NHS BLOOD AND TRANSPLANT
ORGAN AND TISSUE DONATION & TRANSPLANTATION DIRECTORATE
MINUTES OF THE FORTY-FIRST MEETING OF THE
LIVER ADVISORY GROUP
HELD ON WEDNESDAY 24 NOVEMBER 2021

ATTENDEES

Douglas Thorburn	Chair, Liver Advisory Group / Royal Free Hospital
Anya Adair	Royal Infirmary of Edinburgh
Mark Aldersley	Leeds Teaching Hospital
Michael Allison	Hepatology, Addenbrooke's Hospital
Magdy Attia	Leeds Teaching Hospital
Varuna Aluvihare	Kings College Hospital, London
Jenni Banks	Statistics and Clinical Research, NHSBT
William Bernal	Kings College Hospital, London
Andrew Butler	Chair MCTAG / Addenbrookes Hospital
Becky Clarke	Specialist Nurse OD Representative, NHSBT
Ian Currie	National Clinical Lead for Organ Retrieval / Royal Infirmary Edinburgh
Ahmed Elsharkawy	University Hospital Birmingham
John Forsythe	Medical Director OTDT, NHSBT
Paul Gibbs	Addenbrookes Hospital, Cambridge
Tassos Grammatikopoulos	King's College Hospital, London
Pamela Healy	Chief Executive, British Liver Trust
Andrew Holt	Queen Elizabeth Hospital, Birmingham
John Isaac	Deputy Chair LAG / Queen Elizabeth Hospital, Birmingham
Maria Jacobs	Statistics & Clinical Research NHSBT
Sarah Jones	Clinical Governance Manager, NHSBT
Derek Manas	Associate Medical Director - Clinical Governance, Retrieval and Transplantation, NHSBT
Aileen Marshall	Royal Free Hospital, London
Steven Masson	The Freeman Hospital, Newcastle upon Tyne
Joerg-Matthias Pollok	Royal Free Hospital, London
Krishna Menon	Kings College Hospital, London
Thamara Perera	Birmingham Children's Hospital
Raj Prasad	Liver CLU / St James' Hospital, Leeds
Katie Quist	Recipient Co-ordinator Representative
Sanjay Rajwal	St James' Hospital, Leeds
Ian Rowe	University of Leeds
Peter Robinson-Smith	Recipient Co-ordinator Representative
Gourab Sen	The Freeman Hospital, Newcastle upon Tyne
Abid Suddle	Kings College Hospital, London
Alison Taylor	Liver Transplant Consortium Representative
Rhiannon Taylor	Statistics and Clinical Research, NHSBT
David Turner	Lead H&I Services & Clinical Lead for Centre, SNBTS
Lynne Vernon	Lay Member, NHSBT
Chris Watson	University of Cambridge Dept of Surgery
Sarah Watson	NHS England
Julie Whitney	Head of Referral and Offering, NHSBT

IN ATTENDANCE:

