake in 1/92 and learning difficulties in 1/92.

83/92 procedures were completed successfully. 2 procedures had a failed intubation, 1 because of a subglottal stricture. The rest of the abandoned procedures were due to patient distress (2/92), high oesophageal stricture (1/92), failed cannulation (1/92), body habitus (1/92), stomach not transillumination and patient desaturation (1/92). One of the planned replacements failed because of a buried bumper.

In two patients there was a small leak around the PEG site, 1 identified in the endoscopy room, 1 a few weeks later but both were managed conservatively and the PEG was kept in place. No other complications identified.

From October 2020 the consistent use of Corflo PEGs reduced the service demands as these can be easily removed in the community.

Lists during the COVID-19 pandemic were significantly impacted, especially UGI procedures, as these are aerosol generating procedures. The vast majority of the procedures are completed successfully and there are no significant complications. Most failed procedures are due to patient related factors such as tolerance and anatomical factors. The use of PEGs that can be removed in the community avoiding further endoscopic procedures is a valuable tool especially in this pandemic and early post-pandemic setting.
Nasogastric tube never events during the Covid-19 crisis in the UK; fewer than predicted.

by B.J.M. Jones¹, W-L. Relph², L. Anderson³, P. Edwards⁴ and L. Broomfield⁵ on behalf of BAPEN Nasogastric Special Interest Group (NGSIG). ¹BAPEN Office, Seven Elms, Dark Lane, Astwood Bank, Redditch B96 6HB, ²Arundel Unit William Harvey Hospital, Ashford, Kent TN23 0LZ, ³Bucks Healthcare NHS Trust, Stoke Mandeville Hospital, Bucks HP21 8AL, ⁴Wrexham Maelor Hospital, Wales LL13 7TD, ⁵Hywel Dda University Health Board Wales SA31 3BB.

Early in the Covid-19 pandemic, the NGSIG predicted the number of sick Covid-19 patients requiring nasogastric tube (NGT) feeding in critical care and high dependency areas would increase dramatically with consequent increased risk of unrecognised misplacement leading to Never Events (NE) and/or pneumothorax. Based on our Position Paper on NGT safety¹ we produced an Aide Memoire² with NHSE/I endorsed by NNNG (National Nutrition Nurse Group), The Faculty of Intensive Care Medicine, The Intensive Care Society, The Royal College of Anaesthetists and the Association of Anaesthetists before publication². Rather than relying on aspirate pH as first line initial position check, the Aide Memoire strongly advised use of the “4-point criteria” for reporting x-rays requested specifically to take into account typical ground glass lung fields found in critical care patients. The Aide was not intended to replace current aspirate pH-based guidance in patients outside critical care.

An increase in NGT NEs seemed inevitable with the unprecedented pressure on the NHS with redeployed staff unfamiliar with protocols in HDU/CCU where risk of misplacement is greatest, the reduced nurses/patient ratio and increased staff stress and illness, prone nursing often of obese patients, and the number of NGTs required. Prior to the pandemic, the ongoing incidence of NGT NEs seemed unaffected despite multiple Alerts³ by NHSE/I. The conditions which permitted NEs to occur before the pandemic persisted into the pandemic undiminished or amplified.

According to NHSE/I data, total NEs in England fell from a mean of 452/year in the 5 years prior to the onset of the pandemic to 364 reflecting the reduction in overall NHS non-Covid related activity. The mean incidence of NGT NEs in the previous 5 years was 28.4 (range 22-40) representing 6.3% of total NEs but rising to 10.8% in the year April to March 2020-21 when 34 NGT NEs were reported. NNNG and NGSIG members report that NGT feeding patients increased at least 2-3-fold in NHS hospitals over the last year but particularly in critical care, so at least 51 to 72 cases would have been predicted on a pro rata basis.

