Integrated Impact Assessment Report for Clinical Commissioning Policies

Policy Reference Number	F01X08		
Policy Title	Treatments for Graft versus Host Disease (GvHD) following Haematopoietic Stem Cell Transplantation		
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Section K - Activity Impact			
Theme	**Questions**	**Comments** (Include source of information and details of assumptions made and any issues with the data)	
K1 Current Patient Population & Demography / Growth	K 1.1 What is the prevalence of the disease/condition?	K1.1 This policy is to **routinely commission** extracorporeal photopheresis (ECP) for patients with acute GvHD and ECP, pentostatin, rituximab and imatinib for patients with chronic GvHD, following stem cell transplantation[i] and to **not routinely commission** infliximab, etanercept, inolimomab, alemtuzumab, pentostatin or mesenchymal stem cells for patients with acute GvHD. Between 2007-2012[ii]: • 2,180 adult patients were identified with **acute GvHD** (all grades, 31-50% of all adult allograft recipients).	

		• 697 paediatric patients were identified with acute GvHD (all grades). **Total with acute GvHD:** 2,877 • 1,592 adult patients were identified with chronic GvHD (all grades, 30-40% of all adult allograft recipients) • 154 paediatric patients were identified with chronic GvHD **Total with chronic GvHD:** 1,746 In 2014/15, this is estimated to affect[iii]: 1. Total with acute GvHD: c. 640 patients 2. Total with chronic GvHD: c. 390 patients
	K1.2 What is the number of patients currently eligible for the treatment under the proposed policy?	K1.2 The policy is intended for patients with GvHD requiring second and subsequent line treatments[iv]. Between 2007-2012, the following numbers of patients required second or subsequent lines of therapy[v]: **Acute GvHD** • 364 patients with Grade 3-4 category acute GvHD[vi] • 134 paediatric patients with Grade 3-4 acute category[vii] Total: 498 patients

		It is estimated that this would relate to c. 110 patients in 2014/15[viii]. Of these, it is estimated that 20-30%[ix] would present and be treated for acute GvHD within 100 days post-transplant and would therefore be under the contractual responsibility of NHS England. **Chronic GvHD** • 241 patients with extensive chronic GvHD[x] • 22 paediatric patients with extensive chronic GvHD[xi] Total: 263 It is estimated that this would relate to c. 60 patients in 2014/15.[xii] Of these, it is estimated that <10%[xiii] would present and be treated for chronic GvHD within 100 days post-transplant and would therefore be under the contractual responsibility of NHS England. In 2014/15, the target population is therefore estimated to be c. 170 patients across both acute and chronic GvHD.[xiv]
	K1.3 What age group is the treatment indicated for?	K1.3 The treatments are indicated for all ages. For ECP, there may be some technical limitations of the use of ECP in small patients with a very low body weight (<40kg), and in those where venous access is complicated, which could disproportionately limit the possibility of treating children.[xv]
	K1.4 Describe the age distribution of the patient population taking up treatment?	K1.4 Acute and chronic GvHD can affect anyone who is eligible for a transplant and is therefore most likely to be experienced by patients under the age of 65 years old.[xvi]

	K1.5 What is the current activity associated with currently routinely commissioned care for this group?	K1.5 As identified in K1.2 approximately 170 patients underwent second or third line treatment for acute and chronic GvHD in 2014/15. Of these patients, the number of patients receiving treatment less than 100 days after their transplant (and therefore the contractual responsibility of NHS England) is estimated to be[xvii]: • Acute GvHD: 20-35 patients (20-30%) • Chronic GvHD: 0-5 patients (< 10%) There are a wide range of tariff and non-tariff treatment options, none of which are currently routinely commissioned. It is not possible to ascertain current activity levels for each treatment type, but clinical estimates suggest the following for second line treatments[xviii]: Acute GvHD: • ~ 20 patients currently receive ECP (c. 5 before day 100) • ~ 45 patients currently receive infliximab (c.10 - 15 before day 100) • ~ 45 patients currently receive etanercept (c. 10 - 15 before day 100) It is further estimated that 30% of patients receiving ECP, and 60% of patients receiving infliximab or etanercept, will go on to require third line treatment options.[xix] These would include inolimomab, alemtuzumab, pentostatin or mesenchymal stem cells and are referred to as other third line treatment options.[xx] Chronic GvHD: • ~55 patients receive ECP (c. 0 - 5 before day 100) • ~1 patient receives pentostatin (< 1 before day 100) • ~2 patients receive rituximab (< 1 before day 100) • ~2 patients receive imatinib (< 1 before day 100)