Caroline Robinson	Clinical and Support Services, NHSBT

ITEM		**ACTION**
	Welcome and Apologies	

	D Thorburn welcomed all to the meeting and acknowledged the help and support previously of Kamann Huang from the Clinical and Support Services Team who organised the Liver Advisory Group and its sub and working groups for many years, who has now left NHSBT. Apologies were received from Sarah Matthew, Rutger Ploeg, Tracey Rees, Ken Simpson, Sadie Von Joel, Craig Wheelans.	
1.	**Declarations of interest in relation to the agenda - LAG(21)1** *It is the policy of NHSBT to publish all papers for this meeting on its website unless the papers include patient identifiable information, preliminary or unconfirmed data, confidential and commercial information or will preclude publication in a peer-reviewed professional journal. Authors of such papers are asked to indicate whether their paper falls into these categories.*	
2.	**Minutes of LAG Meeting of 19 May 2021 – LAG(M)(21)1**	
2.1	Accuracy – The Minutes of the meeting of 19 May were accepted as a true record	
2.2	Action Points – **LAG(AP)(21)2**	
2.2.1	AP1: Protocol and dataset for machine perfusion – discussed at LAG Core Group - *Please see Item 5.8 UKTR Data Collection and Item 5.4 Machine Perfusion working group (ToR & Objectives)*	**COMPLETE**
2.2.2	AP2: Hepatopulmonary syndrome patients – *See Item 5.8 UKTR Data Collection and Item 6 Liver Offering for New Indications*	**COMPLETE**
2.2.3	AP3: DCD liver/kidney offering – There are no transplantations yet, but offering is going well at present.	
2.2.4	AP4: Report from MCTAG Meeting: 17.03.21- Further information is awaited on the discussion that has taken place with A Butler and the MCTAG Stats team regarding challenges faced for small recipients of multi-visceral grafts.	
2.3	Matters Arising, not separately identified – there were no issues raised at the meeting.	
3.	**Medical Director's Report**	
3.1	Organ Donation and Transplantation Update – D Manas was congratulated on his appointment as Medical Director for OTDT which will commence officially in January. • John Forsythe was thanked for his many years work and achievements in the role of Medical Director. Recent years have been both exciting and challenging, and he has done a remarkable job at the helm. On joining the meeting, J Forsythe thanked all members of LAG and stated he had enjoyed the robust conversations in the meetings. The liver transplant community is a very strong and collegiate group, and this should enable advancement of new initiatives. All those present were thanked for their willingness to adapt during recent challenging times. • There have been changes recently in the medical team with the appointment of 5 Associate Medical Directors covering Organ Donation, Governance, Organ Utilisation, Living Donation and Transplant Medicine. These appointments are all in post, but there will be two further changes. The role for governance, currently held by D Manas is to be advertised and there will be a further appointment for Research and Development which is advertised currently.	

	• The clinical team has been meeting regularly and monitoring activity during COVID. Activity is now nearly back to normal. The issue of retrieval and shortages in nursing staff across some units was highlighted with 3 units facing difficulties covering 2 rotas. Sharing on call may be required in future. The winter pressure paper is out and has been sent out to all Medical Directors. • Living Donation – there will be a resurgence of the national programme and it appears there is much greater enthusiasm for this now. Three centres have been actively transplanting - Leeds, Birmingham and Kings - and the plan is to have a network across the country that refers into these hubs. Once the scheme is up and running the plan is to develop the rest of the units to create a national programme that will enable the opportunity of living donation as an option for patients.	
3.2	<u>Organ Utilisation Group and Programme (OUG)</u> • Some centres around the country have now met with J Forsythe and Steve Powis. The plan is for the OUG to report by March with high level recommendations regarding organ utilisation some of which will be implemented by clinicians and some by other bodies, like NHS England. • The CLUs for each advisory group have now been in post for a few weeks and the lead for liver is R Prasad. It is hoped that this initiative will become permanent from 2022 but this will depend on the success of the current programme *(See Item 7)*	
3.3	<u>Liver Utilisation Report (not information)</u> – **LAG(21)25** – This was circulated prior to the meeting. Calls are taking place with Centre directors every month to discuss any issues, and this is proving a productive forum for developing policy.	
3.4	<u>Delays to Organ Offering Retrieval for Paediatric transplant</u> – T Perera highlighted issues facing paediatric centres. Between the beginning of July and end of August, 70% of paediatric offers in Birmingham came out of hours and transplants then took place 24 hours later, also at night. As a result, teams were completing transplants on a challenging group of patients when they had already been up since the night before and were very tired. This is putting both surgical teams and patients at risk. These concerns were shared by the group as the time taken between offer and transplant is not sustainable long term for such a small workforce and can have an impact on adult centres as well. It was noted that this could ultimately have an impact on future recruitment. J Isaac stated that this was highlighted in the response to the call for evidence sent to the OUG involving discussions amongst all centres, NORS teams and retrieval centres. The ongoing work led by I Currie to move retrieval into the night so that transplants can take place during the day was also highlighted, particularly the need to look at all the processes pre cross clamp to identify where time can be saved in the pathway. It was acknowledged that the length of time involved in CT offers has been an issue and work completed on the super urgent liver pathway has expedited offers for CT centres to allow prioritisation of super urgent livers and this kind of work could be extended to the paediatric pathway.	**J Whitney / I Currie / Paediatric centre representation**

