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ABSTRACT

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NURSES GROUP—POSTER SESSION

NP001
HLA Tissue Typing of Potential Sibling Haematopoietic Stem Cell Donors

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Background: Sibling donors remain an important source of haematopoietic stem cells for allogeneic transplantation. Family dynamics are both complex and diverse and we must be mindful of this when considering potential sibling donors (PSDs).
Methods: In Oxford, we have developed a donor-centered protocol that supports and respects the privacy of PSDs whilst recognising their freedom of choice and maintaining the JACIE Standards. The protocol was developed in response to a PSD complaint.
Results: Initially, the patient is asked to identify and give permission for all or selected siblings to be approached. He/she provides contact information and is asked to inform the PSD(s) that they will be contacted by the Oxford BMT team. All PSD receive written information about the donation process before the HLA tissue typing samples are taken. The process is flexible and recognises that not all PSD live local to the patient and some may live abroad. Local PSD have samples taken on site in Oxford, those who live outside the local area are sent postage pre-paid sample packs to have samples taken at their GP surgery and PSD who live abroad are asked to have samples taken and processed locally then reported to Oxford. HLA matching reports are issued by Transplant Immunology Oxford and they alert the BMT Administrator and she generates the appropriate letter(s) for donor(s) and patient from templates. All reports and letters are reviewed by a clinician before they are signed and posted. Where there is more than one sibling tissue typed, the reports are posted to each sibling at the same time. The letter to the patient is posted two days later than the sibling donor(s) letters. This ensures that matched and non-matched sibling donor(s) receive their results before the patient, allowing them time to consider their options and discuss with the BMT team if necessary.

To maintain efficiency, the majority of communication is by letter but PSDs are directed to a Blood and Marrow Transplant (BMT) Nurse Coordinator if further discussion is required. The whole process is managed by the BMT Administrator, who plays a key role in ensuring accurate documentation, the provision of information, and sample collection.
Conclusions: In our experience this protocol-based approach to PSD HLA tissue typing is beneficial to both patient and PSD. We believe that a positive donor experience relies on a well-coordinated and collaborative approach to the process.
Conflict of interest: D. Wareham: Nothing to disclose

NP002

Abstract previously published

NP003
Superior collection efficiency by using the Spectra

Optia continuous mononuclear cell system for peripheral blood stem cell collection in related donors

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Background: In 2012, the Hospital Netwerk Antwerpen (ZNA) received the JACIE Accreditation for blood and marrow transplantation in adults. As part of the JACIE quality program, the collection efficiency (CE) of the hematologic progenitor cells (HPC) was presented to the local JACIE steering committe every three months. Analysis these data showed the that CE by using the two-step Spectra Optia mononuclear cell (MNC) system was suboptimal in related donors. In order to improve the CE, we used the Spectra Optia continuous mononuclear cell (CMNC) system and compare the results with the MNC system.
Methods: In 2015, the mean CE in related donors was 39% where a predetermined goal was set of minimum 40%. CE was calculated according to the formula: (#vCD34/kg in apheresis product / #vCD34/kg in peripheral blood) x 100 = %). The related donors received granolocyte stimulating factors (G-CSF) at a dose of 10 mcg/kg and apheresis was performed on day +4 after G-CSF.

Recent literature showed that the CMNC apheresis system is a good alternative for the MNC setting. The company Terumo BCT was contacted to install the service software en train the apheresis staff. Four procedures with the CMNC setting were used as validation before this setting was implemented.
Results: In September 2017, we evaluted the HPC apheresis with the CMNC setting. 18 HPC procedures were performed in 14 related donors. Four donors needed a central femoral catheter. The mean CE of the CD34+ cells was 49% (range 31–68%). Sufficient stem cells were obtained to perform a transplantation. During the procedure, there were no major adverse events.
Conclusions: The collection efficiency of peripheral blood stem cells by using the Spectra Optia CMNC setting resulted in an improvement of 10% compared to the MNC setting in related donors.
Conflict of interest: nothing to disclose

NP004

Abstract previously published

NP005
High Flow Nasal Cannula (HFNC) in Bone Marrow Transplanted patients

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Background: At Rambam Health Care Campus, patients hospitalized in the Bone Marrow Transplantation Unit (BMTU-15 BEDS) with transplant and post-transplant side effects. Patients developing acute respiratory failure are not transferred to the Intensive Care Unit (ICU), but remain in the BMTU. Until 2016 those patients were Mechanically Ventilated (MV). Since 2016 we use HFNC oxygen for respiratory deteriorated patients. It oxygenates hypoxic patients with help of heated humidification of inhaled gas. Warm, humidified gas may mobilize secretions to open congested airways and promote airway. It increases mucous clearance and airway conductance. It also provides PEEP of 0.35–0.69 cm water for each 10 L/min of increased flow rate. Conventional oxygen therapy is not well tolerated at high flow rates because of problems with unheated and non-humidified oxygen.
Methods: Nurses are the first line in patient diagnosis and treatment of hypoxic patients; therefore in early stage of respiratory deterioration we connect them to HFNC. Criteria for HFNC in our unit: tachypnea 20 and above, slight saturation deterioration (below 92%), O2 drop below 90 mmHg. Patients connected to HFNC by nurses and monitored without physicians order. They remain connected to HFCN 24 h until mentioned parameters improve. Parameters for improvement: Respiratory rate-16 and below, saturation above 95%, PO2 above 90 mmHg in arterial blood gases. With those we redraw to standard oxygenation mask.
Results: Retrospectively we gather information about mechanically ventilated patients from hospital Information data and compared it to HFNC oxygenated patients. Between 2013–2015 12.2%- 12.8.8% of our patients were MVed. In January 2016 we start using HFNC oxygenation. 9.1% were MV in 2016. Since 01.Jan- 01.Nov.2017—9.1% were MV. Since the use of HFNC there was a drop of 28.4% invasive mechanical ventilation in our BMTU. HFNC **reduced invasive MV**.
Conclusions: HFNC is an earlier alternative before invasive MV. HFNC improve patient tolerance and comfort. Option of HFNC oxygen may be a good option for hematological patients. There is a need to define national criteria for HFNC in hematological patients. Since nurses are the first

line in patient treatment - HFNC ventilation should be included in advanced oncology education study. Hospital management should support BMTU with manpower, knowledge, medical equipment and facility.

Conflict of interest: L. Katzir, R. Ashkar, G. Hyams, T. Zuckerman: nothing to disclose

NP006
Steroid refracotry acute GvHD of the gut: survival and the need for novel treatments

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Background: Steroid refractory (SR) acute GvHD of the gut (aGvHDg) causes suffering for the patients, and requries resources, intensive nursing and heavy medication, often to no avail.

Early 2015 a patient in our ward suffering SR aGvHDg after allogenous stem cell transplant (ASTX) was treated with vedolizumab for the first time. The treatment was successful, with full remission of the aGvHDg with no notable side effects.

With those promising first results, we sought to discover the outcome of patients treated conventionally, as no statistics concerning this could be found.

Methods: We retrospectively examined the charts of all 327 patients in our ward who received ASTX between 2008 and 2013. 35 patients with aGvHDg who did not respond to systemic steroid treatment were identified, and relevant data was collected and analyzed. The aim of this study was to identify patients eligible for novel treatment, e.g. vedolizumab, given that it were available at the time, and examine the overall outcome of SR aGvHDg treated conventionally.

Data collected is presented in table 1. Data analysis was done with SPSS 21.

Results: All patients received high-dose corticosteroids. All patients had aGvHD grade III-IV

Conclusions: Our study shows that 10,7% of our patients receiving ASTX develops SR aGvHDg, and of these 80% died and 34% required ICU-treatment.

These figures shows that the complication is both frequent and deadly, and suggests that the impact of new therapies such as vedolizumab could result in improvement of ASTX-survival rate, quality of life for the patients, and reduced resources spent on nursing, ICU-treatment, hospitalization and more. Hopefully Vedolizumab, which is now subject to investigation for SR aGVHDg in a multisentre phase II clinical trial, can substitute for this unmet need.

Conflict of interest: Nothing to disclose

N = 35

Median age at tx: 48 (range 16–69)

	Total: N (%)
Gender: male	21 (61%)
ICU treatment	12 (34%)
Deceased	28 (80%)

[[NP006 Table] Table 1]

NP007
Digital versatil disk (DVD) as a tool for information and therapeutic education about clinical trials for patients with hematological malignancies

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Background: In 2012, the French national institute for cancer (Institut National du Cancer, INCA) started the CLIP^2 program for first in human (FIH) and early phase clinical trials. The CLIP2 program aims to select and grant centers with high expertise in clinical trials. The Hematology Dpt of Nantes medical University was selected for early clinical research in hematology malignancies. Since 2012, we enrolled 148 patients in phase FIH and I trial. Early phase clinical trials are pivotal for drug development and medical progresses, however, French patients are frequently skeptical or suspicious to participate to clinical trial. Questions regarding safety and/or role of the pharma industry are among major reasons that explain patients' refusal. An easy understandable medical information is highly important to guide patients and their family through the multistep cancer treatment.

Methods: Based on a previous learning program for patients who are eligible for autologous stem cell transplantation (See abstract EBMT meeting 2013, P1382, S495), we initiated a new learning program about clinical trials . Here in, we report the making process of a video learning program (named Explain Clinical Trials, ECT) that aims to provide information about clinical trials for adults with hematological malignancy who are candidate or not for inclusion in clinical trial.

The ECT program was under the responsibility of a steering committee including physicians, one nurse (MB), a jurist (ALL) and a research associates coordinator (AT). The steering committee was headed by Prof S. Le Gouill and the project manager was D. Issarni. The ECT project

received financial support from Servier (not involved in steering committee decision) in 2015/12/15.

Results: The steering committee decided to focus on 4 main topics that are the most frequent concerns for patients: importance of clinical trial in medical research, specific jobs in clinical trials (CRA, Nurses, etc ..), security and legal aspects for patients enrolled in clinical trial, patient's journey in a clinical trial. Two other general topics were added regarding Hematology Department of Nantes expertise in early phas trials and a patient's testimony. Questions to address and key informations to provide in each topic were discussed in sub-committees that include physicans, nurses, CRAs, members of the legal department of the University Hospital. Each sub-committee provided a storyboard that was reviewed and approved by the steering committee. In all, 6 movies were broadcasted in 2017/02/01 and have been presented to the Hematology Dpt for the first time in 2017/10/03. These 6 movies will be online for patients used in 2017/12/03.

Conclusions: To the best of our knowledge, ECT is unique in France and it provides an unrestricted online clinical trial learning program dedicated to patients. All patients eligible for inclusion in clinical trial or not can get access to the movies that will also be online in the website of our institution. We believe that a comprehensive and easy access program open to all patients is a key tool for patient decision making to participate (or not) in clinical trial. ECT is part of the CLIP2 program.

Conflict of interest: nothing to disclose

NP008
GENITAL ULCERATION AFTER INTRAVENOUS ADMINISTRATION OF FOSCARNET IN PATIENTS WITH CMV REFRACTORY INFECTION AFTER ALLOGENEIC HSCT

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Background: CMV is a herpes virus. Primary infection is usually asymptomatic or runs an indolent clinical course mimicking mononucleosis-like syndrome and followed by lifelong latency. CMV reactivation and disease occurs in immunosuppressed patients and especially in those who had undergone allogeneic hematopoietic stem cell transplantation (allo-HCT).

CMV disease in patients after allo-SCT usually manifests as pneumonitis and is associated with significant morbidity and mortality. Various strategies have been developed for prevention of CMV disease. Preemptive weekly monitoring of CMV DNA load in the peripheral blood of patients followed by antiviral treatment in case of CMV reactivation is a widely adopted approach.

Methods: Currently, four effective antiviral drugs are used for the prevention or treatment of CMV infection: ganciclovir, the ganciclovir prodrug valganciclovir, foscarnet and cidofovir.

Ganciclovir is recommended as first line pre-emptive therapy for CMV in HSCT patients. Foscarnet is recommended as an alternative first line agent if neutropenia is present or for ganciclovir treatment failures.

Common side effects of the use of Foscarnet are electrolyte abnormalities, renal impairment, nausea/vomiting and genitourinary symptoms. Specifically for the genitourinary symptoms, genital ulcerations are a rare (1%-5%) and usually underlooked complication. Two cases are presented below.

Results: Case 1: A 53-year old female with MDS underwent allo-SCT from a matched unrelated donor (10 out of 10 allele matched). Both patient and donor were CMV - seropositive. Conditioning consisted of busulfan, fludarabine and thiotepa followed by prompt engraftment (ANC>1000, day +12. On D+42, plasma CMV PCR analysis was positive, and the patient was started on treatment with foscarnet. Foscarnet was used instead of ganciglovir because the patient was neutropenic at the time of CMV reactivation. After 9 days on antiviral treatment (D +51) the patient reported burning sensation in the vulva and physical examination revealed the presence of redness and swelling in the vagina, which evolved in crust ulcers. On D +52 the drug was withdrawn, followed by gradual improvement until D+65 when complete resolution of symptoms was reported.

Case 2: A 22-year-old male with acute lymphoblastic leukemia underwent matched sibling allo-SCT. Both patient and donor were CMV - seropositive. Conditioning consisted of TBI 12Gy and Cyclophosphamide. Engraftment of WBC occurred at day +15. On D+10, plasma CMV PCR analysis was positive, and the patient was started on foscarnet. Foscarnet was used because CMV reactivation occurred before engraftment. Seven days into his antiviral therapy (D+17), the patient reported burning sensation during urination, itching and redness at his glans penis. The drug was withdrawn the same day with gradual improvement during the following days.

Conclusions: The symptoms reported by the patients are explained due to the drug's urinary excretion. Differential diagnosis includes viral, fungal infection or graft versus host disease. The only recommendations or measures to be taken are the drug's withdrawal and systematic personal hygiene of the area, especially after urination. Health care professionals should be aware of this rare complication of foscarnet.

Conflict of interest: E. Sarla: nothing to disclose

NP009
GITMOtwItting project: just a click for nursing update

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Background: The project named GITMOtwitting (www.gitmotwitting.it) is an editorial initiative started by a group of haematologists who work in the transplant setting and are members of the Italian Group of Bone Marrow Transplant (GITMO). Since April 2017, the Nurses Group of GITMO has jointed to the initiative, proposing scientific articles and other updated literature about nursing care topics and ethics, into the fifth section of GITMOtwitting: "nurses' point of view".

Objectives: The main objective of the project is to update nurses about the latest scientific evidences regarding transplant and haematological care, using Twitter, one of the most popular social networks, also in scientific field.

Methods: The update is carried out by a nursing review of a scientific article, giving the link to the original article and published on the page of GITMOtwitting. The internet site is public and accessible from the web or through the site www.gitmo.it. The project is divided into five sections: evidence based transplantation, transplant by alternative donor, transplant complications, translational medicine and transplant, nurses' point of view. The original article's critical review can not exceed 600 words and has to fulfil the following characteristics: short captivating title, background and study design, results, changes in practice, essential bibliography. The Nurses Group publishes monthly since April 2017 one review. There is a restricted nursing board faculty, who evaluates the proof by peer review and after the approval, gets on with the publication online.

Results: Till today, five reviews of original articles have been published and two are under way. Table 1 shows the "clicks" of the year 2017 (updated on 31st October).

Conclusions: The results show us that the project GITMOtwitting could be a new, smart and quick way to update nurses' knowledge in transplant setting for the future. The use of social media is very common in young nurses and easily accessible also in small time periods, when you have to wait for somebody or during calm nightshifts. The aim of Gitmo Nurses Group is to increase the number of publications from one to two monthly, in order to be more competitive and in line to spread knowledge.

Conflict of interest: None of the authors has any disclosures

Visitors	Number of visits	Pages	Access	Broadband
2.873	3.980 (1.38 visits/visitor)	28.236 (7.09 pages/visitor)	152.021 (38.19 Access/Visit)	1.86 GB (489.65 KB/Visit)

[[NP009 Table] clicks GITMOtwitting 2017]

NP010
Improving the experience of acute leukaemia patients undergoing an allogeneic transplant

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Background: Largely patients with cancer in England report very positive experiences with their cancer care. However, there continues to be a huge variation in London, particularly with those with blood cancers. Many reporting poorer experiences compared to those with other types of cancer. A number of areas are seen as important to patients, including being involved in decisions regarding their care and treatment (Macmillan Cancer Patient Survey 2016).

Methods: Phase 1: To determine the experiences of patients who have had a hematopoietic stem cell transplant (HSCT), a focus group of patients was conducted and facilitated by the Clinical Psychologist and Information and support Facilitator.

The group compromised of 3 males and 3 females ranging from 34–49 years and from a mix of socio-economic backgrounds and ethnic groups. The time since transplant ranged from 11 months to 2.2 years.

A number of open ended questions were posed to the group including such questions as "what, if anything, would

have helped you feel more prepared for your treatment?" As you reflect on your experience pre - and post-transplant, what would have helped to improve this?"

Phase 2: After analysing the results of the focus group, a number of changes were implemented aimed at improving patient experience including:

1. A film created of patients talking about their experience of having had a transplant and the strategies they used to cope with the physical, medical and emotional challenges.
2. Patients now attend a pre-transplant session by members of the multi-disciplinary team (MDT). In this question and answer session, patients are given information to prepare for their transplant and strategies to cope with various challenges are discussed.

Patients attending the pre-transplant session complete questionnaires before and after the session asking them various questions including: How confident do you feel about being able to cope with the transplant process?

Additionally, interviews have been conducted asking them how they felt after attending this session.

Results: Phase 1: Qualitative analyses of the patients' responses was conducted and 3 themes identified:

1. There was a lot of information all at once
2. Who is in the team and what is their role?
3. What was the experience of others who had a transplant and how did they cope?

Phase 2: The results of this phase are still being collated and analysed

Conclusions: Services aiming to improve the experience of patients may find it useful to involve patients in the change process. This can be achieved by first assessing the needs of patients, engaging them in service developments, and getting their feedback on changes implemented.

