

Independent clinical advice on the options for an interim model for Haemato-Oncology services currently provided by the Clatterbridge Cancer Centre at the Royal Liverpool Hospital

Review date: 2nd October 2019

Report date: 18th October 2019

Chair's Foreword

The Northern England Clinical Senate review day at the Royal Liverpool Hospital on the 2nd October 2019 was my second "Senate" visit to the city in recent years, following a review of future options for obstetric, gynaecology and neonatal services at the Liverpool Women's Hospital in May 2017. During both these visits I have observed striking similarities in the issues faced despite the vastly different service specialty areas involved.

My first observation is that the increasing complexity of patient care and rapidly growing interdependencies between clinical teams mean that a health system based around single speciality sites/hospital trusts leads to challenges where sadly there is no straightforward "*right*" answer. Instead, the solution for each challenge can only be found through an evidence-based assessment of the balance of risk of each option, where the "*best*" solution should more correctly be thought of as the "*least-worst*".

Secondly, on both visits I was extremely impressed on meeting staff passionately committed to offering the highest quality of care to their patients. In this visit, the clinicians, nurses and other health professionals we talked to in our discussion sessions and those we met as we walked the wards, were very highly motivated by the desire to give the highest possible quality of care for patients despite very difficult circumstances, and indeed to find ways to improve and develop their service.

In this instance I will go even further however to praise the level of understanding, empathy and professional respect between the Haemato-oncology services provided by the Clatterbridge Cancer Centre staff and the Royal Liverpool Hospital Critical Care clinicians as they face-up to the challenge the delay in the building of the new Royal Liverpool Hospital has caused them.

Prior to our visit there had obviously been a great deal of discussion and soul-searching as each team considered the implications of the potential interim option on the others department whilst each wanting to maintain the high level of patient care their staff currently offer. Critical Care staff recognised the poor-quality environment that the haemato-oncology services is currently being providing in and the detrimental impact this has on patient experience. Conversely Haemato-oncology staff recognise the significant concerns that the Critical Care team have over the increased level of risk that some of the most vulnerable patients may face should they require transfer between buildings in some of the potential interim options. I commend both teams for their willingness and ability to see the challenge from the point of view of their colleagues whilst remaining committed to jointly agreeing a workable solution.

This report provides independent clinical advice from a range of specialist clinicians and nurses from out-with the North West with the appropriate expertise and relevant experience to support senior decision-makers faced with making this “least-worst” decision. I would like to express my thanks to them for their willingness to participate in this review and their hard work in doing so.

I hope those staff members we met with will appreciate that we have listened to their views when drawing up our recommendations and that the commitment we saw for joint-working to address these challenges in good faith continues once this difficult decision has been made.

A handwritten signature in black ink, appearing to read 'A. J. Cant', with a horizontal line underneath.

Prof Andrew J Cant
Chair – Northern England Clinical Senate

1. Introduction

In July 2019, the Northern England Clinical Senate received a referral from the Clatterbridge Cancer Centre (CCC) requesting independent clinical advice to inform decision-making on the interim model for Haemato-oncology (H-O) services until the completion of the new Royal Liverpool Hospital build, with particular reference to escalation and access to critical care service, given the delay in opening the new Royal Liverpool Hospital.

The objective for this advice is to enable the following questions on the interim service model to be addressed at the point of decision-making:

- Can the National quality standards of the inpatient H-O service be achieved (in particular, escalation and access to critical care) within the Clatterbridge Cancer Centre – Liverpool (CCC-L) building ahead of the new Royal becoming operational (and the physical links between the buildings being in place)?
- What approach best balances the risks and benefits presented by the options available for the management of H-O inpatients prior to the opening of the new Royal (and the physical linking of the buildings)?

The full Terms of Reference can be found in appendix 1.