	ACTION: J Whitney and I Currie to work with paediatric centres to develop improvements in the paediatric pathway.	
4.	**Update on the National Liver Offering Scheme**	
4.1	Compliance with Sequential Data Submission – **LAG(21)26** Transplant centres must provide NHSBT with accurate and regular information regarding their active patients on the UK elective liver transplant list by completing and returning SDC forms. Of the 497 patients on the elective CLD/HCC transplant list on 14 November 2021, 128 (26%) had not had a SDC form returned to NHSBT within the last 2 months and SDC forms for 64 patients who were on the transplant list for more than one month had not been received. Centres are reminded that they need to send regular updates to NHSBT regarding their patients so that the TBS score accurately reflects patients' conditions.	
4.2	National Liver Offering Scheme (42 month data) and Summary Feedback of Key Points from NLOS – **LAG(21)27** and **LAG(21)28** – Mark Hudson (Chair of NLOS) has now retired and was thanked for his 3 years work helping all as chair of the NLOS monitoring group to understand the outcomes and effects achieved from NLOS implementation. I Rowe has now taken over as Chair of the group and he provided a review of the 42-month report circulated prior to the meeting: • It is difficult to identify what changes to outcomes identified are due to implementation of the NLOS and what changes result from the COVID-19 pandemic. However, elective registrations have been impacted by COVID-19, particularly during the peak activity periods • trends are similar to those previously identified, particularly outcomes for patients with HCC both in terms of waiting list outcomes and the increase in allocation of DCD grafts to patients in this group. • a decrease in the numbers of DCD livers offered but not retrieved is now paralleled with a decrease in the proportion of livers retrieved and subsequently transplanted despite increased use of machine perfusion and other preservation strategies. It is not clear to what extent COVID has had an impact here. • the numbers of livers retrieved but not transplanted increased after the introduction of NLOS and again during the pandemic period. it is important that data is improved in this area. • 90-day and 1-year survival after transplantation continues to improve with no apparent impact due to NLOS. One year survival after DBD transplant is estimated at 95.1%. This may be driving more risk averse behaviour with centres not treating patients who could benefit from transplant because the outcome could impact on centre results. • Consideration now needs to be given to what data is collected that is needed rather than simply nice to know. The frequency of meetings of the group also needs review along with group membership. Concern was expressed in the LAG meeting regarding re-transplantation. At present, there is reliance on crude signals of disadvantage. A significant proportion of named offers are going for re-transplantation but the relevance of age may be more profound for this group than other areas. It was agreed there is a	

	need for review of this area. The length of time needed for NLOS to continue monitoring also should be considered. **ACTION: LAG Core Group to look at offering and ultimately transplantation of patients registered for re-transplantation.**	
4.3	Updating the TBS Parameter Estimates – **LAG(21)29** and **LAG(21)60** – The estimated Transplant Benefit Score (TBS) is the difference between the risk-adjusted estimated five year survival post-transplant with a specific donor (M2) and the estimated risk-adjusted five year survival on the list (M1). There was consensus at the last LAG meeting that M1 of TBS would be updated and simulation 12 (ie, using simulated baseline survivor functions for cancer and non-cancer, updated parameters and addition of new waiting list patients to the latest years cohort) would be the preferred simulation. Work is now outstanding to repeat this work for M2 outcomes. R Taylor gave a presentation showing the impact of updates to M1 and proposed updates to M2. Two additional simulations (13 and 14) have been performed using simulated M1 baseline survivor function used in simulation 11 and 12. In conclusion: • For M2 survival post-transplant cohort, currently not updated, the full model appears similar to simulation 12 (update to 2006-2016) • Where statistically significant factors are included for M1 and M2, the simulation results for simulation 14 are similar to results for the full model (simulation 13) • The recommendation is to implement updated models containing statistically significant factors R Taylor was thanked for an enormous amount of work. It was agreed that simulation 14 would be implemented. LAG members commented that as performance of M2 doesn't appear to be as good as anticipated this should be investigated further. It was also highlighted that DCD being outside NLOS maximises incentives to develop novel technologies which will be important given the development of ARCs, so there should be an assessment of when the time is right to bring DCD into NLOS. Given the need to reduce carbon footprint the method of transporting livers around the country should be investigated. Regional allocation of organs was suggested as a way of reducing the need to use flights and to improve carbon footprint. However, the importance of equity of access to organs for patients is a fundamental principle to retain in the national service. It was suggested that funding of NRP from reduced travel costs from zonal distribution of organs could further increase the numbers of organs available.	
4.4	Future Work – this includes: • Updating the TBS calculator based on simulation 14 and circulation to the units for evaluation • Inclusion of DCD in NLOS (calibration of M2 for DCD – transplants to be examined), • Minimal listing criteria based on M1 rather than UKELD • Impact of NLOS on patient sub-groups (eg young re-transplant patients • Detailed evaluation of the re-transplantation offering pathway	**Ian Rowe/Rhiannon Taylor**
5.	**Update from FTWUs**	