Conflict of interest: G. Brisley: member of the nurses' EBMT scientific committee

T. Chase: nothing to declare

NP011
Nursing workload in Bone Marrow Transplantation Unit - Rambam Healthcare Campus

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Background: At Rambam Health Care Campus, patients hospitalized in the Bone Marrow Transplantation Unit (BMTU) and developing acute deterioration are not transferred to the Intensive Care Unit (ICU), but remain in the BMTU where they are mechanically ventilated (invasive and noninvasive ventilation). The patient population includes BMT patients and hematological patients with post-transplant side effects. Patients with hematological malignancies developing acute respiratory,kidney,liver failure, which is related to bacterial and fungal infections, thrombocytopenia and neutropenia. Nursing workload is associated with quality of patient care; therefore it is important to measure it in BMTU.

Methods: We retrospectively collected data from the hospital database since Januar2017-305patients hospitalized. 39 nurses in BMTU.13 of them have intensive care course (ICU) education. 23 have standard oncology course education. Nurse with ICU treat intensive care patients. Every patient is monitored. ICU nurse works with 2 intensive care patients. The Nursing Activities Score (NAS) was used to assess nursing workload in BMTU. Nursing workload included: respiratory management (lung insufficiency), artificial airway management, invasive mechanical ventilation treatment and weaning, oxygen therapy, non-invasive mechanical ventilation treatment and weaning, physical functioning- self-care facilitation:bathing and hygiene (impaired physical mobility), burn care(skin GVHD), pain management, administration of ICU continuous medication drugs, neurological monitoring, fluid/electrolytes management, intravenous therapy, neurological and vital signs monitoring, obtaining multiple blood tests, emotional support and anxiety reduction for patients and families.

Results: 37 patients have been intubated since 01.01.2017 in our BMTU (21 males and 16 females). 28 patients died, 9 alive. Survival ratio was 32.1%-higher than in standard ICU (24.5%). 69 received vasopressor drugs, 136 - Total Parenteral Nutrition(TPN), 118 -intensive electrolyte treatment (above 6 gr KCL/d:K Phosphate 12 ml), 14-glucose 50%.4-third degree burn 80%. 250-continues Morphine drip

Conclusions: ICU interventions should be included in advanced oncology education study and technical skills, BMTU advice to include advance medical equipment. ICU patients should be treated in BMTU as a holistic treatment. Hospital management should support BMTU with manpower, knowledge, medical equipment and facility.

Conflict of interest: L. Katzir, R. Ashkar, G. Hyams, T. Zuckerman: nothing to disclose

NP012
Standardising discharge information for nurses working on a Paediatric Stem Cell Transplant Ward

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Background: Following on from a successful implementation of an admission checklist for stem cell transplant (SCT) patients and their families in January 2016, it was apparent that the next area of improvement was discharge information. It is evident from discussions with the nursing team, that many do not feel confident in providing the necessary information and advice for such a complex discharge following such intense hospital treatment. This is likely due to a recent large recruitment of junior staff, but also the potential of a nurse not being involved with a SCT discharge for a long period of time. It is essential that an effective discharge process be carried out for these patients as it can impede their on-going outpatient care, but can also cause great distress to the patient and their families.

The aim of this study is to work in conjunction with the multidisciplinary team (MDT) to develop a discharge package to enable nurses to provide a safe and effective discharge of a SCT patient, as well as providing consistent information and advice to patients and their families through what is likely a very stressful and emotional step in their treatment journey.

Methods: Through current knowledge, previous paperwork and use of the MDT, we were able to develop an idea of what is required and expected from the discharging nurse. Further research through communication with shared care centres allowed for an insight into what they expect/would like from the discharging trust. Finally, sourcing information from other tertiary SCT centres on how they carry out their discharge process was very beneficial. By incorporating all of this information allowed a discharge package to be constructed, which once approved by QUAF, was disseminated across the wider MDT to be reviewed. This allowed a combined understanding of the correct discharge information to ensure consistency within the team when discharging patients and their families from the ward.

Results: There was clear evidence of knowledge gaps within the ward nursing team regarding discharge information. Since implementing this checklist, the nurse's confidence and understanding of discharge information has significantly improved; this is reflected in positive feedback from the outpatients' team who appreciate the clear and concise information provided on discharge.

Conclusions: From highlighting gaps in the ward nurses knowledge, and following the involvement of the wider MDT, a package has been created to standardise information given during discharge. This has successfully contributed to positive reinforcement of knowledge and understanding, subsequently leading to a unified approach of a SCT discharge. Cascading this to new members of the nursing team needs to be carried out to ensure uniformity with all members of staff, and to prevent any future confusion in the delivery of discharge information to these patients and their families.

Conflict of interest: nothing to disclose

NP013
Successful aphaeresis using plerixafor in heavily pretreated pediatric patients with low peripheral blood CD34+ cell count following granulocyte colony stimulating factor

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Background: Peripheral blood (PB) CD34+ cells count measured at the morning of the 5th day of granulocyte colony stimulating factor (G-CSF) treatment, before PB stem cell harvesting, predicts harvest success. In heavily pretreated pediatric oncological patients, PB stem cell mobilization using 4 days of G-CSF 10 μg/kg/day may yield insufficient stem cells. In the past, Plerixafor was added to G-CSF only after unsuccessful apheresis. We were able to demonstrate that the threshold for successful harvest is > 20 CD34+cells/μl in PB. In order to avoid unproductive apheresis, it was decided to delay aphaeresis and to add Plerixafor on the night of the 5th day of G-CSF treatment, if CD34+cells in PB were < 20 cells/μl.

Methods: Four patients were included; 2 boys and 2 girls, suffering from Ewing sarcoma (3), and Hodgkin lymphoma (1), age 9–17 years. Each participant's legal guardian signed an approved informed consent for the apheresis procedure. The institutional review board approved the addition of Plerixafor to G-CSF.

Results: Adding Plerixafor 0.24 mg/kg to G-CSF mobilization protocol succeeded in achieving higher number of PB CD34+ cells and thus improved aphaeresis results. Three out of 4 patients needed only 1 aphaeresis procedure in order to achieve the desirable number of CD34+ cells. CD34+ cells on the 5th day of mobilization protocol and

following Plerixafor administration and CD34+ cells yield after aphaeresis are summarized (Table 1).

Conclusions: The goal of successful peripheral stem cells aphaeresis is to obtain enough stem cells through the fewest possible procedures. Therefore, the timing for initiating aphaeresis is crucial to minimize the number of procedures. Adding Plerixafor to the mobilization protocol in 4 heavily pretreated pediatric patients with low PB CD34+ cells after G-CSF mobilization protocol, improved aphaeresis yield and prevented unnecessary aphaeresis procedures.

Conflict of interest: nothing to disclose

Patient	PB CD34+ cells /µl on the 5th day of G-CSF treatment	PB CD34+ cells /µl on the 6th day of G-CSF + Plerixafor treatment	CD34x 10^6/kg yield 1st aphaeresis	CD34x 10^6/kg yield 2 nd aphaeresis
1	5	27	3.56	
2	6.2	11.7	2.16	2.55
3	6.5	30	4.5	
4	12	32	4.75	

*[[**NP013 Table**] Table 1]*

NP014
The Implementation of an Educational Facilitator to improve Retention: A single Centre Experience

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Background: The Haematology and Bone Marrow transplant unit had undergone organisational restructuring which had led to an increase in bed capacity and an increase in patients undergoing stem cell transplantation. The ward team consisted of a group of staff who had vast experience of haematology and bone marrow transplantation. However, as the capacity had increased so had the need to recruit more experienced staff. It became apparent that recruiting staff with experience was proving very difficult. Also, there appeared to be some staff that were leaving. The unit had to rethink and look at how it could improve retention of the current staff and how new staff could be supported.

Methods: Various open meetings were set up to encourage staff to talk about what they thought would help with the current recruitment and retention difficulties. They were also invited to email or comment anonymously and give feedback. Any staff that had left the organisation was invited to attend for an interview and complete an exit questionnaire. Newly qualified staff and any new staff were interviewed, and feedback noted. All the information was gathered and drawn together and an action plan was established and put into place. Part of this action plan consisted of a business case to allow for a new role development of an educational facilitator. The post was approved, and an educational facilitator was appointed.

Results: The results of the study suggested that staff working within the unit struggled for a variety of reasons part of this was around indction and the amount of new staff coming through, staff felt that they lacked in the time and skills required to orientate staff. The unit had also begun to recruit newly qualified staff which was something very new to the unit and again existing staff had found it difficult with the large numbers of staff being recruited. The flip side of this was that the newly qualified staff reported that they felt unsupported and that they required more intense training and more 1-1 education and training. They also feedback that during their supernumerary status and they had not been fulfilling the large number of competencies that they were expected to complete. Clearly this was affecting all staff on the unit and resulting in problems with recruitment and staff retention. Creation and implementation of the educational facilitator has had a positive impact on the unit. Further meetings and ongoing discussion with staff has also now led to educational facilitation support seven days a week.

Conclusions: Recruitment and retention within the unit has greatly approved. New staff work alongside the educational facilitator but also are integrated into the unit's team. Newly qualified staff are completing competencies and feeling well supported. The role of the educational facilitator is ever evolving and has led to development of individual competencies, specific local training days that include a basic stem cell transplantation training day and an advanced transplantation day. The post has supported the current training team with ongoing specific training such as chemotherapy workshop and chemotherapy update days.

Conflict of interest: nothing to disclose

NP015
Training of Nurses Working with HSCT Patients in a JACIE-Accredited Program

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Background: Nurses working in the Hematopoietic Stem Cell Transplant (HSCT) unit were required to pass an online exam every two years to reflect their competency in providing the type of complex care every transplant patient requires. In January 2016, The Joint Accreditation

Committee ISCT-EBMT (JACIE) site visited the transplant program at the American University of Beirut Medical Center, and inspected the different units where the care for the HSCT patients is provided. One of the conditions for accreditation was that nursing staff in the other units shall have annual training and checking on their competencies.

Methods: The HSCT Clinical Educator in collaboration with the HSCT Quality Officer worked on an online training course, the "Care of Hematopoietic Stem Cell Transplantation Patient". The module included updated case-based multiple choice questions reflecting the care of transplant patients as well as questions on the updated structures and processes of the transplant program including the updated standard operating procedures. Nurse Managers of units where the flow of transplant patients became higher have introduced in collaboration with the Center for Professional and Clinical Development (CPDC) some of the transplant-related issues to the education plan of newly hired nurses and to the educational needs assessment.

Results: All nurses from the inpatient and outpatient units providing the care for HSCT patients (A total of 70 registered nurses) are now required to attend an online module PowerPoint presentation of two parts, followed by a qualifying exam. The content of the presentation includes but not exclusive to: Over view of cellular therapy, administration of preparative regimens, cellular therapy product, managing transplant complications, supportive care, palliative and end-of-life care, care of immunocompromised patients, and handling venous access devices. The validation of the competency is mandated annually. The module had 100 per cent compliance rate within the first year.

Conclusions: The knowledge, skills, and attitudes of nurses working with Hematopoietic Stem Cells Transplant patients are crucial elements to achieve and maintain their competencies in order to attain high quality patient-centered nursing care. The development of an online training program and an online qualifying exam was an extremely practical and efficient method to achieve these goals.

Conflict of interest: Nothing to disclose

NP016
Using Arrow® OnControl® Power Driver compared with standard Bone Marrow Biopsy procedure for improved sample quality and patient experience

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Background: In UCLH we perform around 2000 Bone Marrow biopsies per annum, predominantly carried out in a nurse-led clinic. The procedure was performed manually and patients could experience pain and discomfort. Sometimes poor quality sample was obtained leading to repeat procedures.

Methods: We assessed a total of 56 procedures, 26 using the standard method and 30 using the power driver. The laboratory used a blind testing method to assess sample quality and the patients completed an evaluation form to audit their experience. The audit form had a question asking if they had a previous standard Bone Marrow to compare their experience with the power driver and also included a pain score (1–10).

Results: The trephine length and marrow spaces were comparable with the ability of reaching a confident diagnostic in 97% of procedures with Power driver in compare to 96% in standard procedure.

The aspirate quality improved significantly using the Power driver in respect to

Particulate sample 88.5% v 77%

Manual differential 97% v 92%

Megakaryocytes assessable 88.5% v 80%

Quality of aspirate (Poor) 3% v 31%

Patient evaluation results, average pain score 3–4, patient feedback comments include "procedure was much quicker and almost painless - a huge improvement", "much less uncomfortable", "definitely less painful", "quick and easy".

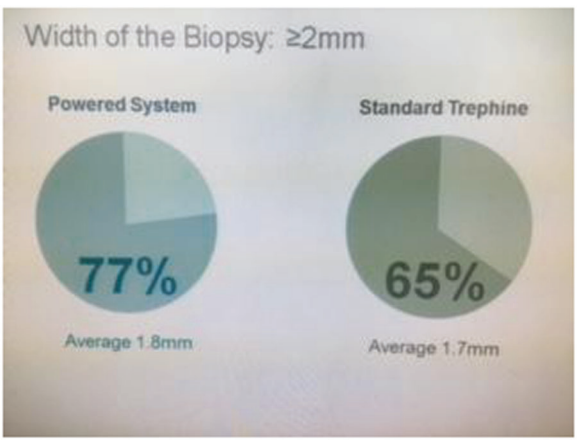
Conclusions: Laboratory assessment showed that the power driver system improved the aspirate quality with a significant difference (more particles, megakaryocytes assessable as marker for progenitor cells represented, less 'poor' quality sample). The trephine quality showed slight improvement.

Patient evaluation showed an average pain score of 3–4 however this was mostly attributed to discomfort in taking the aspirate sample not to the use of Power driver.

Operator feedback showed more comfortable (less physical effort), faster, noticeable improved aspirate sample and patients visibly more comfortable during the procedure.

Conflict of interest: None of the authors has anything to disclose.

[[NP016 Figure] Width of Trephine]



NP017
Nursing Care in a Pediatric Patient with Epidermolysis Bullosa during Bone Marrow Transplantation

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Background: Dystrophic epidermolysis bullosa (EB) is a group of heritable bullous skin diseases characterized by skin fragility, blisters, mitten deformities, joint contractures, esophageal strictures, and chronic cutaneous infections. Although allogeneic bone marrow transplantation (BMT) can improve the integrity of the skin, nursing care during transplantation remains a challenge, mainly with regard to the prevention of skin and central catheter infections.

Methods: A 3-year-old girl underwent matched non-myeloablative allogeneic BMT. Nurses caring for the patient underwent specific training with regard to special skin care by the Dermatology Department staff. The following precautions were undertaken: (1) Treatment of Hickman central catheter was done every 48 hours and included sterilization with Polydine solution, bandaging the insertion site with biopatch protective disk with CHG, bandaging the catheter with non-adhesive PolyMem pad, and on top mesh sleeve for holding the bandage; (2) For skin lesions, we used rolls of PolyMem and Vaseline gauze; (3) Prevention of Staphylococcus bacteremia was done using baths of 0.005__% chlorine solution 2–3 times a week. Daily baths with oil-based soaps, wiping the body with towels and sterile sheets and the use of silverol ointment; (4) ECG examination was applied after removing the adhesive part of the electrodes and using non-adhesive bandages; (5) For blood pressure, we placed the cuff over a soft arm bandage, choosing the arm with less skin lesions; (6) For saturation examination, we wrapped the sensor in a non-adhesive tagaderm bandage and attached it with a COBAN bandage; (7) Axillary temperature measurement was done after thermometer lubrication with Vaseline, (8) During irradiation, the oxygen mask was warped with PolyMem to avoid pressure.

Results: The catheter remained in place for all transplant duration. The patient experienced one episode of bacteremia with methicillin-sensitive Staphylococcus aureus eradicated successfully with antibiotic treatment.

Conclusions: The challenges faced by the nursing staff were to maintain the central catheter integrity with no complications, prevent skin infections, and avoid new skin lesions. Nursing staff education regarding the specific needs of a patient with EB, together with cooperative work between pediatric BMT unit and Dermatology Department, can ameliorated skin toxicity for patients with EB.

Conflict of interest: nothing to disclose

NP018
Safety in communication and continuity of care. A standardized and shared method throughout the pediatric hospital. SBAR: Situation, Background, Assessment, Recommendation

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Background: The aim of the "Hand over" is to exchange information about a patient to provide safe care and ensures continuity and quality. This sharing of information takes place each change of shift, in emergency communications and for rapid deterioration in clinical conditions, and when transferring a patient to other departments within or outside the hospital. It is important, amongst health professionals, to adopt valid tools that can standardize communication. In the addition, one study carried out in 2013/2014 in the emergency department has highlighted that the “hand over”, were considered exhaustive.

Instead, a subsequent analysis during the nursing highlighted, the critical:

loss of information;

subjectivity of content, very personal point of view emerges
subjectivity of communication times, difficulty in synthesis and loss of team concentration

Project aims: To adopt the SBAR method in all settings of the hospital
Increase child / family and operators safety
Reduce times for communication

Methods: Narrative review about existing tools. A research team including nurse and head nurses was created to share a common definition for each items of the SBAR. A poster for the units was designed to explanation the SBAR. Several meetings were planned with the research team to have feedbacks regarding the application of SBAR

Initially a Pilot test was performed in the hospital: May 2015: Initially used in verbal form in the emergency department, then in written form together with the hematology and marrow transplantation departments

March 2016: used verbally in the call to the emergency team; a workgroup has been created to define the elements to be inserted in the different points of the SBAR. In this way, it was possible to adopt it, in all the short, medium and long-term medical and surgical departments.

November 2016 disclosure in all Units

Results: Standardized communication in all hospital departments, and at any time of information transfer between service.