Thus, total NEs fell during the Covid-19 response year but NGT related NEs rose in number and as a proportion of total NEs, but not to the predicted level. We have no evidence that our Aide Memoire was directly influential in reducing NGT related NEs to the level reported, but we do have anecdotal evidence from NGSIG members of greater awareness of the issues by HDU/CCU staff. We heard of nutritional leads being able to train large numbers of staff to detect misplacement in accordance with NHSE/I guidance and Alerts with emphasis on preferential use of x-ray imaging in critical care/high dependency areas.

The increase in NEs during the pandemic justifies our concerns but the failure of NE numbers to reach the predicted target could be explained by reduced reporting of NGT NEs but this would be contrary to the observed increase in total NEs during this period. The possibly that the reduced incidence of NGT NEs was related in part to the use of the Aide Memoire in critical care/high dependency units cannot be excluded. Ongoing NGT NEs still require greater attention nationally beyond the pandemic as recommended in our Position Paper.

References:
A retrospective study of patients attending the Emergency Department at a District General Hospital with Gastrostomy complications
by S. Gupta and K. Eaton, Croydon University Hospital, 530 London Road, Croydon, CR7 7YE, UK.

Percutaneous endoscopic gastrostomy (PEG) tube and Radiologically inserted percutaneous gastrostomy (RIG) tube feeding is widely used for providing enteral nutrition to patients with impaired swallowing or cannot meet their nutritional requirements by oral route. Patients with complications of gastrostomy tubes present to the Emergency Department (ED) of their local hospital. We retrospectively analysed data at a District General Hospital (DGH) to determine the impact of these patients on acute services including length of stay (LOS) and associated costs.

A list of patients who attended ED with gastrostomy related problems from April 2018 to August 2019 was identified. Indication for referrals, length of stay in hospital and outcomes with regards to the feeding tubes were analysed. Costs were calculated using the 2017/18 NHS tariffs.

Based on coding, 80 patients were identified of which 3 were paediatric patients, 1 had a nasojejunal tube complication, 1 patient details could not be verified and 1 had an unrelated admission - these were excluded from analysis. Of the 74 patients, there were 45 attendances in the first year and 29 in the 5 months from April 2019. Mean age was 62 years (22-84). The reasons for presentation included dislodged tubes (n=38, 51%), blocked tubes (n=16, 22%), to check PEG position replaced in community/sent with a deflated balloon (n=6), infection/pain/bleeding at insertion site (n=7), split tubes (n=2), clamp problems (n=1) and suspected buried bumper (n=3).

LOS varied from 2 to 47 days (n=39) with a mean of 9.3 days and a cumulative total of 353 bed days. 35 patients (47%) were managed in ED. 13 (18%) patients were admitted for 2 days, 1 for 3 days, 4 for 4 days. 22 patients (30%) had an admission greater than 5 days. 2 patients died during this hospital admission. 14 patients (19%) attended more than once, with 2 patients attending 6 and 7 times respectively. Most of the blocked and dislodged feeding tubes were replaced by ED doctors or the gastroenterology team. 12 patients had gastrostomy tubes inserted by Interventional Radiology (usually with tract dilatation) with a mean delay of 6.6 days (1-31). 2 patients had endoscopy guided gastrostomy insertion on day 9 and 11 after admission. With an estimate of £160 for ED attendance and £346 for each bed day, the cost for managing patients with PEG complications was £133,978 over a period of 16 months.

Care of gastrostomy tubes in the community requires improvement to reduce repeated attendances to ED and avoid distress to patients/carers. This will alleviate pressure on acute services. This requires greater support, expertise and training of community healthcare professionals as well as improving knowledge of acute physicians to manage gastrostomy tube complications especially dislodged gastrostomy tubes. We plan to develop an integrated specialist service to include optimal gastrostomy management within the community and a single point of referral to ambulatory gastroenterology service. This will help in reducing ED attendances, thus saving bed days and reducing costs to the NHS.
Lipid monitoring and hyperlipidaemia in patients on home parenteral nutrition
by S. Heasman, T. Rowland, E. Priestley, L. Gemmell, C. Mountford and N.P. Thompson, Freeman Hospital, Newcastle Hospitals NHS Foundation Trust. Freeman Road, High Heaton, Newcastle upon Tyne, NE7 7DN, UK.