This report describes:

- The circumstances that have led to the referral to the Northern England Clinical Senate (section 2)
- The approach taken by the Clinical Senate to produce its advice (section 3)
- A summation of the key points of discussion heard by the senate panel during the review visit (section 4)
- The main recommendations of the senate panel in response to the questions posed in keeping with the terms of reference and some practical considerations which will also need to be taken into account as part of implementation planning (section 5)

2. Background

In July 2017 the CCC took on managerial responsibility for H-O services previously provided by the then Royal Liverpool and Broadgreen University Hospitals. Whilst the management responsibility has transferred between the two organisations, the service continued to be physically provided within the current Royal Liverpool Hospital (RLH).

The H-O service includes:

- inpatients (including teenage and young adult inpatients (TYA)),
- outpatients,
- day care,
- bone marrow transplant (BMT), and
- early and late phase clinical trials.

The transfer of management was part of a planned transition which would have seen the service move into a newly built Royal Liverpool Hospital (completion initially expected mid-2017) before moving into the also newly built CCC-L, due to open in May 2020.

Although CCC-L will be a distinct and separate building to the new RLH, its close proximity would mean that CCC-L H-O inpatients would have rapid and easy access to the wide range of services and specialists only available in a large acute hospital, in particular critical care services. H-O patients from CCC-L requiring critical care services in the new RLH in the final configuration would be transferred using link bridges between the two new buildings.

In 2018, the timeline for the completion of the new RLH was significantly delayed due to the well-publicised collapse of the building contractor. A new contractor has taken over the work, but due to major problems in the construction, the completion of the new RLH will be delayed until at least 2021 if not later. Due to the incredibly poor physical condition and serious overcrowding of the current H-O environment and the risks and limitations this puts on the service an options appraisal for an interim model of care until the intended transition was undertaken.

The four options covered a spectrum of transition from do-nothing through partial transfer of service to full movement of H-O services into the CCC-L. The original options appraisal process found that the preferred interim model of care would see all H-O outpatient services should move at the same time as solid tumour services into the CCC-L when operational, likely to be in May 2020.

However, there is concern that this would result in poorer access to ITU, on-site middle grade medical cover (medical specialist registrar), and other medical and surgical specialities.

Since this original review took place, the operational problems associated with the current H-O environment and capacity, coupled with ongoing uncertainty regarding the operational opening date of the new RLH, have led to the re-consideration of the options appraisal process to re-assess the risks and benefits of moving the service in whole or part into the new CCC-L as an interim measure.

The independent advice of the Northern England Clinical Senate will help inform the reconsideration of these interim options.

3. Methodology

In order to provide robust independent clinical advice in response to the agree Terms of Reference the Northern England Clinical Senate formed a review panel of experts within the relevant expertise and experience. This panel was as follows:

- Prof Andrew Cant – Professor of Paediatric Immunology and Chair, Northern England Clinical Senate
- Dr Gail Jones – Consultant Haematologist and Clinical Director, Newcastle Upon Tyne NHS Foundation Trust
- Dr Fiona Clark - Consultant Haematologist, Queen Elizabeth Hospitals Birmingham NHS Foundation Trust and Chair of Haematology Expert Advisory Group for the West Midlands Cancer Alliance
- Nurse Faye Marshall – Haematology Nurse Specialist, South Tyneside and Sunderland NHS Foundation Trust
- Dr Dave Cressey – Consultant in Intensive Care Medicine and Anaesthetics and a Corporate Clinical Director for Quality and Patient Safety, Newcastle Upon Tyne Hospitals NHS Foundation Trust and Medical Lead for the North of England Critical Care Network
- Nurse Lesley Durham – Director and Lead Nurse, North of England Critical Care Network and previously Intensive Care and Critical Care Outreach Nurse
- Dr Robin Mitchell – Clinical Director, Northern England Clinical Networks and Consultant Anaesthetist (retired)

The panel met with a series of organisational leaders, clinical and nursing leads and other staff from across the relevant specialties from both the CCC and the RLH as part of a review visit on the 2nd October 2019. The agenda and list of attendees can be found in appendix 2.