Conclusions: During this trial period, the different departments have adapted the method to their own needs, respecting the four basic points of the SBAR. At the beginning of 2018 a survey will be administrated throughout the hospital to highlight strengths and weaknesses, possible improvements.

Conflict of interest: all authors: nothing to disclose

NP019
T-cell Replete Haploidentical Peripheral Blood Hematopoietic Cell transplant is associated with high incidence of Cytokine Release Syndrome: Single center experience from India

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Background: T-cell replete peripheral blood haematopoietic cell transplant (PBHCT) with post-transplant cyclophosphamide (PTCy) based GVHD prophylaxis strategy has become a popular and cost-effective haploidentical transplant approach in the Asian region. One of its immediate complications, the Cytokine Release Syndrome (CRS), occurs with varying severity and the severe form can be potentially fatal.

Methods: We undertook a chart review to understand the clinical manifestations of CRS in our patients and its course after PTCy administration. 46 patients underwent PBHCT for various haematological indications (AML-24, ALL-4, CML-8, Lymphoma-6, MDS-1, Plasma cell Leukemia-1, Aplastic anemia-1, Wiskott-Aldrich syndome-1) at our centre between Jan 2013 and Sep 2017. 38 patients received Myeloablative conditioning [MAC, Fludarabine-Busulfan was the commonly used regimen] and the rest received Reduced Intensity conditioning [RIC, Flu-Mel was the commonly used regimen]. All patients received haploidentical T-cell replete PBHCT. GVHD prophylaxis consisted of PTCy (50mg/kg/d on D+3, D+4) along with Tacrolimus -Mycophenolate (D+5 onwards).The observation period for CRS was 14 days from haploidentical product infusion. CRS was diagnosed and graded as per criteria laid down by Lee et al.

Results: Patient characteristics of the group are summarized in the table below. 28 patients (60%) had CRS Grade I, 12 (26%) had grade II, one patient had grade III, 5 had severe CRS [grade IV-2, grade V-3]. Fever, in all patients, showed demonstrable rise between days 2–4 post PBHCT and showed a declining trend post PTCy administration. Grade I patients required only fluid support. In Grade II patients chills(all), tachycardia(all), tachypnoea (10), hypotension(3) and extensive skin rashes (8) were seen. All of them needed fluid resuscitation, Oxygen support and steroid therapy. The patient with Grade III CRS required aggressive intervention with multiple vasopressors, fluid resuscitation and Oxygen support in ICU. The patients with severe CRS experienced multi-organ failure requiring invasive ventilatory support (5) and hemo-dialysis (3). Mortality attributable to CRS was in 3 patients (grade V). The CD3 cell dose of these three patients varied between 0.9–1.09 X 10^8 Cells/kg. At the end of the second week, CRS has to be distinguished from neutropenic sepsis, engraftment syndrome and hyperacute GVHD by clinical and laboratory parameters. Supportive care measures alone are insufficient for management of severe CRS and biologic therapies are expensive.

Conclusions: T-Cell replete haploidentical PBHCT is associated with significant CRS. Severe CRS are potentially fatal and need prompt identification, aggressive management including biologic therapies. Cytokine milieu, predictive models for severe CRS and cost-effective therapies need further evaluation.

Conflict of interest: The authors declare no disclosures or potential conflicts of Interest

No. of patients	46
Median age	Recipient: 28y (4–60y) Donor: 30y(10–60y)
Male/Female	31/15
Female to male transplant	9
CMV mismatch	5
ABO mismatch	10
MAC/RIC	38/8
CD34 cell dose (cells/kg)	6 x 10^6 (2.07–11.6 x 10^6)
CD3 cell dose (cells/kg), 26 patients	0.9 x 10^8 (0.3–2.6 x 10^8)
Median ANC and Platelet engraftment (days)	17 (13–19) and 19 (12–32)

*[[**NP019 Table**] Patient and transplant characteristics]*

NP020
Vitamin D Deficiency: does it have an impact on GvHD and infection?

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Background: Haemopoeitic Stem Cell Transplant (HSCT) offers a potentially curable treatment to patients who have been diagnosed with a haematological diagnosis, however the side effects of such a burden on a patients overall recovery and quality of life. Patients receiving allogeneic HSCT have notably higher rates of long-term side effects and late effects, with two thirds of adult long-term survivors having at least one chronic health condition and 20% having one severe or life threatening condition (Syrjala et al. 2012). Various research papers have suggested that low vitamin D has been associated with cancer incidence and infection. A study by Beebe et al (2013) conducted a large study in to vitamin D and HSCT. It concluded that Vitamin D deficiency had a significant impact increased incidence of infection. It has also been correlated that low levels of Vitamin D at time of HSCT can significantly increase risk of cGVHD (Bahr et al 2015). On the basis of this evidence an audit was undertaken to correlate Vitamin D in all allogeneic HSCT.

Methods: Patients who had undergone an allogeneic stem cell transplant had vitamin D levels requested and recorded at around day 0, day 100 and 1 year. The around day 0 result was achieved, as it had been added to the pre transplant proforma on all allogeneic patients. The around Day 100 and 1 year vitamin D was carried out with all other transplant investigations, to ensure compliance. A spread sheet was created and results was recorded within this to monitor. The measurement of the result is what is used in the transplant with less than normal being less than 51 mmols and higher than normal being above 249 mmols. The data is from August 2015 and October 2017.

Results: The number of patients who had a vitamin D recorded was 102 patients. Out of 102 patients at day 0, 75 patients were vitamin D deficient prior to stem cell transplant. The number of patients at day 100 assessed was 85. Out of this 38 patients were Vitamin D deficient. The number of patients who had Vitamin D results recorded at 1 year, as well as both day 0 and day 100, was 34 patients. 13 of these patients was vitamin D deficient. Out of all 102 patients in total, 26 have died due to either relapse or transplant complications and 5 have relapsed from there underlying disease. Out of the 26 patients who have died, 15 of these patients were vitamin D deficient at day 0. Of the 102 patients, 27 of theses patients had graft versus host disease in either the acute or chronic form, or both. **Infection data would be available if abstract was accepted by EBMT**.

Conclusions: The results reflect that there is clear link with GvHD and vitamin D deficiency with approximately 25% of patients developing GvHD. This is the first study at this transplant centre in to vitamin D deficiency. This demonstrates a need for supplementation of vitamin D in all allogeneic HSCT patients until levels have normalised.

Conflict of interest: No conflict of interest.

NP021
What will drive the growth of our Nurse Scientists?

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Background: More and more we see a gap between medical scientific research and nursing care practice. New insights that arise from research in cure needs time and attention; literature research, develop care protocols and the implementation of the new nursing methods. Hereafter the new method should be investigated and registered in databases. And there we are, at the new start of the quality cycle.

Do academically educated nurses use their knowledge and skills optimally? How can we encourage the nurse scientists take the lead in creating their function, in the interest of the hematology patient?

Methods: On several wards within and outside the UMC Utrecht, we interviewed nurse managers, nurses and doctors. We asked them their opinion about the content of the role of the nurse scientist. We asked them how they shape the connection between new treatment guidelines and care protocols and the nursing research after the implementation of a new care protocol

Results: Nurse scientists become PhD students, teacher, or have a job as quality staff member; often far away from the clinical ward and nursing team with direct patient care.

The scientific and fundamental knowledge between professionals within the field of expertise and the translation to the care practice seems insufficient, and there is no policy for a content expert who is responsible for making the transition of new insights.

Conclusions: Let's face the beauty of the nurse scientist as an on-site nurse, she is close to patients and able to constantly push for ways to treat our patients better.

She is responsible for nursing research and provides a scientific basis for practice and implementation of innovations.

She pays attention to the team development and lets the nurses move along with medical developments so coherence and synergy arise in this cooperation.

In her position she works closely with the nurses and the hematologist, so she's able to translate the hematological medical research and the resulting new treatment guidelines, directly into workable care.

This professionalization within the care is necessary and joins up with the rapid developments in the field of Hematology.

In addition to positioning our nurse scientist, it is important to go ahead and gather solid data from direct patient care. This will be a good basis for the nurse research and the results are reliable and sufficiently substantiated.

The value of 'why?' in direct patient care is important, as well as collect data en share our findings with other hematological centers, this might be the answer of the title question 'what will drive the growth of our nurse scientists?'

Can we create a possibility for advanced (inter)national cooperation, using contemporary digital techniques?

Can we collect and analyze large amounts of data, share and compare (benchmarking) with each other?

Not to judge, but in the interest of our joint mission; the best care for our Hematology patients.

Conflict of interest: J. Bijkerk: nothing to disclose

NP022
Ambulatory High-dose Melphalan Autologous Haematopoietic Transplants

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Background: The University Hospital of Wales in Cardiff is a level four centre performing hamatopoeitic stem cell transplants for malignant and non- malignant haematological diseases. The catchment area covers South, Mid and West Wales.

With the amount of patients requiring transplants and the issue of capacity our patients awaiting admission dates for autografts are more likely to be delayed than those receiving cells from a donor.

This situation was resulting in unnecessary relapses, consequently a decision was made to ambulate the high dose Melphalan autologous transplants and make the facility a Nurse Led Service.

Methods: Information booklet, guidelines, pathway, protocol and a Nurse Led daily assessment were devised and a pilot study was started.

Each patient attended for a Nurse Led clinic visit where eligibility would be decided.

Within one week prior to admission a second nurse led clinic visit was performed at which all paperwork was finalised to ensure a smooth passage of care.

Results: To date seven patients have been recruited into our pilot study and with the exception to a few teething problems that have not affected the nursing care delivered, the provisional results show the majority of those recruited into the study feel positive about their experience and are pleased that they we have been offered the chance to have their transplant as an ambulatory patient.

Conclusions: Although there are still issues with capacity, we will continue to offer this facility with an intention of extending our scope to include BEAM autologous transplants also.

Conflict of interest: nothing to declare

NP023
How do we vaccinate the patients submitted to hematopoietic stem cell transplant?

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Background: The patients submitted to hematopoietic stem cell transplantation (HSCT) weren't being vaccinated in a systematic way. The nursing team identified the need to initiate a vaccination plan against Pneumococcal Invasive Disease (PID) and to reestablish the National Vaccination Programme (NVP) for the HSCT patients.
Methods: This project began in 2012 and it has as its goal to inform the patient of the vaccination program, guide him through the process and check the NVP implementation.

6 months after the BMT, the nurse explains to the patient the vaccination schedule against PID and coordinates with the patient's General Practitioner (GP) nursing team. At 12 months a new contact is made to the GP to initiate the NVP. At the end of 24 months after the bone marrow transplantation, it is made one last nurse appointment to check if the NVP was implemented as well as any eventual occurrences.

Last year this programme was extended to the patients submitted to autologous HSCT
Results: At the moment, this project covers 165 patients submitted to allogeneic HSCT and 50 patients submitted to auto SCT The project implementation results were evaluated through the vaccination rate analysis: the vaccination rate against PID and the NVP. In 2013 we registered a PNV vaccination rate of 74%, in 2014 of 91%, in 2015 of 98% and in 2016 and 2017 of 100%. In relation to the vaccination rate against PID we registered in 2013 a vaccination rate of 88%, in 2014 of 98%, and in 2015, 2016 and 2017 of 100%. 290 contacts were made to the GP reflecting about 2/3 of the country's area, including the islands of Madeira and Azores.
Conclusions: This project has a very important role on the disease prevention domain covered by vaccination. Throughout this project's implementation, it has been verified a positive evolution on the vaccinations' rates, as well as its' important role on the public heath field and in the patients' rehabilitation. To the patient this project allows him to connect with the community health care. As a final result the patient recovers his social role and professional activity.

Conflict of interest: All authors: Nothing to disclose.

NP024
Implementing ambulatory cyclophosphamide priming for stem cell collection in the outpatient setting

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Background: The South Wales Blood and Marrow Transplant Programme was established in 1983 and has performed many autologous transplants at University Hospital of Wales (UHW). Cyclophosphamide has long been an established priming regime for peripheral blood stem cell harvests. In 2016 there were 18 inpatient cyclophosphamide primes performed in UHW. While cyclophosphamide was a good method of mobilising stem cells from the bone marrow into the peripheral blood, it had its drawbacks. Cyclophosphamide as an inpatient involved several nights stay on the haematology ward due to the amount of intravenous hydration required, regular administration of intravenous Mesna and performing regular urinalysis. Additionally many patients receiving a dose of 3.0 g/m² of cyclophosphamide would suffer nausea and vomiting and require further time in hospital to recover. Data had shown that a lower dose of 1.5 g/m² of cyclophosphamide was more effective than a higher dose in mobilising stem cells.
Methods: The lower dose was adopted as the standard for cyclophosphamide priming and as it had been used successfully in the inpatient setting it was thought that this dose could be used in an outpatient setting if hydration and Mesna administration was condensed to a shorter time. This would make financial savings and free up bed space for transplant patients to be admitted for conditioning and reinfusion of stem cells. After trialling this shortened cyclophosphamide regime on the haematology ward it was deemed safe to use in the outpatient setting.
Results: To date 10 cyclophosphamide 1.5 g/m² primes have been performed in the haematology day unit at UHW with the majority priming well. There were a few issues encountered in practice which have been addressed through nurse education and thorough preparation in a dedicated clinic.
Conclusions: Cyclophosphamide priming in the outpatient setting is an effective method of mobilising stem cells for collection which has many benefits for both the patient and healthcare providers. Patients spend less time in hospital and therefore have less risk of hospital acquired infections. There are financial advantages for hospitals as well as releasing bed space for treatments that can only be delivered as an inpatient.
Conflict of interest: Sophie Jones: nothing to disclose

NP025
Improving patient waiting times for melphalan autograft patients and increasing capacity in Ambulatory Care (AC) at UCLH

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Background: A planned increase in haematology activity from December 2015 led to a review of our current pathways to increase capacity within AC. In 2015, an audit of melphalan autografts showed that patients waited in AC for nearly 8 hours (from time of admission to treatment). Subsequently a nurse-led AC autograft pathway was implemented; the objective was to prescribe in advance of admission and administer melphalan by 2pm for 50% of patients.

Methods: From July 2016 to June 2017, an audit was performed using electronic systems to identify prescribing time and time melphalan was ready for administration.

Results: In 2016/17, 74 patients were treated and 70% had melphalan administered by 2 pm which met the objective of the audit (see Table). Even though all patients were seen in clinic prior to admission only 75% was prescribed in advance. Twenty-two patients did not meet the objective and reasons include: aseptic unit delays (n = 14); not prescribed in advance (n = 3); patient needed medical review (n = 3); pharmacy review (n = 1) and not ordered (n = 1).

Conclusions: Administering melphalan before 2 pm is vital to ensure safe administration of stem cell infusions during working hours. Delays in consenting and prescribing not only affects patients experience but also affects waiting times, utilisation of chair space and cause an impact on stem cells returns the following day. The nurse-led AC pathway requires chemotherapy to be prescribed in clinic which increased to 75% following implementation. On the day of admission a nurse assessment and pharmacist review negates the need for medical review; this allowed melphalan administration by 2pm in 70% of patients. Further work is needed to reduce aseptic delays and increase compliance with prescribing in clinic to support the pathway.

The pathway allows for better utilisation of medical resources and nurse autonomy, increases chair capacity and reduces waiting times. This is shown by a 20% increase in melphalan autograft activity in AC with the same staffing levels and chair spaces. Using this model in other regimens could increase AC capacity and improve patient waiting times.

Conflict of interest: Diana Comerford: Nothing to disclose

	2015 (n = 32)	2016/17 (n = 74)
Administered by 2 pm	4 (13%)	52 (70%)
Administered after 2 pm	28 (88%)	22 (30%)
Prescribed in advance	3 (9%)	55 (75%)
Prescribed on the day	29 (91%)	18 (25%)

*[**[NP025 Table]** Administration and prescribing 2015 vs 2016/17]*

NP026
Nurses ability to support patients to feel secure being cared for at home after stem cell transplant

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Background: Studies show that patients who underwent hematopoietic stem cell transplantation and cared for outside the hospital environment feel better than patients cared for in hospital (Bergkvist et al., 2012; Fernandez- Aviles et al., 2006). Studies also show that patients treated outside the hospital in the home / home-like environment associated with autologous stem cell transplantation (SCT) is a safe and cost -effective form of care which includes fewer days at hospital (Gertz et al., 2008; Svahn et al., 2002; Holbro et al., 2012). Patients cared for at home / home-like environment or in hospital, expressed in a study by Bergqvist et al. (2012) that they felt high satisfaction with care and support. One of the most significant limitations of at-home autologous SCT care is the frequent need for hospital readmission because of fever and infections related to neutropenia (Ferrara et al., 2004; Morabito et al., 2002*). O*ne of the most significant limitations of at-home autologous SCT care is the frequent need for hospital readmission because of fever and infections related to neutropenia (Ferrara et al., 2004; Morabito et al., 2002*)*.

Methods: A retrospective analysis of patients during 2013–2014 who had some kind of blood disease (lymphoma, myeloma) and treated with high-dose chemotherapy (HDC) in conjunction with autologous SCT at the University Hospital in Uppsala, Sweden (n = 104).

Results: Only a third (n = 11) of 39 patients treated outside the hospital in the home / home-like environment was at home all transplant period. Among the group of patients treated outside of hospital (n = 39/104), the main cause of readmission to hospital was related to nausea / vomiting (n = 11), fever (n = 8), diarrhea (n = 4), oral mucositis (OM) (n = 4), stomach (n = 1).

Conclusions: Effect on the gastrointestinal (GI) from the mouth to the rectum caused by the chemotherapy and its severe side effects such as nausea and vomiting, oral mucositis, diarrhea and abdominal pain (n = 28) compared with the temperature (n = 8) had a greater impact on the patientÂ's well-being than we thought. Even though fever was a common reason for readmission to hospital. Although this is a small sample of patients, we cannot ignore the results. There is still a lack of guidelines and definition of

the standard criteria and procedures for re-hospitalization during the aplastic phase at home (Martino et al., 2016). Significance: increased care satisfaction for patients (and their families) who are undergoing HSCT at University Hospital in Uppsala and the expected reduction in hospital-related complications (infection, malnutrition, MRSA, ESBL). Reduced need to coat hospital beds in inpatient care. Possibly also a decrease in visits to the hematology day treatment unit while the patient is enrolled for care.