	The following groups gave updates on work undertaken.	
5.1	Colorectal liver metastases – **LAG(21)30 –** K Menon stated that the objectives of this group were to consider whether CRC METS should be recommended as an indication for OLT within a service evaluation. The discussions of the group are outlined in the paper circulated for this meeting. With the help of international expertise, the group agreed: • To take this forward as a service evaluation. It was agreed that there was no scope for a trial. • To choose patients with unresectable colorectal METS • A key pillar will be to wait for 2 years to establish the stability of disease post chemotherapy. This removes concerns regarding the number of patients coming through for liver transplantation. If there is any disease recurrence, the clock gets reset. • The biology of the disease will not be an important factor to enable focus on a good group of patients • Patients with T4 disease should have a laparoscopy. • Marginal grafts, machine perfused livers and living donation will be excluded. 20 patients will be included in the pilot evaluation which will follow international recommendations and the survival anticipated is 60% at 5 years. There will be no national MDT. There has been good engagement from Oncology, Colorectal Surgery, Radiology and Patient representatives (Colorectal and Liver Transplant). The evaluation will be promoted via the Association of Coloproctology of GB & Ireland to make colorectal surgeons aware along with the medical oncology community. There will also be a series of roadshows to both the colorectal and HPB referrers to highlight the new indication for 'Liver transplantation for Unresectable Colorectal Liver Metastases. The importance of data collection for this complex patient group was highlighted and it is hoped that NHSBT can assist with this. It was agreed to take this forward to implementation stage with K Menon leading the existing membership of the FTWU group. It was also agreed to include J Whitney and the operational team from NHSBT in this. It is hoped that in 6 months the first patients will come through patient MDTs for consideration.	
5.2	Minimal Listing Criteria for HCC – **LAG(21)31 -** The purpose of this group changed during COVID from looking at standardising assessment to minimal listing criteria for HCC to ensure greater standardisation across the patient population on the transplant waiting list. The focus has been on the criteria and the maximum benefit of transplant against other treatment available. The recommendations of the group are to offer transplant to those with: • underlying cirrhosis • those with decompensated liver disease. The variation in practice here is when there is solitary HCC against a background of compensated cirrhosis. • For T1A tumours less than 2 cm with a background of compensated liver disease, transplant is **not** the recommended treatment modality unless there are very well-defined criteria that mean ablation or resection are not curative options.	