	K1.6 What is the projected growth of the disease/condition prevalence (prior to applying the new policy) in 2, 5, and 10 years?	K1.6 GvHD is expected to grow in line with BMT growth, which has been observed at 5-6% per year for the past several years[xxi]. Based on this, the overall prevalent population is expected to grow as follows: **Acute GvHD** • ~ 715 patients in 2016/17 (year 1) • ~ 755 patients in 2017/18 (year 2) • ~ 885 patients in 2020/21 (year 5) **Chronic GvHD** • ~ 435 patients in 2016/17 (year 1) • ~ 455 patients in 2017/18 (year 2) • ~ 535 patients in 2020/21 (year 5)

	K1.7 What is the associated projected growth in activity (prior to applying the new policy) in 2,5 and 10 years?	K1.7 Given the activity identified in K1.2 and estimated increase in GvHD in K1.6, the number of patients receiving second line treatment in future is anticipated to be:
		
		Acute GvHD:
		
		• ~ 125 patients in 2016/17 (year 1) (~25-35 < 100 days):
		  ○ c. 25 patients on ECP
		  ○ c. 50 patients on infliximab
		  ○ c. 50 patients on etanercept
		
		• ~ 130[xxii] patients in 2017/18 (year 2) (~25-39 < 100 days)
		  ○ c. 25 patients on ECP
		  ○ c. 50 patients on infliximab
		  ○ c. 50 patients on etanercept
		
		• ~ 155[xxiii] patients in 2020/21 (year 5) (~30-45 < 100 days)

		○ c. 30 patients on ECP ○ c. 60 patients on infliximab ○ c. 60 patients on etanercept **Chronic GvHD:** • ~ 65 patients in 2016/17 (year 1) (~0-5 < 100 days) • ~ 70 patients in 2017/18 (year 2) (~0-5 < 100 days) • ~ 80 patients in 2020/21 (year 5) (~0-10 < 100 days)
	K1.8 How is the population currently distributed geographically?	K1.8 Across England, no geographic differences were identified within this review, but there are likely to be differences in access to specific treatments.[xxiv]
K2 Future Patient Population & Demography	K2.1 Does the new policy: move to a non-routine commissioning position / substitute a currently routinely commissioned treatment / expand or restrict an existing treatment threshold / add an additional line / stage of treatment / other?	K2.1 NHS England does not currently have a commissioning policy for GvHD treatments. This policy would move to **routine commissioning** of ECP for patients with acute GvHD and **routine commissioning** of ECP, pentostatin, rituximab and imatinib for patients with chronic GvHD, following stem cell transplantation, and **non routine commissioning** of infliximab, etanercept, inolimomab, alemtuzumab, pentostatin or mesenchymal stem cells for patients with acute GvHD. There is thought to be disparity across England in access to second and subsequent line treatments for GvHD.[xxv] By defining the most clinically effective second- and third-line non-tariff treatments, this policy will also aim to ensure equal access to appropriate treatments for GvHD patients across England.
	K2.2 Please describe any factors likely to	K2.2 See 1.6. In addition, improvements in access to treatment may lower thresholds to treatment initiation and lead to an increase in

	affect growth in the patient population for this intervention (e.g. increased disease prevalence, increased survival).	activity.
	K 2.3 Are there likely to be changes in geography/demography of the patient population and would this impact on activity/outcomes? If yes, provide details.	K2.3 None identified.
	K2.4 What is the resulting expected net increase or decrease in the number of patients who will access the treatment per year in year 2, 5 and 10?	K2.4 For **Acute GvHD**, under this policy there is anticipated to be no net change in the number of patients accessing second line treatments, but a change in the type of treatment they receive. The net increase in the number of patients accessing ECP is estimated to be in the region of: • ~ 50 patients in 2016/17 (year 1) • ~ 105 patients in 2017/18 (year 2) • ~ 120 patients in 2020/21 (year 5) These patients would now receive ECP instead of either infliximab or etanercept. For **Chronic GvHD** there is anticipated to be no change from current activity.[xxvi]
K3 Activity	K3.1 What is the current annual activity for the target population covered under the new policy? Please provide details in accompanying excel sheet.	K3.1 This is identified in K1.5.[xxvii]

	K3.2 What will be the new activity should the new / revised policy be implemented in the target population? Please provide details in accompanying excel sheet.	K3.2 Future activity for **Chronic GvHD** is expected to remain equal to that in K1.7, with **no change** to which treatments patients receive.
		