Conflict of interest: There were no financial and other competing interests.

NP027
OUT PATIENT NURSING CARE: IMPLEMENTATION OF THE TELEPHONE CONSULTATION UPON DISCHARGE AFTER ALLOGENEIC TRANSPLANTATION

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Background: Although patients received appropriate information regarding procedure before transplant, difficulty to understand oral treatment as well as appropriate support by care givers may be an issue after discharge for patients undergoing an allogeneic stem cell transplant.

In the first post-transplant consultation, we detected a great difficulty in the adaptation by some patients and caregivers to the care, treatment and lifestyle that an allo-transplanted patient requires.

An early detection of problems and doubts of patients and caregivers will help in developing nurses' interventions and in disclosing any post-transplant problems that can be treated on time avoiding hospitalization and thus improving patients' quality of life.

Methods: Therefore, we decided to implement a proactive consultation with the allogeneic transplant nurse in our hospital since April 2016. This consultation was be carried out by phone from Monday to Thursday for all adult patients after discharge from the allogeneic transplant.

This consultation began with a personal introduction, then followed a structure adapted to the allotransplanted patient assessment, which was carried out to know the patient's condition and to detect signs and symptoms of possible post-transplant complications (GVHD, infection, drug toxicity, relapse, late complications, ...). We gave our patients the guidelines to detect these problems so that they could know when and how they need contact our Department to communicate with us. We told them about the health available resources (financial aids, ambulances, etc), the circuit that they needed to go over as a outpatients, as well as different strategies for the development of their daily activities (skin care, food, physical exercise, sexual activity) seeking their compliance with the therapeutic regimen. In addition, we controlled and,made care adjustments verifying the effective coping to the possible post-transplant complications.

Results: From January 2016 to 31 july 2017 our Unit have performed 112 allo transplants.

In this pilot nurse consultation we have carried out 28 interventions since we began in April 2016. Thanks to it, we detected that a 20% the patients presented problems regarding treatment handling, and therefore we developed a consultation on adherence to treatment within the nursing consultation. Forty eight percent of patients presented asthenia, 27% digestive sympthoms and 17% pain, as the more commonly referred problems. Numerous problems were corrected by ourselves and the remaining were directed to their hematologist.

Conclusions: We can conclude that this intervention allows the early detection of possible post-transplant problems, induces high levels of satisfaction in the patient and the caregivers and allows strengthening the patient-healthcare professionals relationship, contributing to a greater confidence and willingness to collaborate in subsequent consultations.

Conflict of interest: Nothing to disclose

NP028
Retrospective Data Analysis of Did Not Attend appointments (DNAs) in Extracorporeal Photopheresis Treatment: A 2-Year Re-audit

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Background: This study follows up on Mootien and Schoon (2016) findings, which explored reasons why patients Did Not Attend appointments (DNAs) for Extracorporeal Photopheresis treatment (ECP). Their findings prompted implementation of a strategy to reduce the number of DNAs. This study aims to examine whether this strategy was successful.

Methods: DNA data were recorded daily by ECP nursing staff during August 2015-October 2017. Data included date of appointment, patient hospital number and reason for DNA, categorised through thematic analysis. This data were compared to the expected number of DNAs based on

Mootien and Schoon (2016) findings recorded in December 2013-August 2015, in the form of percentage change.

Results: 575 DNAs were recorded. Over half were due to illness, and many were rescheduled. Overall, there were 59 less DNAs than expected, saving the department ~ £76,700 (Table 1).

Conclusions: The results suggest the strategy has reduced the number of DNAs. Despite DNAs due to illness are difficult to control because of the immune-suppressed patient cohort, our strategy comprised of an Outreach Service to treat patients externally. The increase in patients rescheduling appointments, and decrease in patients not giving a reason for DNAs could be because nursing staff are contacting patients more regularly. Patients now receive a confirmation text message prior to their appointment. The decrease in DNAs due to no venous access could be a result of a recently performed audit (Mootien, 2017), which highlighted the importance of referring patients to radiology or for a Hickman Line. The results suggest the strategy is maximising service efficiency whilst maintaining excellent patient care. Future studies should focus on the outcome of rescheduled appointments.

Conflict of interest: M. Mootien: nothing to disclose

Reason for DNA	Expected	Actual	Percentage change (%)
Illness	374	302	–19.3
On Chemotherapy	5	6	+20.0
No Venous Access	33	14	–57.6
Family Issue	3	12	+300.0
Blood Problems	23	35	+52.2
Stopped Treatment	17	21	+23.5
Cancelled	25	19	–24.0
Rescheduled	25	87	+248.0
No Reason	52	48	–7.7

*[[**NP028 Table**] Percentage change in DNAs in the current strategy]*

NP029
Strengthen the Multidisciplinary Care Quality for Patients Receiving Hematopoietic Stem Cell Transplantation: the Role of Case Managers

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Background: It has been well known that patients receiving hematopoietic stem cell transplantation (HSCT) may encounter varies of queries or difficulties after discharges from hospitals. Traditionally, they have to come back to hospitals, either emergency departments or outpatient department (OPD), to get problems solved. This will not only increase the medical care cost, but also bring inconvenience to patients and their caregivers. Here, we would like to demonstrate that introducing case managers into the HSCT team could strengthen the multidisciplinary care quality in an efficient way.

Methods: The standard operation procedure of case managers in HSCT team was established in 2015. Case managers firstly introduce themselves to patients face to face before HSCT and give them several kinds of contact information, such as phone numbers, E-mail, and Line accounts. Case managers would reach patients via phone or visit at OPD every three months within the first year after HSCT, and every six months within the second year. Additional contact will be provided for patients with active problems.

Results: Totally 327 patients were handled by the case managers between July 2015 and July 2017. Among them, there were 90 patients with autologous HSCT, 100 with allogeneic related HSCT, 84 with allogeneic unrelated HSCT, and 53 with haploidentical HSCT. The total contacts were 4,251 times, including 1,706 incoming calls (40.1%). The contact frequency was the highest within the first three months after HSCT, and the frequencies significantly decreased after the first year. Patients with autologous HSCT have the lowest contact frequency (contact/patient ratio 2.7, 241 times/90patients), compared with allogeneic related HSCT (6.5, 652/100, $P < 0.001$), allogeneic unrelated HSCT (4.8, 406/84, $P < 0.001$), and haploidentical HSCT (5.3, 281/53, $P < 0.001$). The most common contact subjects were questions regarding blood sampling, followed by skin lesions, medications, fever, and diet.

Conclusions: Our experience showed that case managers could help patients and their caregivers even though they return to OPD once per week within the first three months after HSCT. By introducing case managers into the HSCT team, we could strengthen the multidisciplinary care quality efficiently.

Conflict of interest: Y. Huang: nothing to disclose

NP030
The Challenge of Expanding Apheresis Services: How to train Apheresis Nurses

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Background: Therapeutic apheresis is an important element of specialist nursing practice in Clinical Haematology. It involves the separation/removal of blood components and constituents for direct or indirect treatment for a wide range of clinical conditions. The role of an apheresis nurse is technically demanding due to the varied treatment pathways and requires a comprehensive understanding of how to operate the apheresis equipment, including having the ability to trouble-shoot. In addition, the apheresis nurse plays an important role in ensuring the safe preparation of patients that includes; comprehensive vein assessment, patient education/information, liaising with the multidisciplinary team (MDT) to agree treatment parameters and schedule. The apheresis nurse also has an important role in ensuring clinical practice and quality standards comply with all statutory requirements.

The apheresis unit at Imperial College Healthcare NHS Trust (ICHNT) performed 922 procedures in 2016 compared to 823 in 2015. Due to the increased levels of demand a service review was undertaken to support the expansion of the existing services to include a 24 hours on-call service. The challenge of increasing staffing levels was ensuring that there was the correct level of apheresis trained nurses to take on the additional workload.

Methods: According to regulatory bodies, healthcare professionals need to be qualified and competent for their job. Current training in apheresis is quite variable across centres and between various specialties, as there is no national standardised training programme. To guarantee uniformity and quality, a modular training program was developed by a group of experienced apheresis nurses, practice educator and Terumo representative to ensure all training reflects current technical/operating practices.

As the availability of experienced apheresis nurses is limited at a national level there was a focus on developing the skill set of three experienced nurses within the department, providing an opportunity for further professional development. Training consisted of theory sessions, which included anatomy and physiology, basic apheresis knowledge, associated side-effects, vascular access and trouble-shooting delivered by a senior apheresis nurse practitioner. It also comprised of three months clinical training with the senior apheresis team. At the end of the training the knowledge and skills of the nurses were assessed using a competency assessment framework, interactive discussion/reflection and direct clinical observation. Further supervision by a senior apheresis nurse was given during the first week of independent practice.

Results: This training initiative was developed by the lead apheresis nurse practitioner, supported by the quality/stem cell laboratory teams and Terumo to ensure training standards were met and evidenced. It has proven to be an effective and economically sound venture, which has created additional apheresis capacity that delivers a more responsive service. It has also provided a professional development opportunity for experienced haematology nurses within the extended team.

Conclusions: In conclusion, effective apheresis training requires skilled/expert apheresis nurses to deliver a comprehensive core curriculum for training in clinical practice. The training model that we have developed at ICHNT can serve as a template for other hospital-based apheresis training programmes.

Conflict of interest: None of the authors has anything to disclose.

NP031
Who are the patients who can undergo HDM conditioning and autologous stemcell infusion in ambulatory setting

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Background: In Multiple Myeloma, the standard conditioning regimen for autologous hematopoietic cell transplantation (HCT) is high dose melfalan (HDM, 200 mg/M2 i.v. at day-1). In our department, patients are admitted in the clinic during conditioning and autologous hematopoietic cell reinfusion, and the majority is also admitted during the neutropenic period after HDM. We wanted to explore the feasibility of the conditioning with HDM and infusion of autologous hematopoietic cells in ambulatory setting. The primary aim of our study was to assess nausea/vomiting/fluid intake and patient preferences regarding inpatient or ambulatory setting. The secondary aim was to determine the association between the outcomes as reported by the MM patients and their socio-demographic and clinical characteristics.

Methods: In this longitudinal study, performed from January 2017. Until June 2017., outcome measures included: incidence of nausea and vomiting, possibility to take oral

fluids of 2000ml in 24 hours after HDM, and patient perspective regarding the preferences of treatment in ambulatory setting on 3 time points (day-2. Day -1 and day 0 during the admission period.

Results: In total, 21 patients were included (RR 100%). Almost all patients (90%) were experiencing nausea at some point, of whom 33% experienced vomiting, 52% reported that they were capable drinking >2000ml/24 hours, and 43% felt safe and comfortable to undergo HDM and HCT in ambulatory setting . At this moment we have not yet performed the analyses of the associations, at EBMT 2018 we like to present the characteristics of the patients who are capable to undergo HDM and autologous HCT in ambulatory setting.

Conclusions: As far as we know at this moment, HDM followed by autologous HCT is feasible in half of the MM patients. Further determination of patient characteristics, which might help identifying these patients is currently underway. At EBMT 2018 we can present who these patients are.

Conflict of interest: Nothing to disclose

NP032
Feasibility of tandem high-dose chemotherapy and autologous peripheral blood stem cell rescue in infants with brain tumors

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Background: Central nervous system neoplasm are the second most frequent type of cancer in children, 20% of them occurring in the first 3 years of life. Younger children usually have worse prognosis, with lower survival or serious impairment of cognitive abilities of survivors. Since most long term effects are believed to be secondary to brain irradiation, new strategies have been designed to intensify chemotherapy with autologous hematopoietic cell transplants (HCT) to avoid irradiation in most infants. This strategy has been used mostly in Europe and United States, but its feasibility has not been demonstrated in developing countries.

Our objective is to describe the complications of tandem autologous HCT to treat medulloblastoma in Brazil.

Methods: Infants with high-risk medulloblastoma were offered tandem autologous HCT instead of brain irradiation if they achieved complete remission evaluated by MRI and spinal fluid examination. Permcath was inserted and high-volume leukapheresis was performed after G-CSF only mobilization to collect 5 x 10(6) CD34+/HCT and the conditioning included three identical cycles of Carboplatin (17 mg/kg/dose x2 days) and Thiotepa (10 mg/kg/dose x2 days). Skin care to administer thiotepa included bathing three times a day, removing all large catheter dresses, monitors and dippers. Second and 3rd cycles started within 21 days or when neutrophil count was greater than 750/mm3 and platelet count greater than 30,000/mm3 for three days without transfusion support. Hepatic sinusoidal obstruction syndrome (venocclusive disease) prophylaxis included ursodiol only, infectious prophylaxis acyclovir and fluconazole from D+1 on. G-CSF support also started on D+1 and platelets were always maintained above 50,000/mm^3 to prevent brain hemorrhage.

Results: Six transplants were performed in two patients between March and June 2016. The large volume apheresis was uneventful in both patients. Interval between HCT was exactly 21 days in one child and 23–25 days in the second patient. Both patients engrafted between D+9 and D+10 in all HCT. Both patients had mild clinical complications, including fever, mucositis and diarrhea, without the need of intensive care admission. Both had uncomplicated neutropenic fevers and needed enteral and parenteral nutrition. One child in second partial remission at the time of transplant had local third ventricle radiotherapy to consolidate the treatment due to residual lesion and remains in remission for 16 months. The child in first remission had a local relapse 15 moths after the last chemotherapy and is currently being treated again. Compared to our historical experience with one consolidation with carboplatin, thiotepa and etoposide, the tandem carboplatin-thiotepa regimen is much better tolerated, with fewer side effects, less morbidity and no transplant-related mortality.

Conclusions: New Head Start protocol is randomizing high-risk children (those unable to achieve complete responses to Induction chemotherapy or with high-risk molecular characteristics) to either a single cycle or three sequential cycles of high-dose chemotherapy. We have demonstrated that the later strategy is feasible in our pediatric HCT center. The ideal treatment to achieve the best survival with the lowest morbidity for the young children with central nervous system malignant tumors is still a challenge.

Conflict of interest: Nothing to disclose

NP033
Haploidentical (haplo) T cell-replete allogeneic HCT with post-transplant cyclophosphamide (CY) after

reduced intensity conditioning (RIC) is not enough to assure engraftment in SCID

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Background: Severe combined immunodeficiency (SCID) is an inherited disease that can be fatal within the first months of life. HCT is a medical emergency for these patients, but an HLA-compatible donor is not always available. Haplo T-cell depleted transplants are an established alternative, but the cost is prohibitive in most developing countries. Haplo T-replete transplants with post-transplant CY have been widely used to treat malignant diseases due to rapid availability and low-cost, but results treating SCID have not been reported to the best of our knowledge.Our objective is to report the experience with reduced intensity conditioning (RIC) followed by haplo-HCT with post-transplant CY in three boys with X-linked SCID.

Methods: All patients were confirmed to have X-linked T-B +NK-SCID and refused referral to gene therapy trials. They had neither a matched/mismatched unrelated donor, nor cord blood unit. Donors were parents. Conditioning (Johns Hopkins) included Fludarabine 150 mg/m2, TBI 200 cGy, and cyclophosphamide 50 mg/kg. Graft was bone marrow with ideal number of 5–10 x 10(6) CD34+/kg. GVHD prophylaxis: CY 50 mg/kg/day on D+3 and D+4, followed by cyclosporine and mycophenolate mofetil starting on D +5. G-CSF was used from D+5 until engraftment. Serial chimerism (STR and FISH) and immunophenotype were performed at least monthly after engraftment.

Results: Three boys between 7 and 9 months of age were referred to HCT between October and December 2016. They had BCG-related disseminated *Mycobacterium bovis* and upper respiratory infection (Parainfluenza 3, Rhinovirus, Bocavirus) but were not on a ventilator. They were all on Clarithromycin, Etambutol, Rifampicin and Isoniazid to treat the tuberculosis. Two maintained the use of Ribavirin for Parainfluenza. Engraftment occurred between D+15 and D+18 with > 65% donor cells and biopsy-proven cutaneous acute GVHD (between D+18 and D+25) treated with topical tacrolimus and steroids. All three patients had extremely severe clinical complications with ongoing GVHD and progressive graft rejection to < 5% donor cells. T-cell recovery remained so low that split chimerism could not be performed. The disseminated tuberculosis resolved, but kids remained with intermittent diarrhea, and severe cholestasis. One patient had *Trichosporon* and *Candida* sepsis following a large cell plasmacytoid EBV+ lymphoma that progressed despite several courses of Rituximab and donor leukocyte infusions and died 10 months post-HCT. A second patient had persistent severe protein-losing enteropathy (albumin < 1 mg/dL), metabolic acidosis and pancreatitis. He and his twin brother developed fulminant post-transplant hemophagocytic lymphohistiocytosis and died 7 and 8 months post-HCT.

Conclusions: A national effort is being performed to include TREC in the Guthrie card-newborn screening in the country for early diagnosis of SCID. However, BCG vaccination must be postponed until test results are available. Unfortunately few patients can be included in gene-therapy clinical trials due to language and financial barriers. Since all three patients rejected the T-cell replete graft we believe the conditioning regimen must be modified and intensified. The addition of busulfan has been proposed to transplant the Brazilian SCID babies with no MUD donor available.