	• For tumours 2-5cm in size a multi parametric assessment should be undertaken to define whether resection, transplantation or ablation should be applied. However, it is noted that this would be difficult to mandate. • For multi focal disease (ie more than 1 tumour within criteria) transplant is recommended. Standardising radiological evaluation of patients (eg CT and MRI) and monitoring while on the waiting list are important goals as there are currently differences in practice across the UK and for treatment of HCC. However, there was little radiological representation on the group to suggest the best way forward and while LI-RAD is a possible recommendation, it is noted that there is no consensus on its use. Core group members agreed that if practice is to be harmonised nationally some degree of external scrutiny is appropriate if patients fall outside the agreed groups prior to registration. This could be the Appeals panel process or a national MDT. Completion of a checklist was also suggested prior to listing with the appeals process available for those who do not meet the criteria listed. Data collection is also essential. The worldwide trend is that criteria based on morphology as a surrogate for biology is out of date especially for tumours at the upper end of criteria. It was noted that patients with a tumour then get a second tumour will have this calculated in totality providing the tumour recurs within 2 years. LAG members also discussed what treatment is available where cancer recurs that is resectable. However, it was agreed that a gatekeeper role is important to avoid destabilisation initially due to a potential increased number of HCC patients listed as a consequence of the updating of the NLOS scheme as previously described. The group's recommendations were accepted by LAG with the proposal that further discussion in core group should be undertaken to propose what categories of patients should be subjected to external scrutiny/approval prior to listing. I Rowe also offered to link with radiologists interested in standardisation. A Suddle and A Marshall were thanked for their work with this group.	
5.3	<u>Cholangiocarcinoma</u> – **LAG(21)59 –** R Prasad, who led this implementation group after prior agreement that a programme would be developed, stated that 4 meetings which have included significant input from the clinical and patient communities have taken place with 1 final meeting planned. Pending issues include: • Selection criteria – there is a need for pathology evidence and a review panel before entry and for frozen sections at the time of transplant. It was noted that while NHSBT and NHSE are developing a national pathology service this is unlikely to be in place for 18 months and pathology requests late at night will therefore continue to be difficult until this is in place. • Commissioning – discussions are ongoing with NHSE regarding use of proton beam therapy (PBT) and the next step is to put the proposal to the PBT board before Christmas to include data sets and data collection.	

	The issue of intrahepatic cholangiocarcinoma and the need for Fgfr2 fusion assessment (which is not available across the whole country) was raised along with the need for a primary outcome measure for the programme and surrogates of futility. It was agreed that discussion of these and any other queries will continue offline with R Prasad. Providing issues can be resolved, the programme should start on 1 April.	
5.4	Machine Perfusion Working Group (ToR & Objectives) - **LAG(21)61 -** Formation of this group to oversee governance of machine perfusion and standards for transport and usability criteria for organs across the country has not previously been established. The aim is that this group will tie into how the ARCS will operate and after an initial 3 months to provide initial recommendations it is likely to become a standing group to oversee ongoing practice. The terms of reference circulated have been put together by J Isaac and initially aims to determine: • What types of grafts should be used on machines • Data collection needed • Establishment of shared learning for everyone who uses machine perfusion. The group will meet for 3 months and then decide whether to continue with a standing committee. The group is not designed to be prescriptive but will offer broad guidelines for national minimum standards. A representative from each centre will be invited to join who will be nominated by the Centre Director and who will oversee use of machine perfusion in their centres. It is noted that most centres have their own machines and there is huge variation on how these are used, perhaps due to different levels of learning across the country. While the OUG will make high level recommendations and the ARCs programme be established this group will ensure consensus and standards for the liver community. It was acknowledged that despite some reservations noted and a suggestion that it may be best to wait until OUG recommendations come out in February, now is a good opportunity to share best practice to try to improve outcomes nationally. All are encouraged to engage with the work of the group.	
5.5	ACLF – **LAG(21)32 –** W Bernal stated that the service development evaluation to transplant Acute on Chronic Liver Failure (ACLF) patients was successfully introduced in May 2021 due to existing issues of patient mortality and apparent good outcomes for patients with cirrhosis. The inclusion and exclusion criteria for the service evaluation are shown in the document circulated for this meeting. Transplant centres are responsible for ensuring patients meet the eligibility criteria and deciding whether the patient should be removed from the waiting list. Access to registration is 5 days a week. • There have been 8 UK elective registrations with ACLF since May 2021 with a mean age of 41 years. 5 patients deteriorated while on the waiting list. 7 of the 8 patients received a liver only transplant. • Of the 7 transplanted patients who received a liver from a deceased donor, 6 were known to be alive at their last follow up. There have been positive comments from centres regarding these patients and outcomes are very positive. However, resource use is high and involves prolonged use of ICU and hospital stay post	

