childhood or young adult cancer. Of these, 4.36% had contacts recorded on the Mental Health and Learning Disabilities Data Set. Female survivors (5.36%) were more likely to have mental health contacts than males (4.51%), although this was not statistically significant ($p>0.05$). Survivors diagnosed between the ages of 15 and 29 (6.24%) were significantly more likely to have mental health contacts than those diagnosed at 14 or younger (3.78%; $p<0.001$). Lymphoma survivors (5.79%) were more likely to have mental health contacts than leukaemia survivors (3.74%; $p=0.006$) or non-CNS solid tumour survivors (4.39%, $p=0.001$) but not CNS tumour survivors (4.97%; $p>0.05$).

Discussion The increased number and proportion of patients diagnosed in the 15–24 age bracket who went on to develop mental health problems compared to those aged 0–14 emphasises the unique needs of this cohort. Further work will investigate the risks of mental health contact according to ethnic group, treatment modality and socio-economic status and seek additional mental health consultation data from linked primary care records.

G359(P) CHARACTERISING THE DISEASE PRESENTATIONS OF LCH OVER 10 YR AT A UK PTC

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Background Langerhans Cell Histiocytosis (LCH) describes a clinical spectrum of disease caused by accumulation of pathologically langerhans' cells infiltrating tissues. Further understanding regarding the patho-physiology and natural history of langerhans cell histiocytosis has emerged with the understanding of its status as a clonal BRAF stimulated malignancy.

Objectives To characterise the disease presentations of Langerhans Cell Histiocytosis in a UK Principal treatment centre (PTC) over the past 10 years.

Methods Our PTC serves a population of 3.6 million sharing care with 11 regional shared care centres. A retrospective case review was performed for all patients treated for LCH over the last 10 years. Data were collected on demographics, disease location, treatment modality, intervals of remission free outcome and latest evaluation at follow up.

Results 1041 children have been treated for cancer over the past 10 years (1/1/2006–31/12/2016). We identified 45 cases of LCH from children aged 2 mths to 16 years (median age of 2 years 6 mths) in our database accounting for 4% of our patients. There were 44% females and 58% males. 64% of cases presented with single-system disease at diagnosis and 36% with multi-system disease. 4 children were identified as having diabetes insipidus at diagnosis 2.5%.

33/45 (73%) had a biopsy performed consistent with LCH, 10 had no biopsy performed and 2 had a biopsy which was negative but were treated as per LCH due to typical clinic-radiological correlation. 2 cases of neurodegenerative LCH were identified in this case series.

Multi-system patients have a more challenging course and in our series 10/18 (56%) went on to have a recurrence and of

these 2 patients have had 4 relapses and are still undergoing further therapy.

Conclusions Our centres experience over the past 10 years which shows the full spectrum of presentation from the benign self-limiting single system bony disease to that of extensive multi-system disease leading to secondary HLH. Novel strategies to evaluate and monitor BRAF in blood and urine such as those being employed in the latest international LCH IV trial offer the opportunity to better understand the risk factors for disease severity.

G360(P) A RANDOMISED CONTROLLED TRIAL OF READY TO USE THERAPEUTIC FOOD (RUTF) FOR MODERATE/SEVERE ACUTE MALNOURISHED INDIAN CHILDREN WITH CANCER

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Background Children with cancer are at increased risk of malnutrition. Early nutrition intervention helps to maintain weight, lean body mass, improved treatment tolerance and QOL. RUTF, with higher recovery rates in pilot studies has brought a paradigm shift in the management of malnutrition. This pioneer trial evaluated the effectiveness of RUTF in prevention of malignancy related weight loss, improvement of micro/macronutrient status, treatment tolerance and QOL.

Methods 70 children (5–15 years) with hematolymphoid and solid tumours were enrolled post the appetite test. Randomization into 1:1 using a computerised table and stratification by type of malignancy. Nutritional status (weight, height, BMI, MUAC, TSF), biochemical analysis, DEXA scan, HRQOL, treatment tolerance evaluated at baseline, 6 weeks and 3 months into study and 6 months follow-up for anthropometry and treatment tolerance.

Results Seventy newly diagnosed MAM/SAM children with cancer with median age 9 years (range, 5–15), M:F 3:1 were randomised into RUTF (37) :control(33) arms. Median protein and calorie intake as well as weight gain at 6 weeks (2.6 kg vs. 2 kg) was higher in the RUTF arm compared to controls on standard dietary care. At 6 weeks there was significant reduction of MAM/SAM children ((16 vs. 23, $p<0.05$)) with increment of lean mass in the RUTF arm vs. controls. Vitamin B12 and folate deficiency (33%), vitamin D (63%), 56% and 96% had copper and zinc deficiency respectively, which improved in the RUTF arm. Children on RUTF experienced significant reduction in the episodes of febrile neutropenia (18.9% vs. 30.3%, $p=0.06$), protocol delays (2.7% vs. 30.3%, $p<0.05$), grade 3/4 neutropenia (40.54% vs. 66.7%, $p<0.05$), thrombocytopenia (21.6% vs. 30.3%, $p<0.05$) and anaemia (18.9% vs. 36.36%, $p>0.05$) beyond 6 weeks. Mean HRQOL scores were better in the RUTF arm at baseline, 6 weeks and 3 months.