Conflict of interest: Nothing to disclose

NP034
Improving medication safety in paediatric stem cell transplantation with use of a satellite pharmacy

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Background: In the past years, the department of paediatric stem cell transplantation (PSCT) in the Leiden University Hospital has been working on improving the safety of administration of intravenous (iv) medication for children. The preparation of iv medication is a high risk procedure due to potential risks such as preparation of the wrong medicine, wrong dose, calculation or solving errors, insufficient hygienic precautions and no double check. The preparation of iv medication by nurses within the PSCT department was a time consuming process because PSCT patients receive up to 35 iv administrations daily and preparation needs to be done under strict hygiene and safety conditions. This process interfered with the care for the children. A satellite pharmacy is a ward specific pharmacy responsible for the preparation of iv medication for all patients on the ward. The use of such a pharmacy can contribute to a safe and hygienic preparation of iv medication in PSCT patients.

Methods: From 2015, a satellite pharmacy started at the PSCT ward. Pharmacist technicians prepare the iv medication under strict hygiene and preparation protocols. All medications are prepared in a Laminar Air Flow work station and personnel have to be dressed according to specific regulations. All iv preparations are protocolled and individualized per patient. Every preparation is double checked by another technician. Daily, all individual protocols are checked and released by a pharmacist. Collaboration between the satellite pharmacy and the ward is evaluated on a structural basis.

Results: The satellite pharmacy prepare all iv medication for the PSCT patients for a period of 24 hours. Medication with a short expiry time and acute medications are prepared by the nurses themselves. Working according to strict hygiene and preparation protocols is secured by the operating procedures of the satellite pharmacy. Nurses are able to work more efficiently and are able to focus on taking care of the children, and are no longer interrupted by the preparation of iv medication. The nursing staff had to be decreased to realize the satellite pharmacy, but this was compensated by a reduced amount of work in medication preparation. Evaluations showed that nurses were satisfied with the time effort which was gained, but they were ambivalent about their feelings of improved safety. Pharmacist technicians indicated that they did not always understand why a specific preparation was necessary, outside of the protocolled preparations. Multiple education moments regarding the working processes from both the satellite pharmacy and the ward were necessary to clarify this.

Conclusions: Medication safety and, consequently, patient safety is enhanced on the PSCT ward when the satellite pharmacy became operational. Regular evaluation remains necessary for continuous improvement, such as more flexibility in logistics of medicines, prevention and reducing overproduction and standardisation of medication prescription and administration.

Conflict of interest: No conflicts of interest.

NP035
Platelet loss in MNC

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Background: Concurrent platelet loss from a patient or donor is a major concern during peripheral blood stem cell (PBSC) harvesting. The Spectra Optia system is designed to minimise platelet loss however due to the similar densities of platelets and mononuclear cells (MNC), significant platelet loss can still occur (Orlina et al., 1995; Flommersfeld et al., 2013; Elsey et al., 2011). It was not clear whether the platelet depletion of procedures conducted at our transplant centre reflected the manufacturer's information and wider literature. The purpose of our audit therefore, was to collect and analyse data regarding platelet loss as a result of NMC collection procedures at our transplant centre and compare this with average data from other sources.

Methods: All patients from 1st January 2016 to 31st December 2016 who attended apheresis unit for stem cell collection had a full blood count taken immediately before and after the procedure, including matched related donors and patients being collected prior to autologous stem cell transplant. Results from the clinical haematology laboratory at our transplant centre were gained pre-first collection and post-last collection and then input into a spreadsheet to allow easier analysis. A small literature search was undertaken using relevant databases to allow comparison with other similar transplant centres and manufacturer's information.

Results: The audit provided us with the average percentage platelet loss for different categories of patients and donors, which could then be easily compared with data from other studies. Average platelet loss for all types of patients and donors after a standard single stem cell collection at our transplant centre was 35.50%. The manufacturer's information from a similar audit showed the overall platelet loss in the same patient group to be 34% (Terumo BCT, 2013). Patients with haematological or other relevant malignancy undergoing a single stem cell collection prior to autologous stem cell transplant at our centre lost 35.44% platelets and matched related donors undergoing the same procedure lost 35.67%. Other similar studies found platelet loss for all types of patients and donors to be 39% (Flommersfeld et al., 2013) whilst patients undergoing autologous stem cell collections were shown to have lost 38% platelets (Lisenko et al., 2017).

Conclusions: This audit has shown that the amount of platelet loss from our patients is comparable to both the manufacturer's information and current literature (Flommersfeld et. al, 2013; Lisenko et al., 2017; Terumo BCT, 2013). When comparing our average platelet loss with data from the literature search, we were able to confirm that the manufacturer and collection method currently used at our centre reflects best practice in terms of minimising platelet loss (Flommersfeld et al., 2013; Elsey et al., 2011; Lisenko et al., 2017; Terumo BCT, 2013). This reassured us that healthy matched related donors are not significantly platelet depleted and that our apheresis practitioners are using the machines efficiently. Finally, our data suggested that platelet loss is proportional, so that high risk patients with a low starting platelet count will lose less platelets than those with higher starting counts.

Conflict of interest: A. Price: Nothing to disclose

NP036
Retrospective audit of donor documentation - results of annual audit review

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Background: Donors are an essential component of allogeneic transplantation with support and information traceability for donors being as important as it is for the patient. The provision and distribution of accurate, clear pre and post apheresis documentation is essential for safe and effective donor care. Ensuring timely referral, assessment, and feedback within the Multi-Disciplinary Team is paramount in providing an efficient service; findings of a yearly audit review are presented.

Methods: A retrospective review of sibling case notes was undertaken using an audit protocol, to confirm that procedures remained consistent throughout and met JACIE accreditation standards. Completion of relevant documentation was assessed and areas for improvement within the service explored.

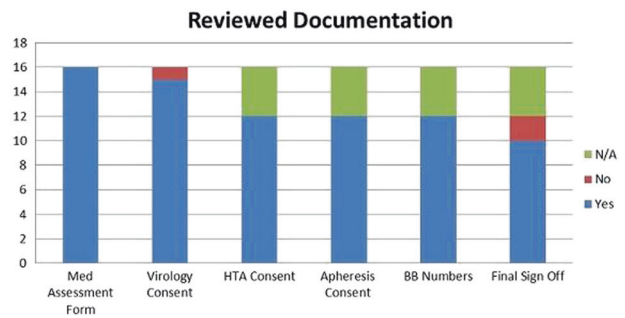
Areas reviewed:

- Donor letter pathway
- Completed medical assessments
- Signed consent forms
- Apheresis procedural worksheets
- Unique identifying lab numbers were affixed to documentation as per SOP

Results: Of the 18 donors medically assessed within the year 2016, 2 were found to be unfit on assessment therefore not included in this review. Two were seen by paediatrics and 2 donors were not required due to progressive disease of the recipient. 12 donors were harvested on site; 10 apheresis procedures and 2 bone marrow harvests.

Results from the 16 potential donors are presented in the graph below:

[[NP036 Figure] Reviewed documentation]



Conclusions: Overall, continued compliance is evident (see graph) across the majority of areas for donor documentation. There were areas highlighted that required improvements, mostly missing documentation

One referral letter was missing – all referral letters are now dictated and typed by secretary previously emailed to the secretaries.

Post donation collect results (1 of 12 letters – 8.3%)

Virology consent (1 of 16 missing – 6.3%)

Final sign off by recipient consultant (2 of 12 – 16.7%)

Conflict of interest: nothing to disclose

NP037
The efficacy of 2% Chlorhexidine compared with 5% Chlorhexidine for skin antisepsis of non-tunneled central venous catheter sites in Hematology-Oncology Department

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Background: Catheter-related bloodstream infections (CRBSIs) are an important cause of hospital-acquired infection associated with morbidity, mortality, and cost. The use of Chlorhexidine (CHG) for central venous catheter (CVC) site care for reducing CRBSIs has been a standard for many years, but according to 2017 updated recommendations of The Centers for Disease Control and prevention (CDC) there are some Limitations of the evidence. Chlorhexidine-impregnated dressings are becoming a new standard of CRBSI prevention. They are not available in many developing countries and the use of CHG in different concentration is continuing. However, the optimal concentration of CHG remains unclear.

Methods: A retrospective study was conducted from January 2016 to November 2017 in our Department of hematology. A total of fifty six patients were identified during this period for analysis in this study. In May 2017, the hematology department discontinued 5% CHG and started using only 2% CHG. This change was made without research investigator input or oversight. So far, there are not any evidences of an ineffectiveness of 5% CHG.

5% CHG was used for skin antisepsis in 36 patients (64.3%), and 20 patients (35.7%) were received 2% CHG at time of everyday dressing changes.

We retrieved case files from the medical record department, including CVC checklist and reviewed for demographic profile, indication of insertion, any immediate, acute and late-onset complications. Indications of removal

of catheter such as infection, occlusion and completion of treatment were noted.

Overall 39 CVCs were used in patients with acute leukemias and 17% were used in patients with aggressive lymphomas.

Results: Overall median duration of CVCs was 15 days, for 2% CHG 13.5 days and for 5% CHG it was 17 days. Catheter related complications were seen in 21 (35.5%) CVCs. Non-infective complications (9) such as thrombophlebitis, malposition, swelling and occlusion were less common than infective (12). Blood cultures and catheter tip cultures were send in 12 cases (2% CHG 8 cases and 5% CHG 4 cases), but organisms were cultured in 2 specimens. So catheter related bloodstream Infection according to the CDC criteria was provened only in two cases. *Staphylococcus aureus* was found in 2% CHG group and *Escherichia coli* was detected in 5% CHG group. Not surprisingly, that 5% CHG caused skin irritation in 5 cases and 2% CHG did not impact on local skin reactions. In spite of this, CVCs were removed in 3 (8%) cases (5%CHG group) and in 5 (25%) cases(2% CHG group), but this result is not significant at $p < 0.05$ (the chi-square statistic is 2.9, the p-value is 0.08).

Conclusions: Chlorhexidine is an effective disinfectant agent in adult. 5% CHG and 2% CHG for post-insertion site care have a similar efficiency to reduce the incidence of catheter related infection, but 5% CHG more often can induce nonallergic skin reactions.

Conflict of interest: nothing to disclose

NP038
Traumatic injury incidence in hematological department

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Background: To reveal the most frequent causes of patient's injuries in hematology department and to propose measures to reduce incidence.

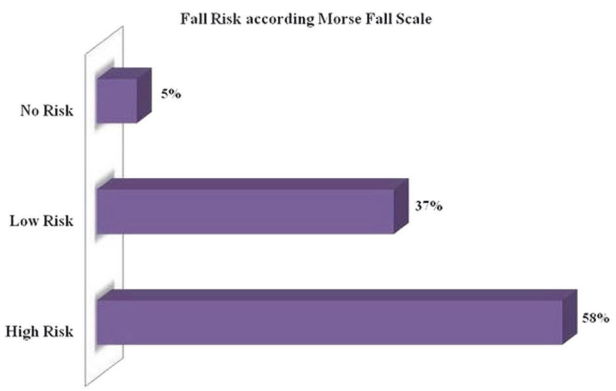
Methods: 19 patients, who had received chemotherapy and hematopoietic stem cell transplantation (HSCT) in R. Gorbacheva Memorial Institute for Children Oncology, Hematology and Transplantation since 2010–2017 year and had obtained injury, were enrolled. Median age was 32 (2–68) years. 7 patients had acute myeloid leukemia (37%), 4 - acute lymphoblastic leukemia (21%), 8 - other malignancies (42%). 79% of patients underwent allogeneic HSCT. Injuries occurred on average 38 days after HSCT (3 - 283). Patient's condition after injury was assessed by risk falls scales: Morse scale (1989), The STRATIFY (1997), «Drug-associated scale of risk» (2012), Hendrich scale (© 2013 AHI of Indiana, Inc. All rights reserved. United States Patent No. 7,282,031 and U.S. Patent No. 7,682,308.). Additionally the influence of anemia and thrombocytopenia severity grade on injury incidence and outcome was assessed.

Results: High and moderate risk fall was 74% according STRATIFY; high and low risk was 95% according Morse scale (1989); high risk was 42% according Hendrich scale. 48% of injured patients had severe anemic syndrome due to anemia - III-IV grade, 68% - severe thrombocytopenia - III-IV grade.In 53% of all cases injury was drug-associated («Drug-associated scale of risk»). 47% of patients received immunosuppressive therapy. Trauma manifestation include: head/face soft tissue contusion - 69% ($n = 13$), brain contusion and subdural hematoma - 26% ($n = 5$), spleen rupture - 5% ($n = 1$). Mortality was 21%, mostly due to posttraumatic hemorrhagic complications.

Conclusions: Injury incidence and high mortality rate require special medical staff control and prophylaxis which includes injury risks assessment, according scales and opportunely shifts to ward surveillance mode. Thrombocytopenia III-IV grade had greater impact on the risk of falling than different degrees of anemic syndrome. It is necessary to develop a risk scale for falls for patients after HSCT, which will include:

drugs usage: narcotic analgesics, antipsychotics, anticonvulsants, antiarrhythmics, antihypertensives, dopamine receptor agonists, immunosuppressors, as well as combination and dosage of these drugs;
hemoglobin and platelets level;
mental patient's status
patient's ability to self-service (according Karnovsky and ECOG scales)

[[NP038 Figure] Fall Risk according Morse Fall Scale]



Conflict of interest: We have no conflict of interest.

NP039
Using Anticoagulant Citrate Dextrose Solution (ACD-A) as the standard anticoagulation in Extracorporeal Photopheresis (ECP) treatments

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Background: Setting up a new ECP service using ACD-A as the standard anticoagulant instead of the more commonly used heparin-based anticoagulant.

Methods: Therakos recommends the use of heparin as anticoagulantion for ECP using the Cellex apheresis machine, however they also recommend the use of ACD-A if the patient has a contraindication to the use of heparin. The Edinburgh unit already uses ACD-A as the anticoagulant for all other apheresis procedures, therefore all staff are experienced in recognising and treating signs and symptoms of citrate toxicity. A risk assessment was completed to support the safe use of ACD-A instead of heparin for ECP treatments.

A literature search was also undertaken to find out if any apheresis centres were using ACD-A for all patients procedures as standard.

Procedures were commenced with an AC ratio of 12:1 and patients were monitored closely for any signs of citrate sensitivity with all complications or side effects documented in the patient records, and each treatment episode was also recorded in the SNBTS Therapeutic Apheresis Register (STAR database). 32 procedures were carried out on 3 patients, 2 of which had Graft versus Host Disease (GvHD) and 1 had Cutaneous T-cell lymphoma (CTCL). Calcium levels were checked pre/post each treatment episode.

Results: All procedures were completed safely with no significant flow problems or major signs/symptoms of citrate sensitivity. Two patients had complained of minor citrate sensitivity on one occasion (peri oral tingling) and symptoms were successfully treated with oral calcichew. Pre/post calcium levels were documented on 10 paired ECP treatments (20 procedures) and the average decrease in adjusted calcium level was only 0.05mmol/l.

Conclusions: All procedures were completed with no procedural problems and apart from the two instances of minor citrate sensitivity patients had overall tolerated their procedures well.

Patient experience, procedural data and lab results were reviewed and our findings show that ACD-A can be safely used within photopheresis.

Conflict of interest: None of the authors has anything to disclose.

NP040
The wearing of Surgical Masks for the prevention of respiratory viruses on the bone marrow transplant ward. One unit's experience

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Background: Respiratory Viral infections are a significant complication of haematopoietic stem cell transplantation. The Haematology and Bone Marrow transplant unit was concerned about the increase in Respiratory Viral infections within the unit. Because of this, the unit working very closely with the wards infection control nurse and consultant decided to look at relevant literature to see what evidence based practice was around. Looking at the literature there was some indication that wearing of surgical masks may reduce infection. Therefore, a pilot study was carried out that involved staff and visitors wearing surgical masks.

Methods: Literature was reviewed, and the findings of some studies had suggested that wearing of masks reduced respiratory infections. Meetings were set up and it was decided that a pilot study would be implemented to roll out the use of surgical masks. An action plan was established and carried out. This involved training and education of staff, devising a patient information leaflet and adaptation of a standard operating procedure. Staff training was rolled out and including all members of the multi-disciplinary team attending a teaching session carried out by the infection control nurse responsible for the haematology and bone marrow transplant unit. Following the teaching the information leaflet was produced that was essential for both patients and visitors. Posters were developed and laminated and placed in all bone marrow transplant rooms and the standard operating procedure was devised. A date was set, and the pilot was commenced. The infection control team made sure that they were available for any queries or concerns.

Results: The pilot is currently nine months in to its planned year. All data that has been collected has involved looking at infection rates from the previous year pre -enforcement of the surgical masks and infection data of the current time since the masks has been worn. Any patients that have developed a respiratory infection have had their notes accessed and any additional information such as timing post -transplant and if they had any other significant factors. The data from both before and after the pilot study was compared. The data that has been collected and analysed to date has suggested a reduction in the unit's respiratory infections.

Conclusions: Preliminary findings of one unit's pilot study of the wearing of surgical masks has suggested that there is a reduction in respiratory infections, compared to the previous year's infection. There are some points however that do need to be considered such as individual patient factors and risks. The pilot to date is 9 months in and there is still 3 more months of data to collect that will be analysed, the study does except that this will of course include the winter period which is when there is a significant increase in respiratory infections, however currently respiratory rates of infection have continued to be reduced.
Conflict of interest: nothing to disclose

NP041
The Implementation of the Holistic Needs Assessment within University Hospital Southampton Transplant department, United Kingdom

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Background: The Holistic Needs Assessment (HNA) was created following the UK National Cancer Survivorship goals set out in 2010 that highlighted the requirement for a more individualised care approach. Further reviews have demonstrated that the use of the HNA form could identify specific problems and form the basis of a more constructive conversation with the patient. Assessing the patient using this method allows for a more tailored care plan to be formulated, strengthening the relationship between patient and team.
Methods: In order to implement this assessment process we formed a project group. We discussed when the best time would be for the assessment, as initial pilots of the HNA had previously been completed on large tumour groups. These included breast and bowel patients that have more specific time points for assessment such as diagnosis, commencing treatment and a definitive end of treatment. For transplant patients we found in our discussion that this was not the case as their care can be ongoing for years in some cases. With this in mind we had to establish some time points in which we would assess our patients holistically. We acknowledged that we are always assessing our patients but by completing the HNA it would introduce topics that may not have been brought up in routine conversation before.