This review day included a visit to the haematology inpatient and day case facilities in current RLH, a site visit to the new build CCC-L and a physical walk-through of proposed critical transfer route between the CCC-L and the RLH outlined within some of the options to considered.

The panel received the following documents prior to the review day which were also discussed in the opening session and at various other points during the day:

- Haemato-oncology: movement of inpatient services to CCC-L – Senate Briefing paper
- Haemato-oncology Move Timescale Options – Impact on CCC Clinical Services (June 2019)
- Letter of Support – Transformation of Haemato-Oncology Services in Liverpool (August 2015)
- Briefing note for critical care cover for Clatterbridge Cancer Services – Dr Peter Hampshire (September 2019)
- Delay to the opening of the Royal Liverpool New Build: The impact upon CCC Clinical Services briefing paper (March 2019)
- Completion of CCC-L before the New Royal proposed operational response presentation
- Assessing the impact on the Haemato-oncology Directorate with the completion of CCC-L prior to the New Royal Liverpool (November 2018)

4. Discussion on the key issues

As outlined in section 1, the leadership of CCC in partnership with the leadership of the Liverpool University Hospitals NHS Foundation Trust have considered four options for an interim model of care for H-O patients at the current RLH until the new build RLH is completed.

- Option 1 - Remain in current RLH until the new RLH opens
- Option 2 - Move Outpatients and Day Case to CCC-L; the inpatient service to remain in the current RLH until the new RLH opens
- Option 3 - Move the H-O service except for BMT/ higher intensity service which would remain in the current RLH
- Option 4 - Full move of all H-O services before physical links are in place

4.1 Initial assessment of the four options

On review of the documentation and in the discussion with staff from both organisations it became quickly apparent that Option 2 (due to the further fragmentation of an already fragmented service) or Option 3 (as assigning patients to each of the two groups would be difficult and would in any case also further fragment an already fragmented service) could be discounted from consideration.

By discounting Options 2 and 3 at an early stage, the question primarily becomes a more straight-forward assessment of the benefits for the full cohort of patients utilising H-O services that would come with a move into the new CCC-L versus the potential increased risk to a vulnerable subset of patients requiring transfer into critical care services in the RLH.

During the review visit we heard of a number of other challenges facing both organisations, most notably the differing IT and patient data management systems which had already been highlighted by regulators. Whilst recognising the importance for the organisations to resolve these challenges, the senate panel felt that they posed similar risks for each of the options under consideration and so did not focus on resolution of these issues as part of the review process.

4.2 Assessment of the benefits of Option 4

In considering the benefits of Option 4 (the full move of all H-O services into CCC-L) the senate panel took into account what the move could mean for the current service provided at the RLH site but also the impact this would have as a critical path in the transition of other services currently provided at other sites into the CCC-L (in particular Aintree).

4.2.1 Direct benefits to patients within the current haemato-oncology service

The first point to note in the assessment of the benefits of Option 4 is the stark contrast between the passionate and caring service offered by the CCC-L H-O staff together with the spacious state of the art facility being built in the new CCL, and the extremely overcrowded physical condition of the facilities for H-O patients in the current RLH, that the CCC-L H-O staff currently work within.

When walking the wards, the senate panel spoke to many staff who all spoke positively about the service they worked in and their working relationship with the critical care outreach staff.

However, the senate panel also heard directly from staff of the impact that this poor estate and configuration of service was having on patient experience. In particular, the panel noted feedback from patients and families who could not have their care within the existing H-O ward facilities due to lack of beds. These patients are managed as 'outliers' on other hospital wards and feedback suggests that this impacts negatively on patient experience. The panel did note that attempts had been made to mitigate this effect by expanding the advanced nurse practitioner role. There were also significant concerns regarding the impact of the poor infrastructure, deteriorating estate and overcrowding on infection control.