Home Parenteral Nutrition (HPN) is integral to the management of patients with intestinal failure (IF). HPN carries risks; one is hyperlipidaemia, including hypertriglyceridaemia, however the frequency of this is unclear. Current lipid monitoring guidance varies, with BAPEN guidelines (2020) recommending weekly lipid measurement initially, and quarterly once lipid levels and HPN prescription are stable. ESPEN guidelines (2020) do not suggest frequency.

We aimed to audit the frequency of lipid monitoring and of hyperlipidaemia in patients receiving HPN in the north of England by reviewing 162 patients who commenced HPN after the first of January 2015. Patients were included if they had received PN, rather than solely fluid and electrolytes, for at least 3 months.

<table>
<thead>
<tr>
<th>Demographics (N=162)</th>
<th>Initial Lipids Measured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes- &lt;30 days post-PN</td>
<td>69 (42.6%)</td>
</tr>
<tr>
<td>Yes- &gt;30 days post-PN</td>
<td>54 (33.3%)</td>
</tr>
<tr>
<td>No</td>
<td>39 (24.1%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IF Severity (ESPEN Classification)</th>
<th></th>
</tr>
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<tbody>
<tr>
<td>A1-4</td>
<td>4.1%</td>
</tr>
<tr>
<td>B1-4</td>
<td>17.2%</td>
</tr>
<tr>
<td>C1-4</td>
<td>17.2%</td>
</tr>
<tr>
<td>D1-4</td>
<td>61.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HPN Duration (days)</th>
<th></th>
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<tbody>
<tr>
<td>Median (range)</td>
<td>496 (44-2002)</td>
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<table>
<thead>
<tr>
<th>Lipid-modifying therapy</th>
<th></th>
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<tbody>
<tr>
<td>Yes (pre-PN)</td>
<td>13</td>
</tr>
<tr>
<td>Yes (post-PN)</td>
<td>6</td>
</tr>
<tr>
<td>No</td>
<td>143</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of post-PN lipid tests.</th>
<th></th>
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<tbody>
<tr>
<td>Mean (range)</td>
<td>3.44 (0-11)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Results (mmol/L)</th>
<th>Mean Initial Measurement</th>
<th>Mean subsequent measurement (&gt;30 days after commencing PN)</th>
<th>Mean change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cholesterol (mmol/l)</td>
<td>3.76</td>
<td>3.64</td>
<td>-0.27</td>
</tr>
<tr>
<td>HDL (mmol/l)</td>
<td>1.15</td>
<td>1.19</td>
<td>0.05</td>
</tr>
<tr>
<td>Non-HDL (mmol/l)</td>
<td>2.61</td>
<td>2.45</td>
<td>-0.10</td>
</tr>
<tr>
<td>Triglycerides (mmol/l)</td>
<td>1.50</td>
<td>1.58</td>
<td>0.08</td>
</tr>
</tbody>
</table>

Table 1: Patient demographics, details of lipid monitoring and measured serum lipid values.

19 out of 162 patients were taking lipid-modifying therapy; of these, 13 had commenced it prior to PN (table 1). Of the 6 patients who commenced post-PN, none of them met criteria for intervention by lipid levels, as set out by NICE (National Institute for Health and Care Excellence (2020)).

There was little consistency in when and how often lipids were measured, only 43% of patients had lipids measured prior to starting PN or within the first 30 days. There was very little change in lipid levels with establishment on PN. Our results suggest that lipid derangement caused by HPN is uncommon; indicating that monitoring as recommended by BAPEN may be unnecessarily frequent.

References