It was decided for our autograft patients that it was easier to give them the form on admission and then again on Day 100, and the allograft patients were given their forms pre consent visit and then on Day 100. We trialled this for a month and quickly established that giving questionnaires out once an inpatient dramatically changed a patient's apparent health needs as they were more side-effect focused than pre transplant. From this we decided to give questionnaires out for both auto and allograft patients pre transplant at their consent visits. Patients would be provided with the forms whilst they were waiting for their clinic appointment and then either discussed in clinic or on admission to the ward.
Results: The initial results demonstrate that the time points we have chosen are appropriate but there are many variables that could affect the assessment. Another issue we found was because we are a regional centre, many of our patients return to their own hospitals. If questionnaires are sent out would they be returned? Or is it better to hand over the patient's concerns to the specialist nurse of the referring centre for them to follow up. As our pilot is still ongoing we still discussing which approach is best for the patient.
Conclusions: Overall the general consensus was that the forms were of benefit to the care of the patient and stream lining our care of the individual patient. All concerns discussed by the group have prompted change and we hope that as the pilot develops we will have some formal data to reflect upon.

Eventually we hope to have ipads for patient to use so that the form can be completed interactively and data can be uploaded straight away.
Conflict of interest: Authors have nothing to disclose.

NP042
Factors Associated with Sexual Dysfunction in Female Patients after Allogeneic Hematopoietic Stem Cell Transplantation - A case-matched control study

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Background: The most common sexual disorder in cancer survivors is the reduction of libido. The purpose of this descriptive and correlational study was to investigate the sexual function and associated factors for female survivors after allogeneic stem cell transplantation.
Methods: Fifty-five female patients and 55 case-matched controls were recruited. Biologic sibling of same sex and within 5 years of the patients will be enrolled as case-matched control. Researcher will nominate same sex friend

of the patient or control from medical environment if no suitable case-matched control. Structured questionnaires such as demographic and medical-related questions, Symptom Distress Scale, Female sexual function Index (FSFI; sexual dysfunction was defined as FSFI score < 26 points), intimate relationship, and importance of sexual life were selected for analysis. The statistical analysis including descriptive statistics, t-test, χ^2 test, linear regression and binary logistic regression were carried out by software SPSS 17.0 for Windows (SPSS Inc., Chicago, USA).

Results: The mean follow-up duration after transplantation was 83.2 ± 66.3 months. The average numbers of bothersome symptoms was 12 ± 7.6. The mean score of symptom distress was 54.07 ± 50.91. The mean score of FSFI was 10.88 ± 10.18. The prevalence rate of sexual dysfunction in female patients was 87.3%. The sexual function in female patients was worse than their case-matched controls ($t = -2.54$, $p < 0.01$). Several factors contributed to sexual dysfunction were intimate relationship, importance of sexual life and increased number of symptoms distress. Binary logistic regression analysis showed that increased number of symptom distress was the most important factor to predict sexual dysfunction of patients. Each additional symptom distress increase will result in a 1.3 times increment of sexual dysfunction ($p < 0.03$).

Conclusions: Our study showed that number of symptom distress is the most important predictor for sexual dysfunction in female patients after allogeneic stem cell transplantation. We expect that our study will explore the parameters that might influence sexual dysfunction in female survivors of allogeneic stem cell transplantation in Taiwan and will help to improve the sexual quality in these patients.

Conflict of interest: Chun-Man Chen: nothing to disclose

NP043
Quality of life assessment in patient post allogeneic stem cell transplantation. An experience at 1 UK adult transplant centre

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Background: Although it is potentially lifesaving for a variety of haematological malignant and non-malignant disorders, allogeneic stem cell transplantation (allo-SCT) carries a significant risk of acute and late post-transplant complications. Improvements in transplantation techniques and supportive care have resulted in a reduction of early transplant-related mortality. However, the burden of late complications remains high, and two thirds of long-term allo-SCT survivors experience at least one chronic health condition. These complications occur due to treatment exposures before and during allo-SCT, cause substantial mortality, and severely impair patients' functional status and quality of life (QOL) (Peric, 2016). Information about a health-related quality of life provides a broader understanding of the patient's status after treatment beyond simple disease free survival time. Hence, QoL is now considered an index of the effectiveness of treatment and should become an integral component in the assessment of medical outcome (Peric, 2016)

Methods: All patients who have undergone a NHS allogeneic stem cell transplant at The Christie since July 2015 were audited, along with all previous allogeneic transplant patients attending late effects clinic since July 2015. Patients have been asked to fill in a FACT BMT quality of life form at their clinic consultations. This is at any relevant timeframes in their post-transplant journey. The overall score of quality of life was calculated and then observing trends in the specific domains identified: physical, social, emotional and functional.

Results: There were 74 patients which completed questionnaires in 2015, 48 patients who completed questionnaires in 2016 and a further 40 until October 2017. Initially all patients were captured at any time point following transplant, but with also an aim to see if quality of life improves from 100 days to 1 year following allo SCT. It was found that for patients without GvHD their overall quality of life increases between 100days and 1year, however plateaus between 2–5years. This then increases post the 5year mark. patients with moderate or above GvHD was looked at separately. The audit suggested that patients with GvHD experience greatly increased physical concerns compared to patients without GvHD, throughout the entire post-transplant period. For patients without GvHD physical concerns decrease at each time point, however for patients with GvHD the physical concerns improve at 2years post-transplant before decreasing between 2–5years and further at 5+years. The trend for patients without GvHD with emotional concerns acknowledged improvement at 2years post-transplant with decreasing concerns between 2–5years. At 5years post-transplant the functional concerns decrease further. The functional concerns of GvHD patients improve at 2years post-transplant before decreasing between 2–5years. At 5years post-transplant the functional concerns decrease further. This is just a snapshot of the data collected within 1 transplant centre.

Conclusions: The results favoured quite positive to patients who didn't have GvHD. However although there was increases in the scores in the first 2 years following HSCT, there was correlation that the scores plateau and decrease with time. It is evident however the GvHD population have

poor overall quality of life, as suggested by many research publications. This tool appears effective at capturing QoL.
Conflict of interest: no conflict of interest

NP044
Quality of life discussed and measured: a standard intervention of health care for patients with an allogeneic stem cell transplantation

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Background: Most recently, not only treatment success in terms of overall survival but also quality of life (QoL) are evoking more interest resulting in novel composite endpoints like leukemia and GVHD free survival after allogeneic hematopoietic stem cell transplantation (HSCT). Thus, when guiding patients towards possible treatment options, the balance between the QoL and disease free survival is considered key. A major limitation is however the limited assessment of QoL before and after HSCT.

Therefore, it is important for the health care team working with HSCT, to gain more insight in QoL before and after HSCT. This can be accomplished by measuring instruments such as questionnaires and consultation of patients, for example by an HSCT nurse. Also, an increase of awareness and knowledge may lead to a better mutual collaboration between health care professionals and patients and compliance, considering that many tools to asses QoL are cumbersome for patients.
Methods: Since January, patients who underwent an allogeneic HSCT, annually complete a survey which measures how the patients experience their quality of life. The first survey was completed within three months after treatment. The results were discussed with a HSCT-nurse.

The Functional Assessment of Cancer Therapy-Bone Marrow Transplant (FACT-BMT), fourth edition, was used to measure the quality of life. The FACT-BMT is particularly developed to measure the quality of life after a bone marrow transplantation, and therefore suitable to use with patients receiving HSCT(Kenyon, Pagliuca, Lim, Hayden & Mufti, n.d.). The FACT-BMT is valid and consists of 47 questions, divided into five categories of well-being. Those categories are physical well-being, social/family well-being, emotional well-being, functional well-being and additional concerns.

A question can be answered by a score of zero to four, marking "not at all" to "very much". With a scoring tool a score for each category can be calculated. A higher score gives an indication of a better quality of life.(Cohen et al., 2012). The outcome is discussed with the patients and possible interventions to improve the quality of life are discussed. The data is also processed using SPSS(Statistical Package for the Social Sciences) in order to allow statistical analyses. Retrospective analyses will be part of our yearly patient outcome analyses and shall focus on the five categories of well-being, as described earlier in this abstract.
Results: Since 2013 approximately 200 patients entered the QoL program as part of our daily practice and more than 150 patients completed questionnaires, indicating high compliance and feasibility to include QoL as part of daily clinical practice. Data lock was 06/2017
Conclusions: QoL assessment as part of daily clinical practice is feasible. We will test the hypothesis that a SCT associates with a low score in physical-being and emotional well-being.
Conflict of interest: nothing to disclose

NP045
The preparatory Establishment of Hematopoietic Stem Cell Transplantation Nursing Follow-up Platform of inPeking University Hematology Institute

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Background: To design a nurse-leading, patient-centered and multi-discipline long-term follow-up system, and to set up an intellective corporation platform which based on the rule of follow-up in Peking University Hematology Institute.
Methods: 1. Collaborating with Yiducloud Inc., Peking University Hematology Institute set up a network collaboration platform which contains multi-center data collection module and CRF setting and follow-up task management module.

2. The 18~65 years old patients who received HSCT in Peking University Hematology Institute from Jan 2017 to Jun 2017 were elected into this program with inform consent. This is a prospective study. Baseline information was collected before hematopoietic stem cell transplantation. And the patients were going to be followed up at 1 months, 3 months, 6 months, and 1 years after hematopoietic stem cell transplantation by telephone, and the following data was going to be collected:

(1) Demographic sociological data; (2) KPS score; (3) Anthropometric data; (4) Complications; (4)FACT-BMT scores; (5) EORTC QLQ-C30 scores; (6)FACT-fatigue scores; (7) HAD scores; (8)APGAR scores; (9) Laboratory data; (10) Image examination results.

3. The variables above were translated into CRF items and written into the CRF module. The follow-up task according to the rule was written into the follow-up task management module. And the task would be sent to nurses at the right time, with the questionnaires sent to patients by their smart phone.

Results: The follow-up system has received 119 patients' data. In term of family function assessment, 2%of the patients are 7 points, 4% of the patients are 8 points, 18% of the patients are nine points. What else, the patients think the improper communication style is the main reason in family function . In the KPS function status assessment, 83.7%of the patients are greater than 60 points. After pretreatment with chemotherapy, 53 patients thought their fatigue score was greater than or equal to 2 points.

Conclusions: To establish Chinese system of long-term follow-up after hematopoietic stem cell transplantation, to promote the development of domestic different transplantation center, so that reduce the occurrence of complications and improve the life quality.

Clinical Trial Registry: Peking University People's Hospital

Conflict of interest: nothing to disclose

NP046
Weight Loss and Related Factors in The Bone Marrow Transplant Patients (Retrospective Study)

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Background: According to the conditioning regimen used for bone marrow transplantation nausea, vomiting and gastrointestinal mucositis are the most common side effects. Depending on the level of these side effects nutritional deficiencies and weight loss are experienced. Weight loss and malnutrition are known to be important causes of mortality and morbidity. The aim of this study was to analyse the data of transplant patients retrospectively in order to develop new methods of nutritional support for the future.

Methods: Files of 116 bone marrow translant patients who were treated at Acıbadem Hospital between January 2015 and June 2017 were analysed. Demographic characteristics; (age, gender, occupation, marital status, nationality); clinical parameters; (diagnosis, chronic disease, type of transplantation, neutropenia, mucositis, dysphagia, diarrhea, oral intake, nutritional support, weight gain), nurse observation notes, physician notes, laboratory results; (albumin, sodium, potassium, magnesium values) were examined. During the statistical evaluation of the data, percentage tests were used.

Results: 60.3% of the patients were male, 28,4% were above 61 years of age, 80,2% were married and %25% were foreign nationals. 67,2% of the patients continued oral feeding whereas 47,4% were on total parenteral nutrition (TPN). 24,1% of the TPN patients were on this regimen for longer then 6 days. Duration of hospital stay for 90,5% of the patients was 16–30 days and 36,2% lost 4–6 kg during this period. 40,5% of the patients were found to have lost a high level of weight loss according to the nutritional risk score (NRS). If +1 point is added to the NRS score due disease severity then all transplant patients are seen to be in the high risk group for feeding.

Conclusions: Weight loss may lead to decreased survival and low quality of life in bone marrow transplant patients. Hence early nutritional status should be carefully assessed especially in patients with advanced malnutrition at presentation. Effective treatment of malnutrition is crucial. Proper nutrition support and pharmacological treatment approaches helps to improve survival and quality of life in transplant patients. Hence, it is important to develop feeding support protocols for transplant nurses who care for the patients throughout the day.

Conflict of interest: Nothing to disclose.

NP047

Abstract previously published

NP048
Challenges of Managing Multiple Sclerosis Patients Undergoing Haematopoietic Stem Cell Transplant: Our Experience

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Background: Multiple sclerosis (MS) is an autoimmune condition where the immune system attacks the myelin sheath, causing a varied array of progressive neurological symptoms. Autologous Haematopoietic Stem Cell Transplant (AHSCT) for multiple sclerosis is a reasonably novel form of treatment, which aims to retune the immune system to prevent the attack on the central nervous system by the autoimmune system. Clinical Haematology Department at Imperial College Healthcare NHS Trust (ICHNT) is one of two centres in London that has been offering this treatment since 2016. This group of patients present their

own unique set of challenges for the clinical team, including the effect the treatment has on the patients' physical and psychological well-being.

Methods: The department has two designated accredited HSCT wards. The transplant planning and mobilisation is arranged as an out-patient with patients then being admitted on either of the transplant wards. As this was a new transplant pathway patients were closely monitored for their emerging needs, and what might set them apart from other malignant patient groups undergoing AHSCT. Initial patient feedback was that they felt unprepared for how the effects of the conditioning regimen impacted upon their physical status and general levels of mobility. This led to an increased risk of falls and decreased ability to cope with these debilitating effects of the treatment. This was further supported by harm free care/performance data and patient surveys conducted which were collected retrospectively from records of 32 patients who underwent AHSCT between March 2016 and October 2017.

Results: The majority of the MS patients selected for AHSCT were independent as they had adapted their daily life activities to live with this life-long condition. However, their AHSCT treatment pathway was challenging because of the complexities of the disease and how the resultant treatment related side-effects impacted upon their quality of life during hospitalisation. Data showed an increased incidence of slips, trips, and falls on the wards since the AHSCT programme for MS commenced. This is evidenced by falls data which demonstrated an increase in fall rate from average of 0–2 falls per month to 0–8 since the service started. This resulted in delayed and complex discharges which adversely affected available bed capacity. Patient surveys revealed concerns about their increased levels of dependency during hospitalisation and also expressed that they did not expect to experience complications "this severe".

Conclusions: Generally, the MS patient cohort gave positive feedback in relation to the overall care they received. They engrafted and achieved haematopoietic recovery within the expected timeframe but coping with treatment related side-effects, particularly in relation to mobility resulted in delayed discharges as they required intense physiotherapy and occupational therapy input. The experience highlights that further work is required to develop patient education material that supports MS patients through the AHSCT process. Further recommendations would be to enhance training for the clinical teams, provide additional allied health support and develop clinical nurse specialist support to focus on the specific needs MS AHSCT patients.

Conflict of interest: None of the authors has anything to disclose.

NP049
Clinical case report of a patient with 2 congenital syndromes after successful allogenic hemopoetic stem cell transplantation (allo-HSCT)

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Background: Allo-HSCT is an effective therapeutic option for malignant and non-malignant deceases. Patients (pts) with inherited syndromes belong to one of the most difficult group for care, because they have a wide spectrum of severe clinical problems. For pts with mucopolysaccharidoses (MPS) 1 type, one of the rare inherited metabolic disorders, anatomic abnormalities increase transplant risks; the loss of intelligence skills, ability to speak makes communication difficult; infections are the most frequent complications, thatÂ's why nursing staff has an important role in inserting practices for prevention, early detection and managing the complications that follow HSCT. This patients need an individual rehabilitation program beginning with the active phase of therapy, and psychological support for the child and family throughout the treatment.

Methods: A girl with 2 early-onset congenital syndromes: MPS 1 type (Hurler syndrome) and *LAMA2*-related muscular dystrophy. The diagnosis of MPS 1 was set at the 6 month old and enzyme therapy was started. When she was 1,5 y.o. we did allo-HSCT. Donor was full match unrelated man. Conditioning regime (CR) was non-myeloablative: Flu, Mel, ATG; GVHD prophylaxis: sirolimus, MMF, rituximab; cellularity of the transplant - $3{,}6x10^6$ CD34 +cells/kg.

Results: Engraftment and recovery of peripheral blood counters was on Day+26. Non-infections complications: recurrent acute GVHD with skin involvement 3 st., with response to combined immunosuppressive therapy (steroids, etenercept, ruxolitinib), chronic skin GVHD local form. Infection complications: before CR pt had pneumonia, CVC infection, asymptomatic urinary tract infection, because of what HSCT was postponed. After transplant pt had pneumonia of mixed etiology with ventilation for 20 days, CVC, urinary tract and GIT infections. Full donor chimerism persists, enzyme is on subnormal level. Time of follow-up is 1 year. The duration of a hospital stay was more than 6 month. Qualified daily nursing care, prevention of CVC infection, tracheostomy care, sanitation of the

respiratory tract, skin topical treatment, daily physical activity and a specialized massage that improves the respiratory function, good contact with patient family, educations about the expected transplantation side effects are those skills that a nurse must have.

Conclusions: Only a combination of the multidisciplinary and individual approach, an assessment of features of children with congenital and hereditary syndromes and their physical state before the HSCT, and qualified nurse care allows us to hope for a successful outcome.