There were also reports from staff of delays to admission for patients requiring inpatient chemotherapy, due to lack of H-O beds; this applied to both RLH patients and referrals from Aintree Hospital (see section 4.2.2 for further details). The new CCC-L site increases bed capacity for the H-O service, from 30 to 41 beds (+ 4 TYA dedicated beds).

There was also an almost total absence of a recognisable TYA inpatient facility within the current units, which is not acceptable for a regional treatment centre for TYA care. Working from the current national measures for TYA services¹ (e.g. measures 11-7D-101 and 11-7D-102), as a Principal Treatment Centre, the service at the RLH do not appear compliant due to the inadequate facilities they have (although it is recognised that newly proposed draft measures² do not seem to contain this proviso).

The H-O unit has been JACIE accredited and we understand re-accreditation is now overdue. Whilst the senate review team is not in a position to “second guess” the outcome of a future JACIE accreditation, the serious infrastructure deficiencies might well jeopardise future accreditation.

On visiting the new CCC-L site, the senate panel were very impressed by the vast improvement in conditions (a quantum leap) that will be seen by patients when the H-O service transfer is complete. The rooms are much bigger, are all single occupancy with en suite facilities in a state-of-the-art facility would be of significant benefit in terms of both patient experience and infection control. The Day Case Centre would no longer be so worryingly overcrowded. Over and above these considerations, there would be significant extra capacity, the ‘outlying patient’ issue would be resolved and the services currently separated by a number of floors would be unified.

The transfer of H-O service would release capacity to introduce ambulatory care treatment pathways for haematological cancer patients to reduce length of inpatient stay, minimise delays in treatment delivery and enhance the patient experience. Furthermore, the co-location of H-O inpatients into the new CCC-L, will have significant impact on the provision of specialist H-O pharmacy services, provided by the CCC-L.

¹ Manual for Cancer Services: Teenage and Young Adults Measures, Version 2.0 (National Cancer Action Team, April 2013)

² <https://www.engage.england.nhs.uk/consultation/teenager-and-young-adults-cancer-services/>

4.2.2 Benefits to patients currently outside of the current RLH haemato-oncology service

During the review session, the senate panel heard from the Clinical Director for Haematology at the Aintree University NHS Trust who described a range of current service risks and potential future benefits that were interdependent with the decision on the interim model for the H-O service.

Aintree University Hospital is situated approximately 5 miles away from the CCC H-O service at current RLH site and provides a Level 2 service offering the full range of complex inpatient chemotherapy (with the exception of stem cell treatment) although due to senior staffing capacity, AML induction chemotherapy is not currently provided. As well as serving the population of north Liverpool, Aintree also provides inpatient haematology support to the nearby Southport and Ormskirk Hospital NHS Trust (a further 7 miles away). This gives the service a combined catchment population of comparable size (circa 530k residents) and one that carries out roughly 75% of the level of activity of that of the CCC service at the RLH.

The panel heard that following the retirement of one of the Aintree consultants, the remaining three consultants have not been able to fully support the level of acute leukemic activity leading to an increase referral of patients to the service at the RLH. Due to the current capacity issues at RLH, there have been delays before patients can be seen, which has on occasion led to incidents and poor patient experience which has had to be managed with outside support. The panel also heard that as the agreed regional strategy is for all haemato-oncology patients with malignant disease to be transferred into CCC-L this may have made it difficult for Aintree to recruit into future consultant posts with a focus on leukaemia.

As well as creating operational issues, the lack of progress in moving the H-O service based at the RLH into the new CCC-L build is leading to stagnation in terms of service development for the Aintree service. Whilst the current service at Aintree (partially due to its close proximity to the Walton Centre) is a leading centre of excellence (e.g. for CNS lymphoma), the longer the uncertainty around the H-O issue at the RLH site remains, the greater the risk this has on ability to further develop the service. This stagnation presents a risk to the retention of the current consultant and nursing workforce in Aintree.