	transplantation. After discussion at the Core Group, it was also noted that while there could be some disincentive to transplant these patients as they could adversely affect centre statistics and fall into CUSUM calculations, it was appropriate to keep them within the CUSUM process. It was agreed that an updated paper will come to future LAG meetings.	
5.6	Neuroendocrine Tumours – **LAG(21)33 -** In the absence of T Shah, D Thorburn reported that this programme has started and the patient pathway is in the document circulated for this meeting. The national MDTs have been established and potential patients are now moving through the process. There has been a requirement to identify the process that ensures offers are made for these patients. However, the issue of reporting the primary outcome measure for these patients and determining futility needs to be addressed and while it is suggested that after 10 patients the criteria will be reviewed and expanded this will require further consideration. Given the discussion in LAG regarding recurrent tumour issues, a decision is needed regarding the most appropriate primary outcome measure.	
5.7	HCV Positive Transplants into HCV Negative Recipients – **LAG(21)34 –** Following a steering group meeting yesterday, all 7 units are now signed up. Ahmed Elsharkawy stated that the Utilisation rate is still sub optimal and there are varying consent issues in the liver units ranging from 96% to 13% acceptance amongst waiting list patients. The aim is to have two thirds of recipients consented in units to allow standard offering of these organs to named patient rather than on the current fast-track scheme to accept these good quality organs. It is not known why there is variation across units although some reasons may be resistance of clinicians, lack of resource or COVID priorities. All are asked to look at their waiting lists to identify patients who could say 'yes' or 'no' to these donors.	
5.8	UKTR Data Collection – This group has been formed to establish preferred data sets. Due to changing data requirements, the group is not yet ready to report, but it is hoped there will be an update next month. While it is important to be realistic about the IT changes that may be needed for this, it is hoped that this can be added to the other data collection requests going through.	
6.	**Liver Offering for New Indications – LAG(21)35**	
	There are several new indications in evolution and subsets of patients with severe disease and preserved liver synthetic function who sit on the variant list at present. There is a danger they will deteriorate while they are on the waiting list. In the Core group it is proposed that organs could be offered to these new groups of variant patients as follows: • They will be listed on the variant syndrome pathway • They will be credited at the point of registration with a certain number of days waiting • They will be given a high likelihood of a top named offer (75% chance of a top named offer) within a window where they can expect to be transplanted according to the patient's indication. At present, the outcome of this model on the current patients waiting on the variant pathway is not yet known. Concern was expressed that by trying to get these patient cohorts to fit around the existing scheme, every orphan disease will have its own	

	offering scheme outside NLOS. It was noted that each indication will be monitored in pilot schemes defined by each FTWU. LAG members agreed that this is a necessary initiative and will provide impetus to use more grafts that are currently being discarded as well as encourage use of NRP to increase numbers of livers available. It was agreed that patients should be added to the variant waiting list with a predetermined number of days allocated based on the anticipated window for transplantation and a 75% chance of a top named offer and the patient's blood group	
7.	**Liver CLU Scheme and Liver Utilisation**	
	R Prasad who is the lead liver CLU stated that this item will be a standing item on the LAG agenda in future. While the CLU team funding is currently only available until the end of the year, it is hoped that this will continue. There are 9 centre-specific liver CLUs with some having two CLUs due to paediatric and adult programmes. Current work projects include: • A detailed audit on the reason organs are rejected compared with what is recorded at NHSBT as reasons for organ refusal. • The offer review scheme agreed by LAG members will go live from January and is in beta testing currently. • A study of how units and centres behave for donor activity • The potential offering of liver indices at the time of liver offering to see if this has impact on utilisation • A look at why there appears to be more discarded right lobes than previously • Providing education at individual centres on utilisation for managers, clinical leads and nurse managers with regular courses to make trusts partners in the utilisation process. Overall, there is an enthusiastic group of CLUs who it is hoped will be agents for positive change. The issue of workforce and resource was suggested as a possible project as this can affect organ utilisation. However, it is felt that as the CLU network is appointed by NHSBT and most workforce are trust employed, it is best to wait until the OUG recommendations come out to look into this.	
8.	**RAG Update – National NRP development**	
	I Currie gave a presentation *(see Item 8.4* ***LAG(21)39****)* of an update of NRP. Increase in centres who have set up or who want to set up a structure to allow NRP, so a business case was resubmitted this year based on the work of Edinburgh and Cambridge over an 8-year span for which an outcome is awaited. This delivers a strategy for implementation across the UK to reduce health inequalities and it is predicted liver transplantation will increase by 158 per year. C Watson has been chairing the steering group to look at oversight, structure and governance, Key outcomes of the steering group are: • National SNOD/Hub Operations operating procedures • National clinical protocols, including ANRP with cardiothoracic teams • Draft organ passport to travel with all abdominal organs with full biochemical and perfusion parameters when ANRP is used.	