Conclusion RUTF is cost-effective in improving nutritional status resulting in higher weight and lean body mass which translates into improved treatment tolerance and QOL.

G361(P) SEVERE SEPSIS AMONG PAEDIATRIC PATIENTS WITH SICKLE CELL DISEASE: A REGIONAL CASE SERIES

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Aims We aimed to conduct a case series review of severe sepsis episodes in patients with sickle cell disease at a large regional paediatric centre in the UK. We aimed to examine sickle cell disease prior to episode, compliance with sepsis prevention, type of infection including the organism isolated, sequelae, and outcome.

Methods Retrospective cumulative case series of severe sepsis admissions over the last 5 years among our cohort of patients with sickle cell disease at a large paediatric regional centre in the UK. Data was extracted from the department's sickle cell database and from clinical records.

Results We present 5 cases of severe sepsis among our regional cohort of 388 children with sickle cell disease. The patients presented within a 2 year period between May 2015 and May 2017. The ages of the patients ranged from 2 to 11 (median age 3 years). It was the first admission to hospital in 3/5 cases. One patient was on hydroxycarbamide, and all 5 had a normal TCD. Four out of 5 were compliant with penicillin and had received childhood vaccines, and 3/5 had received the polysaccharide pneumococcal vaccine. The organisms isolated were *Strep. pneumoniae* (3 cases), *E. coli* (1 case), and *Salmonella durham* (1 case). Sepsis was often rapidly progressive and presented atypically. Two of the 5 patients died following sepsis episode. Both had pneumococcal sepsis. There was significant morbidity in survivors. Complications included osteomyelitis (2 cases), pathological fracture (1 case), hearing impairment and central diabetes insipidus secondary to meningoencephalitis (1 case) and necrosis of the fingertips. In the pneumococcal cases, either patient was not covered with vaccination, or the organism had partial resistance to penicillin.

Conclusion Despite advances in recent years following introduction of sepsis prevention measures, sepsis remains an important cause of mortality and morbidity in paediatric patients with sickle cell disease. Sepsis often presents rapidly and atypically in this group of patients.

G362(P) HAS NICE GUIDELINE FOR SUSPECTED PAEDIATRIC CANCER MADE A DIFFERENCE IN DIAGNOSIS?

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Children and young people with possible cancer usually present to their primary care physician first. NICE has published and updated guideline for suspected paediatric cancer referral. The aim of this study is to find out improvement in diagnosis of cancer among those group of patient via 2 weeks wait (WW) referral.

Method This is retrospective review of 2 WW referral forms and outcome from Electronic medical notes. Our POSCU (Paediatric oncology share care unit) 2 WW cancer referral

audit was carried out between November 2014 to January 2017.

Results Total of 56 referrals was received during the 27 months. Only 2 children (3.6%) had cancer. Most of the referrals (98%) were seen within 2 weeks. The most common reason for referral is lymphadenopathy (39%) which is similar to other studies. Other reasons for referral include: fatigue, malaise and weight loss, headache/CNS signs, bony, abdominal and soft tissue mass, bruising, and non-specific symptoms.

Conclusion This study confirmed that updated 2015 NICE guideline for cancer referral has not improved in pick-up rate of cancer.

The finding from this study is similar to other studies;

- Abomeli et al. (Dec12 to 14) 83 referrals, had cancer
- Mant et al. (2007–2010) 35 referrals, 1 had cancer
- Ling et al. (2009–2012) 118 referrals, 2 had cancer
- Galloway et al. (2012 to 2015) 81 referrals, 2 had cancer.
- Roskin et al. (2004–2014) 93 referrals, 2 had cancer

From the above 5 studies, 6 children (1.9%) were diagnosed with cancer in 317 referrals during 2004 to 2015. In our study, it was 3.6% (2/56). The pick-up rate of cancer hasn't changed much.

According to the NICE guideline, some of the presentations should be referred very urgently (within 48 hours) for specialist assessment. However, all of the referrals from our study were received for 2 weeks. Regular teaching sessions and development of referral pathway for the local GPs should help in improving the knowledge on early referral and diagnosis. GPs should be able to contact urgently if concerned instead of using referral pathway as a way of jumping the queue.

G363(P) THE UTILITY OF WHOLE- BLOOD AND LINEAGE-SPECIFIC CHIMERISM IN PREDICTING GRAFT FAILURE AFTER STEM CELL TRANSPLANTATION FOR NON-MALIGNANT DISEASE

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Background and aims Allogeneic haematopoietic stem cell transplantation (HSCT) is widely used to treat non-malignant conditions. Mixed chimerism (MC) is an increasingly observed phenomenon in such cases. This study's purpose was to explore predictors of MC and graft failure, variations in outcome between patients with complete chimerism (CC) and MC, and the utility of lineage-specific chimerism in predicting graft outcomes.

Methods Our patient sample included 284 HSCTs performed in children with non-malignant conditions between July 2000 and March 2017 at our centre. The following variables were considered in each patient: gender, age at transplant, date of transplant, disease, conditioning regimen, T-cell depletion, donor and stem cell source, alive/deceased status, chimerism status. Variables were assessed using univariate and multivariate logistic regression analysis. The relationship between myeloid