The service model at Southport is currently significantly less sustainable than the Aintree service and any further workforce pressures at this site would almost inevitably lead to service transfer (planned or unplanned) into Aintree and/or the CCC service at the RLH.

One option available to the Aintree (and Southport) service would see the alignment of outpatient pathways with CCC-L which they feel would improve patient experience, however it would have a significant impact on the current inpatient service with regards to nursing, pharmacy requirements and the maintenance of two medical on call rotas.

It was evident from this discussion that the service model for the Aintree and Southport populations would significantly benefit from the adoption of Option 4 as the interim model of care for H-O patients at CCC-L. Conversely, the adoption of Option 1 as the interim model would perpetuate the operational issues currently experienced by the Aintree service whilst the risk to service sustainability (particularly at Southport) would grow (and at an increasing rate depending on the full opening of the new RLH site).

4.3 Assessment of the risks of Option 4

As described in section 4.2, the benefits of Option 4 to the patients of the current H-O service both in terms of the vast improvement they would see in the physical environment in which they would be treated and the potential that the move to CCC-L would open up in terms of service development, it is clear that every effort should be made to understand the reasons why this model may not be able to progress.

Assessing these reasons in terms of relative levels of risk and the effectiveness of any mitigations against them will ultimately be the factors that enable a safe decision on the interim model to be reached.

4.3.1 The safety of transfer of critical care patients between the CCC-L and the current RLH

Whilst not the only issue/risk that needs to be weighed against the interim movement of H-O services into the CCC-L, the safety of patients requiring transfer into critical care services from the CCC-L to the current RLH is the most important. If it is not possible to transfer patients in this scenario without significantly increasing risk and Option 1 becomes the only viable option until the new RLH opens and the link bridges between the two new buildings are in place.

During the Senate Review day session with the Critical Care team from the Royal Liverpool Hospital, we heard clearly and unequivocally their significant concerns around the movement of the service into the CCC-L, and we appreciated their commitment and concern to ensure the best possible care for haematology patients needing critical care.

About 50 H-O patients a year are transferred to Critical Care; around 50 patients require critical care outreach input, sometimes on more than one occasion, some of whom are then within the group of about 50 transferred to critical care.

As such this is a Critical Care team with experience of very close working with the H-O service and who also understand the challenges being faced by that service and are committed to joint working on trying to find a solution to those challenges.

These members of staff felt that based on their experience, the evidence base and the level of detail in the proposed transfer plans that had been shared with them to date, that Option 4 would be unsafe in terms of delivery of care to the sickest haematology patients requiring critical care whilst at the same time creating an additional workload on their service which would have implications for haematology patients and the wider patient population at the RLH.

The RLH Critical Care team highlighted their particular concerns regarding the difficulties and risks associated with transferring an unstable Level 2 patient with respiratory compromise which are greater than transferring a Level 3 intubated and sedated patient. Thus, if transfer from the H-O unit to critical care takes longer and involves a more convoluted route, it is often safer to intubate the patient. However, this moves them into a level 3 category and there is good evidence that H-O patients receiving level 3 critical care have a significantly higher risk of death than those who do not progress beyond level 2 care.

The Senate Review panel recognise and accept this risk raised by the Critical Care Team. The exact contribution to the risk of death that intubating the patient makes as opposed to the very fact that the patient has deteriorated to the point of needing intubation is not easy to define. However, it is widely accepted that it is best to avoid intubation whenever possible. The consideration of additional risk during transfers in this respect is specific to H-O patients.

It would be difficult to argue against the fact that by moving a patient group who need significant critical care input from a location within the same block as the critical care unit to one a greater distance away will always incur more potential risk and add to the work-load and time required to provide that critical care input. However, it is necessary to try to judge the potential increase in those factors against expected standards of provision of critical care interventions in comparable facilities both within RLH Trust site and in comparable NHS acute trusts.

If the provision of critical care input to the HO service can still meet those standards and match comparable sites using Option 4 (once the specific mitigating factors are addressed) then it remains a viable option to consider.