	• ANRP Structure, Training and Competency guide. NRP will be quality assured, and a trained individual will go to centres to do mentoring. • Framework to support new centres wanting to do ANRP. It can be managed without too many problems on existing standard NHSBT transport for NORS teams so if the Hub is aware, NRP can be used in retrievals without too many issues. The outcomes are listed in paper **LAG(21)39.** Papers for Items 8.1 to 8.5 were also circulated to the LAG meeting for information. The papers tabled provided a roadmap to establish NRP within centres with appropriate mentorship to support the development of individual NRP programmes.	
8.1	ANRP 1 FRM6725/1 – NRP Passport - **LAG(21)36**	
8.2	Abdominal Normothermic Regional Perfusion (A-NRP) NORS structure, training and competency - **LAG(21)37**	
8.3	Framework for new centres to start/restart ANRP - **LAG(21)38**	
8.4	LAG ANRP Update November 2021 - **LAG(21)39**	
8.5	UK Protocol for Normothermic Regional Perfusion (NRP) in controlled Donation after Circulatory determination of Death **LAG(21)40**	
9.	**IT Changes and Update – LAG(21)41 (Liver splitting criteria, FT trigger , Update of NLOS & Crossmatch)**	
	The document detailed IT changes that LAG has requested from NHSBT based on decisions made over the last few years. Many decisions that have not required IT changes have been implemented, but some do require either IT modifications or re-writes. If a modification is needed this is likely to be implemented at some point next year. If a re-write is required, this will be dependent on a business case submitted in January. It was agreed that updating the TBS estimates was the top IT change for liver.	
10.	**Liver Transplant Commissioning**	
10.1	NHS England - Sarah Watson gave an update on behalf of NHSE: • Liver Services Review – Groundwork on the getting data to inform the scope of the review and agreement on getting this set up is now underway. However, there is no agreement for a transformation programme to be set up yet, but the earliest time frame will be 2023. It was noted that it would be preferable to move this up the agenda so that it could be earlier than this date if possible. **ACTION: As there are no pathways for early detection of liver disease in England but these exist in Wales, P Healy (British Liver Trust) will send information to S Watson** • Discussions re: setting up a national liver waiting list platform to standardise some of the processes and move patients around the system more easily are underway. There has been very positive feedback on the project principles, but funding is dependent on the right technical solution being agreed within a reasonable time period. A service specification is needed **ACTION: a specification for the system to be developed and agreed by representatives from each of the adult and paediatric programmes.**	**P Healy**

	• Work is ongoing to sort out prescribing for immune suppression within shared care arrangements. This is being led by transplant pharmacists and discussions are taking place with Royal Free and Kings so that money can be moved around the system to ensure better practices in future.	
11.	**Governance Issues**	
11.1	Non-compliance with allocation - NAD	
11.2	HTA B forms **– LAG(21)42 –** J Whitney reported on the HTA-B form backlog. This has been partly due to NHSBT chasing the licence holder and communications becoming lost in transit as well as workforce difficulties during COVID. The report circulated to this meeting gives details of outstanding forms from liver transplant units. The chase process has now been changed: • After 5 working days, a reminder will be sent to each centre and there will be further reminders at days 14 and 21 • After this the Clinical director and then the Medical Director will chase licence holder at day 60. LAG members are asked to note that the HTA is taking this matter seriously and traceability of these forms will be on the licence inspections in the coming year.	
11.3	Governance	
11.3.1	Governance report – **LAG(21)43 –** D Manas reported that there are about 70 incidents a month mostly around retrieval issues many of which are minor. • There has been some discordance in defining cold ischaemic time. In kidneys this is from cross clamp to re-perfusion while for liver this has been from cross clamp to when the liver is out of ice. It was agreed that liver re-perfusion will be accepted as the time when cold ischaemic time ends. • Photography – centres are asked to ensure that any photos sent through to units are clear in what they are trying to show. It was noted that Edinburgh's policy is not to allow photos from phones, and it was queried whether there was a standard encryption set up by NHSBT that could be used. **ACTION: D Manas to look into this with C Watson and R Prasad.**	**D Manas / C Watson / R Prasad**
11.4	CUSUM	
11.4.1	Summary of CUSUM monitoring of outcomes following liver transplantation – **LAG(21)44 –** 1 liver centre has triggered and is currently compiling a report.	
11.4.2	Report on recent triggers (shared learning) – No triggers reported on since last meeting	
12.	**Statistics and Clinical Research Report**	
12.1	Summary from Statistics and Clinical Research – **LAG(21)45 –** All Advisory Group papers and conference presentations continue to be posted on the ODT Clinical Site: www.odt.nhs.uk. R Taylor highlighted that the bowel donor criteria has been extended for donors after brain death to 59 years from 55 years and to 89 kg weight from 79 kg.	

