Aims To explore the relationship of TGA-IgA/C21 ≥5x ULN with histological diagnosis of CD in children referred to a single large tertiary centre.

Methods Prospectively recorded data for children diagnosed with CD following endoscopy over 14-year period (September 2006 to August 2020) was analysed. The data included age, sex, reason for screening, indication for endoscopy, TGA-IgA levels at endoscopy, and histological findings. Where quantitative TGA-IgA was unavailable or not recorded were excluded from the analysis. Statistical analysis was performed using χ² analysis and p<0.05 was considered significant.

Results 947 children had endoscopy, but 871 had complete data and were included in final analysis. 772/871 received a histological confirmation of CD by Marsh-Oberhuber histological grading (MO-HG) 2 to 3c. 441 had TGA-IgA/C21 ≥5x and 439 (99.5%) had a positive histological diagnosis. The likelihood of a positive biopsy with TGA-IgA/C21 ≥5x titre (439/441) compared to TGA-IgA <5 ULN titre (333/430) has strong statistical significance (p<0.00001). Two children of 441 who had MO-HG <2 actually had TGA-IgA >10 ULN. The mean and median ages of the patients with confirmed CD (n=772) was 8.68 years and 9.1 years respectively (range 0–17 years), with a male to female ratio = 1:2. Figure 1 shows the outcome of the 947 children who had endoscopy.

Conclusion This study showed that 99.5% of children with TGA-IgA ≥5xULN had clear histological confirmation of CD with p<0.00001 compared to TGA-IgA<5xULN. For the same advantages of the current NBP and considering the challenges posed by the COVID-19 pandemic, changing the guidance to TGA-IgA ≥5xULN appears to be safe and secure for diagnosis of CD in children.

Background The evidence-based standard for optimal nutritional support is the multidisciplinary approach of a Nutrition Support Team (NST). Following a pilot study in 2012 showing reduced usage and wastage of parenteral nutrition (PN) a business case was accepted in 2014 to fund the NST at Birmingham Children’s Hospital (BCH). The initial focus of the team was to reduce PN usage and between 2012–2016 we reported a reduction in PN days of 20%. There was also an increase in the use of standard bags from 6% to 14.5% and a reduction in wastage from 5% to 3%. Cost savings were estimated to exceed £150,000. Between 2017–2020 the NST has continued to work at reducing PN use but have actively sourced more standard bags and improved education of clinical teams on appropriate use of standard PN.

Aim To assess whether there has been a sustained reduction in overall PN usage, a further increase in standard bag usage and reduction in wastage between 2017–2020.

Methods PN usage and PN wastage data for 2017–2020 was collated using the BCH pharmacy database. Data included number of PN referrals, total number of PN days per month, % standard bags and% wastage. This was compared with data from 2012–2016. Wastage was defined as unused and discarded PN.

Results Mean PN usage has fallen from 752 PN days/month in 2016 to 634 in 2020 showing a further 15% reduction in
the total number of PN bags used (figure 1). This is despite an increase in the mean number PN referrals from 26/month in 2016 to 39/month in 2020.

Mean% standard bag usage has increased from 14.5% in 2016 to 29.5% in 2020 (figure 2)

There is minimal change in wastage (figure 3) but wastage varied widely between different specialities (surgery: 2.2%, oncology and haematology: 3.6% and Paediatric Intensive Care (PICU) 7.3%).

**Summary and conclusion**
The interventions of the NST have resulted in continued reduction in the number of PN days despite an increase in referral numbers, suggesting shorter episodes of PN.

A sustained increase in the percentage of standard bags 2017–2020 is attributed to more frequent consideration of standard PN, particularly when starting and weaning PN. Using clinical expertise the NST has introduced a wider range of standard PN bags. This has also contributed to increased standard PN use without compromising the quality of nutritional support.

There are a number of factors that contribute to reducing PN wastage including using standard bags as these can be recycled. The study has not been able to demonstrate any major impact of standard bag use on overall PN wastage. Wastage is multifactorial and data recording for PN wastage has been optimised to enable thorough evaluation of contributing factors. Most specialities have demonstrated reduced PN wastage, but wastage on PICU remains high. This clinical area will be prioritised for additional NST involvement in 2021.

## Abstract 09 Figure 1

[Graph showing total PN usage from 2012 to 2020]

## Abstract 09 Figure 2

[Graph showing percentage of standard bags from 2012 to 2020]

## Abstract 09 Figure 3

[Graph showing PN wastage from 2012 to 2020]