		For **Acute GvHD,** the estimated future number of patients accessing second line treatments is set out below:
		
		• ~ 125 patients in 2016/17[xxviii] (year 1) (~25-35 < 100 days):
		  ○ c. 75 patients on ECP
		  ○ c. 25 patients on infliximab
		  ○ c. 25 patients on etanercept
		
		• ~ 130[xxix] patients in 2017/18 (year 2) (~25-39 < 100 days)
		  ○ c. 130 patients on ECP
		  ○ c. 0 patients on infliximab
		  ○ c. 0 patients on etanercept
		
		• ~ 155[xxx] patients in 2020/21 (year 5) (~30-45 < 100 days)
		  ○ c. 155 patients on ECP
		  ○ c. 0 patients on infliximab
		  ○ c. 0 patients on etanercept

	K3.3 What will be the comparative activity for the 'Next Best Alternative' or 'Do Nothing' comparator if policy is not adopted? Please details in accompanying excel sheet.	K3.3 If the policy was not implemented, then the current levels of activity would continue, as set out in K1.5.
K4 Existing Patient Pathway	K4.1 If there is a relevant currently routinely commissioned treatment, what is the current patient pathway? Describe or include a figure to outline associated	K4.1 There is currently no routinely commissioned treatment for GvHD for patients under the responsibility of NHS England. Routine clinical practice is usually as follows: First line treatments include topical therapies, systemic corticosteroids or calcineurin inhibitors.

	activity.	Second line or subsequent therapy is guided by grade and clinical presentation of GvHD and includes other immunosuppressant therapies such as imatinib and sirolimus, newer biological therapies such as rituximab and infliximab and extracorporeal photopheresis (ECP) and cell therapy such as mesenchymal stem cells. Some treatments are complicated by both severe infection and the risk of relapse of the original malignancy by their effect of dampening the immune system. Local arrangements very variable.
	K4.2. What are the current treatment access criteria?	K4.2 There are no standard access criteria for the treatments set out above, although clinical guidelines are in place for first line treatments. These vary depending on the nature of the GvHD.[xxxi] Clinically, treatment of GvHD is highly individualised, based upon clinical response.
	K4.3 What are the current treatment stopping points?	K4.3 Patients who do not have a positive response, develop severe toxicity, or for whom the treatment has no effect.
K5 Comparator (next best alternative treatment) Patient Pathway	K5.1 If there is a 'next best' alternative routinely commissioned treatment what is the current patient pathway? Describe or include a figure to outline associated activity.	K5.1 There is no 'next best alternative' treatment routinely commissioned, see K4.1
	K5.2 Where there are different stopping points on the pathway please indicate how many patients out of the number starting the pathway would be expected to finish at each point (e.g. expected number dropping out due to side effects of drug, or number who don't continue to	K5.2 See K4.3.

	treatment after having test to determine likely success). If possible please indicate likely outcome for patient at each stopping point.	
K6 New Patient Pathway	K6.1 Describe or include a figure to outline associated activity with the patient pathway for the proposed new policy. K6.2 Where there are different stopping points on the pathway please indicate how many patients out of the number starting the pathway would be expected to finish at each point (e.g. expected number dropping out due to side effects of drug, or number who don't continue to treatment after having test to determine likely success). If possible please indicate likely outcome for patient at each stopping point.	K6.1 The proposed patient pathway for Chronic GvHD does not change from current clinical practice. For Acute GvHD, ECP will become the standard of care for second line treatment. Patients will undergo 2-3 half cycles per week, until a response is achieved, usually up to a maximum of 3 months. The duration of treatment will depend on the rate of response – some patients will respond early (within the first two weeks), whilst others will take longer. If no response is achieved within three months, it is very unlikely that the patient will respond to further ECP treatment. K6.2 **Acute GvHD[xxxii]:** The complete response rate for ECP amongst acute GvHD patients is 61%-82%. Based on this ~ 70% of patients, should be expected to have successful outcomes. Under the proposed policy, no further treatments would be routinely commissioned if ECP is unsuccessful. **Chronic GvHD:** No change
K7 Treatment Setting	K7.1 How is this treatment delivered to the patient? o Acute Trust: Inpatient/Daycase/	K7.1 For most refractory severe GvHD patients will be managed on an inpatient basis. These are highly morbid and fragile patients. Chronic GvHD may be more amenable to ambulatory care but many of these will be inpatients too. Potential treatment delivery