Conflict of interest: nothing to disclose

NP050

Cronic graft-versus-host disease (cGVHD) genitalia may be underreported and underdiagnosed. A hands-out that explains cGVHD genitalia, how to recognize symptoms and treatments may be helpful

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Background: cGVHD is one serious complication among survivors after haematopoietic allogenic stem cell transplantation (allo-HSCT). Women have higher rates of cGVHD genitalia than men (22%vs.5%). For women, the median time of onset of cGVHD genitalia is between seven and ten months after transplantation, but the first symptoms may appear years later.

Doctors and nurses at our unit meets the patients at 3,6,9 and 12 months follow-up after allo-HSCT. Nurses have a teaching and counseling function. Gynecologist examines the patients three months and one year after transplantation. We read each others reports, but do not have multidisiplinary meetings. At our unit, the patient information about cGVHD genitalia is not systematized, but dependent on the individual nurse.

The aim with this project is to show a part of an improvement work.

Methods: This project is based on a reflection of own practice and a patient case.

Results: One female age 27 year, treated with allo-HSCT. Her problem started about three months after allo-HSCT. Her problem was painful intecourse. One year after allo-HSCT she had been treated with dilatation in anesthesia (one finger opening).The cGVHD genitalia diagnosis was described as unclear and medication was not introduced. She had received substitution with estrogen when her mucous membranes were atrophic. The nurses were unsure when no clear diagnosis existed. They believed the patient was underdiagnosed and felt unsure about optimal advice and support. The patient expressed frustration aboutinconsistent and unclear information from health professionals. She experienced that health professionals felt uncomfortable talking about her problems.

Conclusions: We believe that a common understanding of cGVHD genitalia makes it easier to handle this challenge. Written information in a brochure for patients may be one approach for a common understanding of the problem. We are now working on a brochure for patients. The brochure is based on research and our clinical experience about cGVHD genitalia. This project is based up on cooperation with haematologist and gynecologists.

Conflict of interest: Nothing to disclose

NP051

How manage the infusion of autologous cryopreserved peripheral hematopoietic stem cells? Experience of a single pediatric EBMT center and proposal of a multicenter survey

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Background: We describe the experience in a pediatric HSCT unit (G. Gaslini Institute, Genova, Italy) about techniques infusion of autologous cryopreserved peripheral hematopoietic stem cells (auto-cryo-PBSC) and we propose a pediatric EBMT multicenter survey.

Methods: In HSCT unit, 671 cryopreserved PBSC were infused during the period 1987 to 2017, according to internal protocol that specifies the need of close cooperation between physicians and nurses. The procedure was explained to children and their families to reduce anxiety related to infusion. Since the presence of anticoagulant in PBSC bags, at the day of infusion the prophylactic heparin, administered in continuous infusion was discontinued and pre-medications, hydratation were planned. The auto-cryo-PBSC conserved in DMSO were thawed in a water bath with controlled temperature of 37 degree by a physician with nurse collaboration.

From year 2006, these procedures were performed in a dedicated area of HSCT Unit near to patient's room, while before were performed at Trasfusional Service(TS). Since the cellular vitality decrease proportionally to the time of contact with DMSO, the infusion was made in few minutes by a tube with normal saline solution without pumps nor

manual push with syringes. After the infusion a diuretic was administered and urine quality was evaluated and monitored. Patients were monitored for vital parameters to detect possible side effects, mainly related to DMSO, during the infusion time and in the following six hours. The prophylactic heparin was restarted six hours after infusion.
Results: in our pediatric HSCT unit no severe cardio-circulatory, neurologic or anaphylactic reactions have been observed during and after the infusion of auto-cryo-PBSC, with nausea and sometimes vomiting as main symptoms associated. The only single severe adverse event was the coagulation of the PBSCs after thawing, occurred when the procedure was performed at TS. After this severe event this patient received an haploidentical HSCT as salvage therapy.
Conclusions: The management of auto-cryo-PBSC and, in general, of all cryopreserved cellular product is a relevant topic in the activity of physicians and nurses engaged in SCT. The collection of EBMT pediatric center experiences about infusion of cryo-PBSC could improve this procedure.
Conflict of interest: We did not declare potiential confict of interest

NP052
Implementation of Late-Effects Follow-up Nurse Consultation for allogeneic hematopoietic stem cell transplantation recipients: high incidence of nutritional, psychological and sexual dysfunctions

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Background: The number of patients who undergo allogeneic hematopoietic stem cell transplantation (HSCT) in Europe is increasing every year and the survival of HSCT recipients has substantially been rising over the last decade. Chronic graft-versus-host disease (cGVHD) is the main cause of morbidity and mortality for long-term HSCT survivors. Moreover, patients also suffer from other late effects including non-malignant organ or tissue dysfunction, changes in quality of life, infections related to abnormal immune reconstitution and secondary cancers. Long-term follow-up of these patients is now widely and encouraging recommended.
Methods: According to the recommendations for screening, prevention and diagnosis of late effects from expert panels, we designed a multidisciplinary Late-Effects Follow-up Consultation (LEFC). The LEFC team consisted on one specialized Nurse, two Hematologists, and a group of physicians from different specialties (Dermatology, Ophthalmology, Pneumology, Gynecology, Psychology, Nutritionist). All patients were systematically monitored every three months during the first two years post-HSCT. Those patients suffering from cGVHD had additional visits according to medical criteria. In this consultation with the Nurse, the patient received specific therapeutic education for the potential complications after transplant and for active health problems. We monitored vital signs (body temperature, blood pressure, heart rate, and breathing rate), oxygen saturation, weight and body mass index (BMI), and oral food intake. We use "Hospital Anxiety and Depression Scale" (HADS) to detect those patients that required assessment by a Psychologist. We also evaluated patient's quality of life using the FACT-BMT test and evaluation of cGVHD activity using the cGVHD Activity Assessment-Patient Self Report. The Nurse coordinated all the tests and visits with several specialists in order to facilitate the follow-up of the program.
Results: During the first six months of implementation of the LEFC, 33 patients were visited (45% presented cGVHD). Forty-six percent of patients were referred to the Nutritionist due to BMI< 20 kg/m2, and 30% needed nutritional supplements. Thirty-three percent required psychological assistance according to the HADS test, however, only 14% patients agreed to be visited by the Psychologist. Sexual dysfunction was reported by 11% of men and by 93% of women, 70% of them were diagnosed of gynecological cGVHD. All patients were offered therapeutic education about healthy lifestyle, plan of oral medications, and recommendations about skin, mucous and oral care.
Conclusions: Our preliminary experience shows that a significant number of patients presented nutritional, psychological, and sexual issues within the first year after HSCT. The specialized Nurse has an important role for early detection of complications, for optimization of resources and for coordination between Hematologist and other specialists implicated in the management of those patients.
Conflict of interest: The authors wish to thank DKMS-Spain Foundation for its support in the development of this Late-Effects Follow-up Unit.

NP053
Influence of total parenteral nutrition on

engraftment of neutrophils and platelets and the incidence of central venous catheter infections

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Background: The administration of total parenteral nutrition (TPN) is regularly discussed during the care of patients (diagnosed with lymphoma and multiple myeloma) in whom the administration of highly dosed chemotherapy requires autologous hematopoietic stem cell transplantation. Central to this discussion is the possible influence of TPN on increased central venous catheter infections and a delay in engraftment of neutrophil and platelets.
Methods: Datacollection was done retrospectively from patientrecords among 194 patients, admitted between 2012 and 2016. Fifteen variables were investigated, of which the most important were; use of TPN (yes/no), currents of CVC infections, fever, mucositis, type of chemotherapy (HMD or BEAM), age and recovery time/engraftment of platelets and neutrophils. Data were tested by chi square test and fisher's exact test. (M)ANOVA was used to compare variables in SPSS. For all the analysis statistical, significance was set at $P< 0.05$.
Results: Total parenteral nutrition has been administered in 35 of 194 patients.

In 190 patients a subclavial line or a peripherally inserted central catheter (PICC) was inserted.

In one patient, an infected PICC line was established in which TPN was administered. Patients with TPN had a recovery time of neutrophils ($>0.5x10^9$/L) from an average of 16.8 days (range 10 - 29 days) and a recovery time of platelets ($>20x10^9$/L) of an average of 15.9 days (range 7 - 30 days).

Patients without TPN had a recovery time of neutrophils ($>0.5x10^9$/L) from an average of 16.7 days (range 11 - 36 days) and a recovery time of platelets ($>20x10^9$/L) of an average of 14.1 days (range 8 - 32 days, P value = 0.037).
Conclusions: The administration of TPN does not lead to a significant increase in CVC infections, nor does it show significant difference in the duration of engraftment of neutrophils.

We do see a slight delay in engraftment of the platelets.

Further research is necessary to learn more about the influence of TPN on the risk of CVC infections and the engraftment of neutrophils and platelets. And the influence on quality of life when patients receive TPN during the recovery period after high dose chemotherapy and hematopoietic stem cell transplantation.
Conflict of interest: none

NP054
The Nurse as a Bridge to the Patient: Improving Cultural Competence in Bone Marrow Transplantation

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Background: In our BMT unit we treat patients from all over the country and abroad. Entering our hallway, one can usually hear a few languages (mainly Hebrew, Arabic and Russian) and meet Muslims, Jews and Christian patients side by side.

Patients need to understand the complicated process of a BMT and the staff's questions and explanations. As a Nurse Care Coordinator (NCC), the nurse in our unit needs to understand not only the specific patientÂ's condition and requirements but also have the ability to detect a problem, make intervention and work with a multidisciplinary team. Nurses are also required to support the patients and their families during times of stress, and especially in end of life care.

Language is not the only barrier in such situations; our patients differ from each other in their culture, beliefs and traditions and the nurse should bear this in mind to better understand the different perceptions on health and illness.
Methods: Our objective was to improve communication and understanding between nurses and patients, especially in Arabic and Russian, and to develop tools we could easily use in the BMT ward.

Using research and models of cultural competence (Campinha-Bacote 2013, 2003, Odeh Yosef 2008, Cross & Bazron 1989) we established working teams. Two kinds of methods were used: 1) Using resources the hospital already had; improving them and encouraging the nursing staff to use them more effectively. 2) Developing other resources which are vital to the treatments in our specific ward.
Results: 1) Nurses were encouraged in staff meetings to use the resources that already existed in the hospital, such as the Medical Translation Center - a telephone service as well as interpreters in person.

2.a) Consent forms and information booklets were translated by nursing staff into Arabic, English and Russian, in addition to the Hebrew already in use.

As Arabic is the second most spoken language in the ward and most of the staff donÂ't speak Arabic:

2.b) A small Hebrew-Arabic nursing glossary with essential words was written and prepared for each nurse to carry in his/her pocket.

2.c.) A course of Arabic for BMT nurses will begin in December, 2017 in the hospital.

Conclusions: The steps that were taken by the nurses of our unit to improve cultural competence in the ward were positively received by the staff and most of the tools are in daily use. The translated documents have improved the understanding of Arabic and Russian speakers regarding the main treatments and procedures that lay ahead of them. Nurses began to use basic Arabic words in communication with patients, improving interactions between them. Nevertheless, nurses still report on barriers when emotional support is needed. More attention should be paid to issues of cultural competence in BMTs in order to continue improving understanding and communication which leads to better and more personalized treatment.

Conflict of interest: nothing to disclose

NP055
To pump or not to pump: that is the question

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Background: Traditionally cryo-preserved PBSC have been infused to patients using a central venous catheter in the form of a hickman line via a gravity fed infusion. As practice has moved forward it has been recognised that PICC lines or POWER PICCS are adequate for use in the Autologous setting and in some Allogenic transplant regimens. The PICC line is noted to be easier to place and remove and is generally preferred by patients as it is less invasive.

A limitation to the PICC is the ability to 'run' faster flowing infusions, particularly when relying on gravity. This poses a problem when infusing cryopreserved PBSC as a reliable infusion rate is necessary to ensure the defrosted cells are infused quickly. This led us to consider using volumetric infusion pumps as a method of infusing PBSC to our patients, the alternative was cannulating with a wide bore cannula on Day 0.

Methods: There is very little literature that relates to the use of volumetric infusion pumps in the delivery of PBSC, however we were aware that this administration method has been used in the paediatric setting within our own trust and elsewhere in the UK for some time. Much of the literature available is in relation to red cell or platelet products, with evidence showing that there is no damage or changes to these products when delivered via a volumetric pump. We were keen to learn how other adult centres in the UK delivered there PBSC so sent a UK wide request for information about practice.12 centres practice was collated in total with differing practice noted throughout.

With knowledge that other centres had successfully infused PBSC via volumetric pump with no concerns with regards the engraftment time we decided to undertake some testing of cryo-preserved stem cells that we were due to discard.

5 bags were tested for CD3 and CD34 counts following infusion via a gravity line set and a volumetric pump line set.

Results: The results showed little difference in the CD3 and CD34 between the two delivery methods when tested in the lab.

Following this testing we went on to deliver 10 PBSC infusions to patients with the aim to collect engraftment data to compare against data of patients who had received PBSC via gravity fed infusion. The nursing experience was also audited.

Conclusions: The initial nursing feedback demonstrated a few technical issues, such as the giving set clogging, these were quickly and easily resolved. The use of the volumetric infusion pump to administer PBSC improved nursing experience and workload management, by decreasing the time spent infusing the stem cells.

No significant difference in engraftment time was shown between patients with gravity fed infusion vs volumetric pump infused PBSC. The patients did not require cannulation on Day 0 reducing the need for further intervention.

In conclusion volumetric pump infusion improves nursing and patient experience and has no negative clinical impact.

Conflict of interest: none

	Hickman Line	PICC/ POWER PICC	Cannula Day 0	Infused via Gravity Fed	Infused via Volumetric pump	Bolus/three way tap
cryopreserved	1	11	8	8	4	3

[[NP055 Table] PBSC delivery practice]

NP056Nursing Follow-up of Allogeneic Hematopoietic Stem Cell Transplant Survivors

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Background: The practice and care development in hematopoietic stem cell transplantation has led to the increase of the number of oncological survivors, who were submitted to this type of treatment.

Cancer survival is an expanding knowledge area, although there are still some gaps in what concerns the

understanding of the survivor problems, guidelines and strategic plans for that period.

Nurses, for their proximity with cancer survivors, find themselves in an ideal position to create, implement and validate measures of support to the survivor, in collaboration with the rest of the multidisciplinary team.

Methods: With the aim of understanding and giving a better answer to the allogeneic hematopoietic stem cell transplant (aHSCT) survivors' needs, literature reviews were made, as well as observation internships, integrated in the Nursing Master's degree course in the field of Oncology.

Results: The result was the structuring of a Nursing Follow-up Consultation to aHSTC Survivors and the guidebook of the same consultation, which contains the guidelines for Nursing care to aHSTC survivors.

Conclusions: The goal of this Consultation is the improvement of aHSTC survivors' quality of life. In order to achieve that goal, we will gather data about nursing care, evaluate that data, improve the quality of the care and validate distress and quality of life scales, adapted to aHSTC survivors.

Conflict of interest: The author has no conflict of interest

NP057
What is the understanding of specialist transplant nurses for the provision of and treatment options for fertility after a stem cell transplant?

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Background: Increasing numbers of survivors after haematopoietic stem cell transplant (HSCT) have led to a growing population of patients that live with the consequences of their treatment and late effects symptoms. Majhail et al (2012) recommended screening and preventative practice for long term survivors after HSCT reports that patients of a child bearing age are at a high risk of infertility due to treatment related exposure. This can be associated with poor quality of life and has been reported as difficult to cope with as the diagnosis of cancer itself (Bhatia 2011). Anthony Nolan's Patients and Family forum has reported a growing number of discussions from patients about the impact of fertility and the psychological effects. These comments highlight the confusion around treatment options and where to find support. Combined with this there has been increasing enquires from transplant clinical nurse specialists (CNS's) around treatment and funding options for fertility after transplant, suggesting a lack of understanding or information available to support them in their roles.

Methods: A 17 multiple choice question survey was sent to a group of 70 specialists CNS's and advanced nurse practitioners (ANP's). The questions included timing of the fertility discussion, their understanding of fertility treatment options after transplant, their understanding of access to free and paid for fertility treatments, barriers to discussion and the provision of patient information. Consent was obtained at the start of the survey for the result to be used. 35 responses were received of which 4 were in incomplete.

Results: 86% of the respondents discussed fertility with their patients. 74% felt they did not have a good understanding of fertility treatment options and 81% felt they did not understand access to free or paid for treatments. There was an equal split when asked if they felt fertility was discussed enough with the transplant team as well as for the question exploring potential barriers to fertility discussions. 90% of responses suggested better patient information was needed and 86% wanting a better understanding of treatment options for their own development in order to be equipped to deal with these queries confidently.

Conclusions: The results have demonstrated a clear need for improved education of HSCT professionals as well as robust, trusted information for patients and their families. The Anthony Nolan Patient Services will collaborate with the nursing community through their Lead Nurse in order to address the provision of professional education on this subject but also to produce better patient information on fertility treatments after a HSCT.

Conflict of interest: H. Leonard: Nothing to disclose

NP058
A pilot study to evaluate efficacy of Return Bag Control (RBCL) during Extracorporeal photopheresis (ECP) as a viable method to treat transfusion induced iron overload

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Background: A significant number of patients receiving ECP for the management of Graft Versus Host Disease (GVHD) also require venesection for transfusion induced iron overload which is a significant cause of morbidity and mortality. Patients often questioned if the red blood cells (RBC) collected during ECP treatment could be held back as an alternative method to further venesection, thereby reducing hospital visits and thus improving quality of life. As a result, the pilot study was introduced to investigate a clinical practice which was called Return bag control (RBCL).