It is pertinent to note that when the move to the new Royal is completed the concerns raised re the move to CCC-L whilst they remain in the old Royal will essentially cease given the very close proximity of the Haematology unit to the new Royal ITU. As such the concerns of the RLH Critical Care Team will have a finite time span (even if that may turn-out to be three or more years).

The senate panel also agree that by moving from the current location to the CCC-L site, the complexity of providing ITU services for their patients will be increased and that that will add a degree of extra risk to the delivery of care to the 50 or so patients needing transfer to critical care. Quantifying the extra risk is difficult as is offsetting this against the risk of the H-O unit remaining in severely overcrowded, fragmented and inadequate facilities. It is worth noting however that this increase in risk also needs to be considered against the current inability to get patients (e.g. from Aintree) rapidly into a unit that can offer intensive support when making the final trade-off decision.

4.3.2 Assessment of potential mitigations to transfer of critical care patients in Option 4

Key to mitigating the risk when transferring haemato-oncology patients in CCC-L to critical care in the current RLH will be the ability to ensure a safe transfer route between the two buildings. Whilst not a great distance apart, it was apparent from the walk along the overall potential transfer route undertaken by the senate review panel, that several challenges would be presented to the critical care team undertaking this transfer. These include:

1. Crossing an outdoor space (the width of a road – 10 metres) between the new CCC-L and current RLH that needs to allow Fire Service Appliances to pass along it in the event of an emergency
2. One very narrow section of corridor of circa 25 yards in length and a winding and circuitous route including 2 lift transfers (one on the CCC-L and one in the old RLH)
3. Use of lifts (described as unreliable during the visit) within the current RLH building to get to the Intensive Care Unit is a factor common to current transfers within RLH and any potential new route from CCC-L.
4. The overall length of time needed to undertake the transfer along the route

The first mitigation that would need to be in place would be a satisfactory physical link between the two buildings. This link would need to be fully enclosed, well-lit, warm and secure for staff and patients to make the journey without being in an outside space where safety (e.g. lone worker) might be compromised. The gradient of the corridor between hospitals will need to be sufficiently gradual to make safe transfers with a patient on a trolley or bed.

During the session with CCC senior team, the senate panel heard a high-level description of a retractable walkway (similar to those use to board an aeroplane but at ground level) as a potential solution to provide a suitably enclosed walkway between the two buildings.

Such a walkway would need to be extended between the buildings by default and retracted only in the case of emergency as the converse arrangement (extending only when a transfer was necessary) would add too much additional time to the overall duration of patient transfer and it will also be need for urgent staff access at all times

The senate panel heard from the RLH Critical Care Team that the detail of this retractable enclosed walkway had yet to be shared with them and as such we appreciated their concern with regard to this particular solution. If such a walkway were feasible however it would add benefit to a much greater number of patients requiring movement between the two buildings, such as H-O patients needing elective procedures such as endoscopy or dialysis.

The passageway for the whole length of the transfer will need to be formally assessed for capacity to allow for safe and unimpeded transfer of a patient bed laden with patient and essential ITU kit. Unless using a transfer-trolley would normally be the transfer mode of choice by the critical care team for all intra-hospital transfers, then being able to transfer on the patient's bed removes a level of complexity and potential risk and reduces the time needed to prepare the patient for transfer. As such it would be a significant advantage in speeding the movement of a critically ill patient to the critical care facility.

The time taken for the transfer is also important as patients are usually receiving high flow oxygen. The rate at which oxygen is consumed (up to 60 litres per minute), is a key factor in determining the safety of the transfer route and a degree of spare capacity in oxygen cylinder capacity will need to be factored in.

There is a need to use lifts when transferring patients currently within the RLH with the known and real risk of lift failure, as this affects both the current transfer process and the potential transfer from CCC-L we did not think this would significantly contribute to balancing the risks and benefits of a decision to move patients into CCC-L or not.