	Outpatient ○ Mental Health Provider: Inpatient/Outpatient ○ Community setting ○ Homecare delivery	mechanisms for each treatment are set out below: **Non ECP Treatments:** **Acute GvHD:** Acute Trust: Inpatient **Chronic GvHD:** Acute Trust: Inpatient or Daycase (Rituximab and Pentostatin) Acute Trust: Inpatient or Outpatient (Imatinib) **ECP:** ECP is delivered by specialist ECP centres, which tend to be part of an established acute Trust. The treatment involves removing blood from the patient and passing it through ultraviolet light, prior to returning the blood to the patient. A full cycle is generally delivered over two consecutive days.
	K7.2 Is there likely to be a change in delivery setting or capacity requirements, if so what? *e.g. service capacity*	K7.2 ECP is currently only available in selected centres in England (see L1.1). Whilst most transplant centres will have some access to ECP, commissioning action will be required to ensure equitable access is in place, particularly for acute GvHD patients who are likely to be less able to travel to centres for treatment.
K8 Coding	K8.1 In which datasets (e.g. SUS/central data collections etc.) will activity related to the new patient pathway be recorded?	K8.1 Complete data must be submitted to the BSBMT registry for all transplants carried out by UK centres. All centres must also provide data required for the BMT Quality Dashboard.
	K8.2 How will this activity related to the new patient pathway be identified?(e.g. ICD10 codes/procedure codes)	K8.2 All of the drug treatments set out in this policy are excluded from tariff and should be captured through routine high cost drug monitoring.

		ECP is not explicitly listed as a tariff exclusion, but is funded separately from tariff. This will need review by commissioners to agree the appropriate mechanism for capturing activity.
K9 Monitoring	K9.1 Do any new or revised requirements need to be included in the NHS Standard Contract Information Schedule?	K9.1 Yes, as above. There will need to be clear requirements set out in order to capture ECP activity in a standard way.
	K9.2 If this treatment is a drug, what pharmacy monitoring is required?	K9.2 No specific additional pharmacy monitoring is required for the drug treatments listed, although a prior approval software platform could be used to ensure policy compliance and to monitor usage levels. (See K9.7)
	K9.3 What analytical information /monitoring/ reporting is required?	K9.3 As above, specific monitoring for ECP will be required.
	K9.4 What contract monitoring is required by supplier managers? What changes need to be in place?	K9.4 None additional
	K9.5 Is there linked information required to complete quality dashboards and if so is it being incorporated into routine performance monitoring?	K9.5 No

	K9.6 Are there any directly applicable NICE quality standards that need to be monitored in association with the new policy?	K9.6 No
	K9.7 Do you anticipate using Blueteq or other equivalent system to guide access to treatment? If so, please outline. *See also linked question in M1 below*	K9.7 Thresholds for commencing treatment should be objective and explicit. A prior approval software platform, typified by Blueteq®, could be used to ensure policy compliance and collect accurate usage data.
Section L - Service Impact		
Theme	**Questions**	**Comments** (Include source of information and details of assumptions made and any issues with the data)
L1 Service Organisation	L1.1 How is this service currently organised? (i.e. tertiary centres, networked provision)	L1.1 Treatment for GvHD is currently delivered in transplant centres across England. ECP is not available within all transplant centres, with facilities for ECP currently available in the following hospitals in England, although local commissioning does not extend to GvHD at each site[xxxiii]: - Birmingham - Bristol (NHSBT) - London - Rotherham - Newcastle upon Tyne - North West (Liverpool and Manchester, NHSBT) - Oxford (NHSBT) - Southampton - Cambridge