Methods: The study included 12 ECP patients with GVHD and iron overload, they each had RBCL for both treatments of a 2-day schedule given at 2 - 6 weekly intervals. Prior to treatment the patient weight was taken to estimate their total blood volume and an haematocrit (Hct) target set to ensure cell depletion could be tolerated. Iron profiles, Hct and adverse effects data were collected to monitor parameters for clinical response and a post procedural return bag sample sent for laboratory analysis of RBC values.
Results: A review of treatments from June to October shows 64 treatments given and 24 abandoned with cells returned to patient, 20 due to low Hct, 3 from venous access problems and 1 with patient being unwell. Clinical response assessed using serum ferritin values were as follows, 54% (6) patients had significant reduction, 27% (3) patients had a reduction followed by fluctuating levels which interestingly correlated with known infection/GVHD flares and 9% (1) patients ferritin levels increased. 1 person was excluded from the study due to medication induced iron overload, 1 developed mild thrombocytopenia resulting in RBCL volume restrictions and 2 suffered increased levels of lethargy following ECP treatment with RBCL opposed to previous treatments without RBCL. No other complications were recorded.
Conclusions: RBCL has become a commonly used practice within this clinical area as an alternative to venesection for iron depletion in patients receiving ECP treatment and therefore provides a perceived positive effect on quality of life. However, limited data for use of RBCL makes it necessary to further investigate this method of reducing iron levels.
Conflict of interest: E. Bacon: nothing to disclose

NP059
An optimal role for a nurse in a bone marrow transplant clinic pain management team

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Background: The multidisciplinary approach to pain management is currently gradually accepted as an international golden standard. To address this issue in our clinic a specialized pain management team was formed. It consists of an anesthesiologist and a nurse anesthetist. While doctor chooses the pain management method and drugs, a nurse is involved in patient's evaluation (together with a doctor and alone), communicates to a patient the details of method used and maintains medical documentation. The medical psychologist is charged with a task of helping patients to adapt to new stressful settings. The nutrition specialist communicating with pain management team modifies the nutritional support based on the pain control achieved. The physical therapist provides the earliest patient's activation possible. In some cases the clinical pharmacologist is called for.
Methods: A total of 110 acute pain episodes in 103 patients receiving therapy in bone marrow transplant clinic in 2016–2017 were reviewed. The pain was associated with oral mucositis in 104 cases, in 4 cases it was bone and joint pain and in 2 cases the pain was caused by gut graft-versus-host disease. The median patients' age was 18 (range 1–59) years. All patients were included into daily rounds performed by pain management team. The pain intensity evaluation was based on each patient's cognitive abilities. The nurse performed several follow-up patient evaluations once every few hours to assess the therapy effectiveness. If the therapy response was satisfactory he was referred for further observation to a physician on duty. In case of inadequate therapy effect the nurse checked if the infusion system worked correctly or if the medications were taken properly.
Results: During a pain episode the nurse anesthetist performed a median of 6 patient visits together with anesthesiologist and 7 follow-up visits. The median pain intensity on first evaluation was 6 (range 2 to 10). The dynamic evaluation showed Decreasing of pain intensity level.
Conclusions: Skills of a nurse anesthetist in pain episode diagnostics, evaluation and management make her an integral part of a pain management team helping patients efficiently with good effect on their everyday life and activation.
Clinical Trial Registry: no
Conflict of interest: nothing to disclose

NP060
Importance of early diagnosis and nursing care in the cutaneous graft-versus-host disease (GVHD)

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Background: Cutaneous Graft-versus-Host Disease (GVHD) is a syndrome in which host tissues are attacked and recognized as foreign by the donor's immune system.

The result is the affectation of the patient's skin, by a series of stimulated effector cells of the graft (cytotoxic T lymphocytes, NK cells ...)

There are four grades, depending on the type of condition and the extension of affected skin, grade IV is the most severe. The degrees of affectation, will determine forecast, so the disease can progress towards the cure, can be chronic GVHD or have a mortal result.

There are three types of cutaneous GVHD: hyperacute, acute and chronic, depending the timing of occurrence. Acute GVHD begins < 100 days post-transplant, with a maculopapular rash on palms and soles, although it can affect the entire body surface, violaceous lesions on the ear and neck, cheeks, sensitive and painful skin, especially during palpation.The histological diagnosis is made through a biopsy of 4–5mm in diameter in some affected area.

Methods: A 44-year-old patient diagnosed with acute myeloblastic leukemia who undergo an unrelated allogeneic hematopoietic stem cell transplant. On post transplant day 36, admission for suggestion of digestive GVHD and respiratory infection. During the hospital admission presented erythematous skin lesions on the face, trunk, back, abdomen and anterior part of the thighs, with suppurative areas on both breasts, suggestive of GVHD grade III-IV, confirmed by biopsy.

Results: Treatment started with Methylprednisolone aceponate, Mupirocine and Mepitel Film, which was not effective, increasing the erythematous areas. In addition, the patient reported an increased pain and itching of the affected parts. In a new re-evaluation, the treatment was changed, so the exudative areas were treated with zinc sulphate fomentations and the rest of the lesions with Triamcinolone and Vaseline, showing an objective and subjective improvement with the patient's discharge on post-transplant day 65.

Conclusions: The daily assessment by nurses in patients undergoing allogeneic transplants is very important for the early diagnosis of cutaneous GVHD.

Both nursing care and daily follow-up in these patients are fundamental, since we are the group that work closely with them. Continuous monitoring from skin lesions, been alert and recognizing if they improve or worsen, treat the painful injuries, and emotional support are an essential part of our work. Our role is very important to prevent acute GVHD from reaching higher stages, with active participation in diagnosis, evolution and treatment to avoid complications and the evolution to chronic GVHD.

Conflict of interest: None of the authors has anything to disclose.

NP061

One bone marrow transplant unit's perspective of developing and implementing a mucositis tool in conjunction with the World Health Organisation (WHO) mucositis tool

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Background: Patients who under-go chemotherapy and those who under-go conditioning prior to haematopoietic stem cell transplants are at high risk of developing mucositis; if undetected early and not managed properly it can result in consequences for the patient (see fig.01). Mucositis management can improve through nurse and patient education, appropriate assessment and adequate timely interventions or treatment. However it was evident in our bone marrow transplant unit that nurses were aware of how to assess mucositis using the WHO tool but they were inconsistent on the regularity of checking mouth care, educating their patients on good mouth care as well as lacking knowledge of implementing timely treatment and interventions. Therefore I and the educational facilitators of the BMT unit in Bristol developed 'University Hospital Bristol (UHB) Mucositis Tool' in conjunction with the WHO tool and implemented it out on the ward as well as educating nurses on the importance of using the tool.

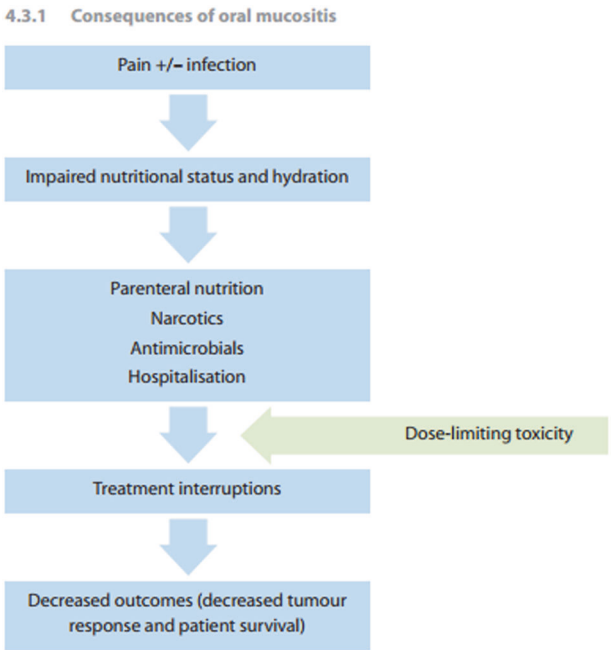
Methods: We implemented a tool that consisted of identifying those at risk of developing mucositis; once identified the tool allowed nursing staff to grade the severity of the mucositis using the WHO tool which then explained on UHB mucositis tool recommendations on treatments and interventions for the patient. The tool was created by utilising a combination of mucositis tools being used in other hospitals around the globe as well as specialised knowledge from experienced BMT nurses and doctors. We also facilitated 'bite size' education sessions for nursing staff on mucositis and how to use the new tool, this equipped nurses with the knowledge and skills in preventing and treating patients with mucositis.

Results: Results compromised of ethnographic methods such as observations, semi-structured focus group

interviews and a survey (questionnaire) from the purposive sample of nurses on the BMT unit. The results from the above showed nurses knowledge had improved on the following areas, identifying those at risk, prevention, educating patients and knowing which treatments to give depending on severity for those with mucositis. Nurses found having the tool gave them empowerment with treating mucositis allowing treatment to be more nurse-led then awaiting on doctors decisions. Nurses found the tool gave them an easy guide to follow and prompted them on what to do. Nurses where dubious at first of another piece of paperwork having to fill out due to time constraints however some found the paperwork (tool) a useful communication tool in seeing how a patients mucositis was improving or worsening; allowing them to intervene quickly.

Conclusions: The University Hospital Bristol Mucositis Tool used in conjunction with the WHO score allowed nurses to identify those at risk of developing mucositis, allowing them to care and treat these patients timely, which improved pain management and outcomes for patients.

[[NP061 Figure] Consequences of Mucositis]



Conflict of interest: None of the authors has anything to disclose.

NP062
Patient-controlled analgesia in adults with acute oral and gastrointestinal mucositis after haematopoietic stem cell transplantation

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Background: Gastrointestinal mucositis (GIM) is a common adverse event effect of haematopoietic SCT (HSCT) procedure. It may have a significant impact on the quality of life of patients. According to published data GIM develops in about 70% of HSCT recipients, 20% have severe GIM. (Incidence and severity of oral mucositis in patients undergoing haematopoietic SCT—results of a multicentre study. Vagliano L et al. 2011). In HSCT settings topical analgesics are rarely useful due to esophagus or gut involvement, systemic NSAIDs are often associated with complications and are not potent enough and regional anesthesia is impossible due to the risk of hemorrhagic adverse effects, in our clinic we use opioids for pain control in GIM. Patient-controlled analgesia (PCA) provides flexible analgesics dosing schedule and sense of involvement for the patient. According to European Pain Federation (EFIC) guidelines, it is a standard in adult settings

Methods: A total of 61 adult patients (median age 31.3, range 18–59 years) developing stage 2–3 GIM after HSCT with myeloablative (n = 47) and nonmyeloablative (n = 14) conditioning regimens were included. A median neutropenia period duration was 14 (range 5–20) days. Patients required systemic analgesics use for a median of 7 (range 3–14) days. Pain severity was assessed with Facescale and Visual Analogue Scale. As pain reliever either tramadol, morphine or fentanyl were used depending on pain intensity and clinical situation. The grade of pain control was assessed by visual analogue, numerical or face scales. The dose was aimed at achieving target pain score values individual for each patient (subjectively "manageable", the values varied from 3 to 6).

Results: The median initial pain score was 5.4 (range 4–10) and sleep disturbance was noted in 18 cases. PCA allowed decreasing pain score value to a median of 3 (range 2–4) and reach target pain score in 60 cases. Most patients slept

well during the night. Only 1 (1.6%) patient required adjuvant due to side effects (nausea, dizziness and disquiet) and inadequate pain control on standard doses of opioids.
Conclusions: PCA an effective option in adult HSCT recipients with GIM. It allows a patient to control pain in most cases independent of mucositis severity and makes the treatment more comfortable.
Conflict of interest: nothing to disclose

NP063
Pilot study: correlation between FEV1 and hand held spirometry (Peak Flow)

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Background: Despite advances in assessment, diagnosis and treatment, patient with pulmonary manifestations of chronic Graft-versus-host disease (cGvHD) following transplantation continue to present with poor prognosis. Early detection and diagnosis relies upon obstructive decline in pulmonary function in the absence of alternative aetiologies, FEV1 being assessed via pulmonary function testing (PFT) at 3 monthly intervals for 2 years following transplant in line with NIH guidelines. In 2015, Cheng et al compared peak flow and FEV1 results of cGvHD patients (n = 437) at day 0, 80 and 1 year following transplant. These results displayed a linear correlation at all-time points. The unit devised a pilot study to establish if a similar relationship could be found between FEV1 and peak flow readings in cGvHD patients receiving Extracorporeal Photopheresis.
Methods: Between 01/11/2016 & 31/12/2016, all Photopheresis patients were supplied with a hand held peak flow meter, educated and asked to record their results on a daily basis. Following a compliance review in February (2017), patients were asked to record results a minimum of once weekly. In line with NIH consensus, PFTs continued to be planned at 3 monthly intervals. In September, all data from PFT and peak flows were reviewed.
Results: 50 patients were originally included within the pilot study. Only peak flows observed within 2 days of Respiratory Function Test (RFT) could be compared, 18 patients had an FEV1 and peak flow result that could be compare**Results:** · observed FEV1 vs Peak flow shows r = 0.78, P< 0.0001, 95% CI = 0.5–0.92· % predicted FEV1 vs peak flow shows r = 0.58, P< 0.012, 95% CI = 0.15–0.82
Conclusions: This pilot study illustrated that hand held peak flow readings may become an acceptable method of monitoring lung function longitudinally in cGvHD patients undergoing Photopheresis treatment. The unit now actively encourage patients to record regular peak flow readings. Future results will continue to be compared, assessing the ability of peak flow readings to predict reduction in lung function, assisting in the timely detection of early lung cGvHD.
Conflict of interest: None

NP064
Reduction of adverse events after high dose chemotherapy for autologous stem cell transplantation: results of a three-antiemetic regimen and oral cryotherapy

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Background: Chemotherapy-induced nausea and vomiting (CINV), oral mucositis (OM) and diarrhea are significant adverse events (AEs) of conditioning regimens with high dose chemotherapy (HDM and BEAM). This retrospective cohort study analyzes the effectiveness of changing the antiemetic regimen and introducing oral cryotherapy in the prevention of these adverse events in patients treated with HDM or BEAM prior to autologous stem cell transplantation (ASCT).
Methods: From January 2013 to November 2017, 142 consecutive patients were enrolled. 97 patients (68%) diagnosed with multiple myeloma received HDM as the conditioning regimen and 45 patients (32%) diagnosed with aggressive lymphoma received BEAM. OM, CINV and diarrhea have been reported. AEs were graded by the National Cancer Institute's Common Terminology Criteria, version 4 (CTCC 4). Oral cryotherapy was introduced in November 2013. In January 2015 aprepitant and dexamethasone were added to the standard regimen of ondansetron.
Results: The preliminary results show > 50% reduction in adverse events grade 2/3 from 2013 until 2017. Presented data are crude percentages. Definitive data will follow.

In 2013 the following percentages grade 2 and 3 toxicities were reported in 34 patients: oral mucositis 65%, nausea 65%, vomiting 19%, diarrhea 89%.

In 2014 after introducing oral cryotherapy 32 patients were enrolled and the percentages grade 2/3 toxicities were: oral mucositis 51%, nausea 74%, vomiting 26%, diarrhea 77%.

In 2017 two years after introducing a three-antiemetic regimen, this far 24 patients were evaluated and the following grade 2/3 were reported: oral mucositis 13%, nausea 29%, vomiting 4%, diarrhea 46%.

Conclusions: This study suggests that oral cryotherapy in combination with a change of the antiemetic regimen (consisting of aprepitant, ondansetron and dexamethasone) are effective in the prevention of OM, CINV and diarrhea in patients with lymphoma and myeloma receiving conditioning regimens with HDM and BEAM prior to ASCT. This study shows that measuring the effect of policy changes is useful.

Conflict of interest: None of the authors has anything to disclose.

NP065
Symptoms Management: Holistic Nursing Care in post allogeneic hematopoietic stem cell transplantation patients in an outpatient unit

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Background: Allogeneic hematopoietic stem cells transplantation (allo-HSCT) offers the best hope of cure for some hemato-oncologic patients.The treatments goal before the allo-HSCT are to achieve the immunosuppression necessary to permit subsequent engraftment of healthy hematopoietic stem cells. Immune reconstitution after allo-HSCT, especially of the adaptive immune system, is highly variable between patients and can take several months to even years. Both preparative regimens and the effects of acute and chronic graft versus host disease (GVHD) and the immunosuppressants used to limit GVHD is associated with a wide range of toxicities. These post-transplant complications are common, and patient's symptoms experience can result in a range of responses to treatment, including anxiety, depression, hopelessness, functional morbidity, and even premature withdrawal from treatment and/or non-adherence. Reducing the burden of symptoms is therefore an important treatment goal for nursing care. With that in mind, the nurse's team in an outpatient care unit, whose care model is patient-centered, developed holistics strategies for symptoms management in allo-HSCT patients.

Methods: In the outpatient unit, the patients and their caregivers are responsible for self-management of treatment adverse events and complex medications, like immunosuppressants. We assessed the patient's needs with the National Comprehensive Cancer Network Distress Thermometer to develop an individualised care plan, emphasizing not only the physical symptoms, but pratical, family and emotional problems and spiritual concerns. The nursing consultation was based on these self-reported needs and we could address the educational needs about the early and late complications of allo-HSCT, including monitoring/management, in the context of patients and caregivers own lived values.

Results: The educational needs that we focus in the nursing consultation, based on the self-reports of our patients, was psychosocial issues, like restrictions concerning in social and sexual activities, depression and anxiety, physical issues, like nausea or eating problems and fatigue management.

Conclusions: The holistic nursing practice in symptoms management is rewarding. Allows the establishment of a unique, trusting relationship with the patients and caregivers. In the ambulatory setting, the patient-centered nursing care requires knowledge, expertise and effective communication skills, but also intuition and perseverance, considering the prevalent nature of GVHD and others long-term complications, which can cause suffering in allo-HSCT patients and caregivers. Because education is a critical component of preparing patients and caregivers to achieve their maximum level of wellness, nurses play a unique role, having the opportunity to improve the understanding of the symptoms experience in order to develop appropriate and individualised nursing care plan.

Conflict of interest: None of the authors has anything to disclose.