	The process for requesting prioritisation for paediatric and ACLF patients in the hepatoblastoma tier and the subsequent registration process has been published in SOP5907 on the ODT Clinical website: (https://nhsbtdbe.blob.core.windows.net/umbraco-assets-corp/25018/sop5907.pdf)	
12.2	Liver Transplant Risk Communication Tool – **LAG(21)46 –** It is proposed that this tool will go live in January with development work to be completed around 10 December. LAG members are asked to review the test version when it is circulated and to feedback any comments to R Taylor and L Mumford by the end of December so the final tool can be refined. The tool will cover on the list and survival post-transplant.	
13.	**Multi-visceral and Composite Tissue Advisory Group (MCTAG) – 13 October 2021 -** *see also Item 16.8* ***LAG(21)56***	
	There was no discussion at the meeting for this Item as Andrew Butler had to leave the meeting.	
14.	**AOB**	
14.1	HLA Matching **– LAG(21)47** – D Turner has been updating of guidance for the liver section focusing on HLA antibodies. This document was discussed at the Core group and it is believed that the recommendations are appropriate. It is noted that a tie in with multivisceral guidelines is needed. **ACTION: M Allison to assist D Turner with this work.**	**D Turner / M Allison**
14.2	Service evaluation of ArLD liver transplant assessments across the UK centres – **LAG(21)48** and **LAG(21)49 –** M Allison stated that this work looks at all patients assessed at liver transplant units with an underlying diagnosis of alcohol related liver disease over a 12 months period. The next steps will be to circulate summary data to all units and national data to the ILC. It was agreed that capturing data on assessment and inequity of access should be highlighted to Claire Williment at the OUG. **ACTION: M Allison to contact C Williment.**	**M Allison**
15.	**Date of next meeting**	
	Post meeting, dates for next year are proposed as: a) Wednesday 27th April 2022 b) Wednesday 2nd November 2022 The hope is that a face-to-face meeting will be possible during 2022.	
16.	**FOR INFORMATION (and circulated prior to the meeting)**	
16.1	Transplant Activity Report: October 2021 - **LAG(21)50**	
16.2	Group 2 Transplants - **LAG(21)51**	
16.3	HCC Downstaging **- LAG(21)52 - outcome appears favourable allowing pilot to continue.**	
16.4	Outcome of appeals - **LAG(21)53**	
16.5	Prioritised paediatric patient outcomes - **LAG(21)54**	
16.6	Activity and organ utilisation monitoring (dashboard) **- LAG(21)55**	
16.7	COVID-19 Clinical Advice - https://www.odt.nhs.uk/covid-19-advice-for-clinicians/#vaccine	
16.8	Minutes of MCTAG meeting 17 March 2021 – **LAG(21)56**	
16.9	Minutes of the Retrieval Advisory Group 29 March 2021 - **LAG(21)57**	

16.10	QUOD Statistical Reports for Sept/Oct 2021 – **LAG(21)58**	
16.11	Organ Donation and Transplantation from Patients with Vaccine Induced Thrombosis and Thrombocytopenia (VITT) https://nhsbtdbe.blob.core.windows.net/umbraco-assets-corp/22975/inf1569.pdf	