		Patients are required to travel to these centres for treatment.
	L1.2 How will the proposed policy change the way the commissioned service is organised?	L1.2 The proposed policy will not alter the centres responsible for treating GvHD, however commissioning action will be required to ensure equitable access to ECP, particularly for acute GvHD patients who are likely to be less able to travel to centres for treatment.
L2 Geography & Access	L2.1 Where do current referrals come from?	L2.1 Patients will already be under the care of an established transplant centre.
	L2.2 Will the new policy change / restrict / expand the sources of referral?	L2.2 No, but networks could be established based on the availability of ECP facilities.
	L2.3 Is the new policy likely to improve equity of access?	L2.3 Yes, through having a consistent commissioning policy across England.
	L2.4 Is the new policy likely to improve equality of access / outcomes?	L2.4 Yes. There is disparity across England in access to second and subsequent line treatments due to historical contractual arrangements, local availability of ECP and differing local pricing agreements which permit the use of excluded. The policy aims to provide clear definitions and define the most clinically effective second- and third-line non-tariff treatments so that GvHD patients have equal access to appropriate treatments across England.
L3 Implementation	L3.1 Is there a lead in time required prior to implementation and if so when could implementation be achieved if the policy is agreed?	L3.1 Whilst the policy could, and should, be implemented as quickly as possible, some parts of the country are likely to require either set-up of ECP services, or establishment of patient pathways to an existing ECP centre. The time to implementation in these areas will

		depend on the commissioning approach taken. One option might be to require transplant centres to have access to ECP services and for NHS England to set a national currency for ECP, enabling those centres to choose whether to invest in setting up their own service, or put in place sub-contracting arrangements with existing services. Under this approach, implementation could probably be achieved within six months.
	L3.2 Is there a change in provider physical infrastructure required?	L3.2 Potentially, for ECP services
	L3.3 Is there a change in provider staffing required?	L3.3 Potentially, for ECP services
	L3.4 Are there new clinical dependency / adjacency requirements that would need to be in place?	L3.4 Yes, this policy establishes the crucial clinical position of ECP in the management of GvHD.
	L3.5 Are there changes in the support services that need to be in place?	L3.5 None identified.
	L3.6 Is there a change in provider / inter-provider governance required? (e.g. ODN arrangements / prime contractor)	L3.6 Potentially if ECP networks/pathways were to be established around existing facilities instead of establishing entirely new facilities.

	L3.7 Is there likely to be either an increase or decrease in the number of commissioned providers?	L3.7 This will depend on the commissioning approach to ECP adopted. Under the scenario set out in L3.1, there would be no increase in the number of commissioned providers.
	L3.8 How will the revised provision be secured by NHS England as the responsible commissioner? (e.g. publication and notification of new policy, competitive selection process to secure revised provider configuration)	L3.8 Specific commissioning action is likely to be required to increase the number of ECP providers. The PoC Board should consider the optimum approach, which could include: • Competitive procurement by commissioners for stand-alone ECP services • Amending the BMT service specification to require centres to have access to ECP • In addition to defining a national currency for ECP
L4 Collaborative Commissioning	L4.1 Is this service currently subject to or planned for collaborative commissioning arrangements? (e.g. future CCG lead, devolved commissioning arrangements)	L4.1. No
Section M - Finance Impact		
Theme	**Questions**	**Comments** (Include source of information and details of assumptions made and any issues with the data)
M1 Tariff	M1.1 Is this treatment paid under a national prices*, and if so which?	M1.1 No. All of the drug treatments set out in this policy are explicit tariff exclusions. ECP is not explicitly listed as a tariff exclusion, but existing services are funded separately from tariff.
	M1.2 Is this treatment excluded from national prices?	M1.2 Yes.

	M1.3 Is this covered under a local price arrangements (if so state range), and if so are you confident that the costs are not also attributable to other clinical services?	M1.3 Yes. List prices for the drugs set out in this policy are as follows: • **Rituximab** costs £873.15 for 1 vial (500mg/50ml concentrate for solution for infusion vials)[xxxiv] • **Infliximab** costs £419.62 for 100mg powder for solution for 1 vial[xxxv] • **Etanercept** costs £357.50 for 25mg powder for solution for 1 vial[xxxvi] • **Alemtuzumab** costs £792.34 for 3 vials (30mg/1ml concentrate for solution in infusion vials)[xxxvii] • **Pentostatin** costs £863.78 for 1 vial (10mg for solution for injection vials)[xxxviii] • **Imatinib** costs £918.23 for 60*100mg tablets[xxxix] The costs for **ECP** services tend to be in the region of £3,170 per cycle.[xl] As a key component of the cost is the consumables, the opportunity for competitive procurement should be investigated to establish whether the price could be reduced.
	M1.4 If a new price has been proposed how has this been derived / tested? How will we ensure that associated activity is not additionally / double charged through existing routes?	M1.4 Not applicable.
	M1.5 is VAT payable (Y/N) and if so has it been included in the costings?	M1.5 Yes for the drugs set out above. These have been included in the costings. For ECP, VAT will be payable and is included within the reference price.

	M1.6 Do you envisage a prior approval / funding authorisation being required to support implementation of the new policy?	M1.6 M1.6 No, however prior approval software platform, typified by Blueteq®, could be used to ensure policy compliance and collect accurate usage data (See K9.7)
M2 Average Cost per Patient	M2.1 What is the revenue cost per patient in year 1?	M2.1 The additional revenue costs per patient will vary, depending on their individual treatment pathway, but approximate total costs for each treatment are set out below: **Acute GvHD:** • ECP: c. £34,870 [2 half cycles per week, for 11 weeks] • *Infliximab: c. £2,015 [4 vials at c. £500 per vial, drug costs including VAT only]** • *Etancercept: c. £3,430 [8 doses over 4 weeks at c. £430 per dose, drug costs including VAT only]** • *Other 3rd line treatments: c. £3,000[xli] [drug costs including VAT only]** **included as usage likely to continue until policy is fully implemented.[xlii]* **Chronic GvHD:[xliii]** • ECP: c. £19,020 [1 cycle per fortnight for 3 months] • Pentostatin: c. £13,315 [5 x daycase procedures (at c. £600 per day case) to administer 2 doses (c. £1,000 per dose) at each daycase visit] • Rituximab: c. £10,740 [4 x daycase procedures (at c. £600 per day case) to administer 2 doses (c. £1,000 per dose) each time] • Imatinib: c. £26,810 [daily 400mg tablet, ongoing at a cost inclusive of VAT at c. £75 per day]

	M2.2 What is the revenue cost per patient in future years (including follow up)?	M2.2 For Acute GvHD, all treatment will have been completed within the first year, so no additional ongoing revenue costs are anticipated. For Chronic GvHD, the ongoing revenue costs per year will vary by patient, depending on their individual treatment pathway and could include repeat cycles or Rituximab or Pentostatin, or ongoing treatment with Imatinib.
M3 Overall Cost Impact of this Policy to NHS England	M3.1 Indicate whether this is cost saving, neutral, or cost pressure to NHS England.	M3.1 This policy is likely to represent a **cost pressure** to NHS England. The annual net cost pressure will increase each year in line with the growth figures set out in Section K. This is estimated to be: • ~ £0.2m - £0.3m in 2016/17 (year 1) • ~ £0.4m - £0.7m in 2017/18 (year 2) • ~ £0.5m - £0.8m in 2020/21 (year 5) It should be noted that no offset costs from reduced treatments for complications of GvHD have been included, as whilst there is evidence to show that ECP has better outcomes than other second line treatments, this cannot be quantified.
	M3.2 Where this has not been identified, set out the reasons why this cannot be measured.	M3.2 Not applicable.
M4 Overall cost impact of this policy to the NHS as a whole	M4.1 Indicate whether this is cost saving, neutral, or cost pressure for other parts of the NHS (e.g. providers, CCGs).	M4.1 This policy applies to patients under the commissioning responsibility of NHS England. Overall, this policy could be cost saving or cost neutral or cost pressure for CCGs. On the one hand, through optimising treatment for patients early on in their pathway, they may require less treatment when commissioning responsibility

		transfers to CCGs (after 100 days). On the other, if expensive treatments are instigated during the first 100 days of treatment, CCGs will be liable to pick up the ongoing costs where treatment is ongoing. In addition, improving treatment for patients with Acute GvHD may improve survival and could increase costs as patients require ongoing care for longer, however this could not be quantified. If CCGs were to implement this policy in full for their patients with GvHD, there could be a total **cost pressure** of c. £1.1 - £1.3m in 2016/17, rising to £2.8 - £3.2m by 2020/21. This does not include any potential cost savings from better treatment for patients earlier in the pathway, as there is no basis on which these can be quantified. It should be noted that no offset costs from reduced treatments for complications of GvHD have been included, as whilst there is evidence to show that ECP has better outcomes than other second line treatments, this cannot be quantified.
	M4.2 Indicate whether this is cost saving, neutral, or cost pressure to the NHS as a whole.	M4.2 As above, this policy is expected to be an overall **cost pressure** to the NHS as a whole, estimated to be In the region of: • ~ £1.5m in 2016/17 (year 1) • ~ £3.1m in 2017/18 (year 2) • ~ £3.7m in 2020/21 (year 5) It should be noted that no offset costs from reduced treatments for complications of GvHD have been included, as whilst there is evidence to show that ECP has better outcomes than other second line treatments, this cannot be quantified.

	M4.3 Where this has not been identified, set out the reasons why this cannot be measured.	M4.3 Not applicable.
	M4.4 Are there likely to be any costs or savings for non NHS commissioners / public sector funders?	M4.4 None identified,
M5 Funding	M5.1 Where a cost pressure is indicated, state known source of funds for investment, where identified. *e.g. decommissioning less clinically or cost-effective services*	M5.1 For consideration at CPAG.
M6 Financial Risks Associated with Implementing this Policy	M6.1 What are the material financial risks to implementing this policy?	M6.1 The material financial risks to this policy relate to uncertainty – uncertainty regarding the number of patients who will require treatment and uncertainty about the duration of treatment required to achieve successful response, particularly in relation to ECP.
	M6.2 Can these be mitigated, if so how?	M6.2 No specific mitigations have been identified.
	M6.3 What scenarios (differential assumptions) have been explicitly tested to generate best case, worst case and most likely total cost scenarios?	M6.3 The low cost estimate in M3.1 is based on the per patient costs in M2.1, the net increase in activity in K2.4, and the assumption that 20% of acute GvHD patients receive treatment less than 100 days after their transplant. The high cost estimate in M3.1 is based on the per patient costs in M2.1, the net increase in activity in K2.4, and the assumption that

		30% of acute GvHD patients receive treatment less than 100 days after their transplant.
M7 Value for Money	M7.1 What evidence is available that the treatment is cost effective? *e.g. NICE appraisal, clinical trials or peer reviewed literature*	M7.1 No studies on the cost-effectiveness of this intervention were identified.
	M7.2 What issues or risks are associated with this assessment? *e.g. quality or availability of evidence*	M7.2 Not applicable as no studies on cost-effectiveness were identified.
M8 Cost Profile	M8.1 Are there non-recurrent capital or revenue costs associated with this policy? *e.g. Transitional costs, periodical costs*	M8.1 Provision of ECP requires the use and maintenance of a suitable machine – at present, the CELLEX machine[xliv] is the only closed system available for purchase in the UK. The approximate capital outlay for the machine is c. £62k[xlv], but the manufacturer also provide rental and leasing arrangements.[xlvi]
	M8.2 If so, confirm the source of funds to meet these costs.	M8.2 The capital costs for existing ECP machines are covered by the provider through the revenue charges to commissioners. A similar arrangement could be made for any additional ECP centres required. Commissioners could consider whether an increased throughput at ECP centres through enacting this policy, could spread the capital costs and thus reduce the cost per case.

[i] Please see the policy proposition for further detail.

[ii] All prevalence figures are from the BSBMT Outcomes Register (2007-12)

[iii] This uses the 2007 – 2012 totals, takes an estimated annualised value each year accounting for the c. 5.5% growth, and uses this growth rate to estimate a 2014/15 value.

[iv] Please see the policy proposition for full list of inclusion and exclusion criteria.

[v] BSBMT Outcomes Register (2007-12)

[vi] See policy proposition

[vii] See policy proposition

[viii] This uses the 2007 – 2012 totals, takes an estimated annualised value each year accounting for the c. 5.5% growth, and uses this growth rate to estimate a 2014/15 value.

[ix] Based on discussions with the Policy Working Group

[x] See policy proposition

[xi] See policy proposition

[xii] This uses the 2007 – 2012 totals, takes an estimated annualised value each year accounting for the c. 5.5% growth, and uses this growth rate to estimate a 2014/15 value.

[xiii] Based on discussions with the Policy Working Group

[xiv] This is the sum of the c. 110 acute and c. 60 chronic patients as set out above. Based on actual patient numbers who presented in 2007 – 2012, and adjusted for 2014/15.

[xv] Based on discussions with the policy working group

[xvi] Based on discussions with the policy working group

[xvii] Based on discussions with the policy working group

[xviii] Based on discussions with the policy working group

[xix] Based on discussions with the policy working group

[xx] Please note that these are proposed as not routinely commissioned and as such would not be available under the policy.

[xxi] Based on BSBMT CAGR of c. 5.5% between 2008 and 2013. This is thought to be due to improvements in treatment available to prepare patients for transplant, based on discussions with the policy working group.

[xxii] Please note figures may not sum exactly due to rounding

[xxiii] Please note figures may not sum exactly due to rounding

[xxiv] Based on discussions with the policy working group

[xxv] Based on discussions with the policy working group

[xxvi] Based on discussions with the policy working group. A survey is currently underway with transplant centres to test this understanding.

[xxvii] Based on discussions with the policy working group. A survey is currently underway with transplant centres to test this understanding.

[xxviii] Please note that the 2016/17 numbers assume a c.50% phase in in year 1.

[xxix] Please note figures may not sum exactly due to rounding

[xxx] Please note figures may not sum exactly due to rounding

[xxxi] See GvHD guidelines by the BCSH. http://www.bcshguidelines.com/documents/BCSH_Guideline_Acute_GVHD_diagnosis_and_management_v1.pdf

[xxxii] Evidence review for GvHD

[xxxiii] Therese Callaghan, NHS Blood and Transplant Centre. Graft versus Host Disease (GvHD) and Extracorporeal Photopheresis (ECP). October 2014.

[xxxiv] Dictionary of medicine, entry for for MabThera is £873.15 for 500mg/50ml, http://dmd.medicines.org.uk/DesktopDefault.aspx?AMPP=7697211000001103&toc=nofloat, last accessed: 24/02/16

[xxxv] Dictionary of medicine, entry for for Remicade is £419.62 for 100mg powder for solution for infusion vials, http://dmd.medicines.org.uk/DesktopDefault.aspx?AMPP=4398111000001108&toc=nofloat, last accessed: 25/02/16

[xxxvi] Dictionary of medicine, entry for Enbrel is £357.50 for 25mg powder and solvent solution for injection vials, http://dmd.medicines.org.uk/DesktopDefault.aspx?AMPP=4156711000001106&toc=nofloat, last accessed: 25/02/16

[xxxvii] Dictionary of medicine, entry for MabCampeth is £792.34 for 30mg/1ml concentrate for solution for infusion vials, http://dmd.medicines.org.uk/DesktopDefault.aspx?AMPP=9188311000001104&toc=nofloat, last accessed: 25/02/16

[xxxviii] Dictionary of medicine, entry for Nipent is £863.78 for 1 vial (10mg powder for solution), last accessed: 25/02/16,

http://dmd.medicines.org.uk/DesktopDefault.aspx?AMPP=4635011000001100&toc=nofloat

[xxxix] Dictionary of medicine, entry for Glivec is £918.23 for 60 x 100g tablets, http://dmd.medicines.org.uk/DesktopDefault.aspx?AMPP=8089711000001104&toc=nofloat, last accessed: 25/02/16

[xl] Based on prices for ECP at Rotherham, known to be similar in Newcastle, validated with the NHS Blood and Transplant Centre.

[xli] Based on discussions with the policy working group, considering treatments such as MSC, alemtuzumab and pentostatin.

[xlii] Based on discussions with the policy working group

[xliii] Figures rounded.

[xliv] Therese Callaghan, NHS Blood and Transplant Centre. *Graft versus Host Disease (GvHD) and Extracorporeal Photopheresis (ECP).* October 2014.

[xlv] Based on information receieved from the policy working group. This is made up of c. £61k for the machine itself and c. £1k for the light box.

[xlvi] Based on discussions with the policy working group.