The senate panel heard that some consideration had been given to vehicular transfer of patients requiring critical care support as an alternative to manual transfer. The senate panel agree with the concerns raised by RLH staff during the day that use of vehicular transfer should be ruled out as a potential mitigation. Utilisation of an ambulance for transfer would still require movement of the patient to a transfer trolley with all the attendant time, effort and risk associated with this.

Ambulance availability can be unpredictable and whilst acknowledging this call would be treated as a high priority, the transfer may still not be seen as the highest priority due to perception that the patient is already in a place of safety. Ambulance cover would also be required for all non ITU daily transfers (gastroscopy, dialysis, pleural drains etc). The absence of a physical link that could be used by staff from RLH in accessing CCC-L will also add a barrier to ease of movement and staff safety during those movements.

Currently critical care nursing, outreach and medical staff will make frequent visits daily to the HO wards to provide continued surveillance of patients requiring increased levels of support but not yet needing critical care admission. There will necessarily be an increase in the time that takes to travel to CCC-L with or without a link-corridor, but the lack of a link will discourage the frequency of those visits further. There would be a regular need for lone staff to walk outside the hospital buildings at all hours of the day and night with the attendant risks.

The introduction of a Dedicated Ambulance Vehicle would mitigate some, but not all of these risks and at significant cost but in the senate panel's view there are sufficient adverse consequences of ambulance transfer to preclude this as a viable mitigating option.

4.3.3 Assessment of potential impact on workload for the Critical Care service

If the option to transfer patients via a link corridor proves feasible and can provide safety for patients and staff, then the impact of Option 4 on the workload for the critical care team needs to be assessed.

Currently there is a nurse-led and consultant supported critical care outreach team operating 08:00 – 1700 hrs Monday to Sunday. Providing critical care support to a more distant unit will keep staff away from ITU for longer periods of time and thus the impact of this additional workload will be felt, particularly out-of-hours.

Thus, consideration should be given to increasing the delivery of Critical Care Outreach to 24/7, 365 days a year service. This is likely to be needed long term even once the move to the new Royal has been affected based on predicted increased workload within the CCC-L service. This further development of the Critical Care Outreach service should include a focus on development of the nursing workforce including Nurse Consultants and Advanced Nurse Practitioners.

During the review session with University Hospitals Liverpool NHS FT leaders the same concerns were expressed as to the ability of the current middle grade medical specialist registrar to support Option 4. However, the exact amount of time taken by middle grade staff to review critically ill haematology patients was not clear.

We would suggest auditing this so that an informed judgement can be made on whether extra middle grade cover is needed, particularly if critical care nurse specialist outreach cover is extended.

Enhanced level 2 bed availability may also need to be provided on the existing RLH site. It may be prudent to step back from the current practice of supporting haemato-oncology H-O patients with the AIRVO High Flow Oxygen system on the CCC-L site and instead transfer these patients early in their illness to be managed in the level 2 area. This change in practice would bring its own additional workload for critical care and for the H-O team. The senate panel did not make any assessment of current Critical Care capacity at the RLH as it was outside the scope of this review, but it was not surprising to be verbally advised by the RLH Critical Care Team that there is no additional capacity available with existing bed numbers.

It is acknowledged that any changes to the critical care staffing and level 2 bed availability will come at a significant financial cost, will take time to effect and will be challenged with the same difficulties of finding and appointing the appropriate staff as seen across the board for the NHS. Nonetheless a formal assessment of feasibility should be undertaken.

5. Recommendations

When taking all the information provided by the CCC into account and listening carefully to the views heard during the review sessions (particularly the concerns of the critical care clinicians from the RLH and the service lead from the Aintree site), the senate panel recommend the following:

- 1) That serious consideration be given to making Option 4 (i.e. the full movement of these services into the new CCC-L building until the new RLH opens) the preferred option for the interim model of H-O Services
- 2) That Option 4 only move to implementation when the following conditions as mitigations to the increased risk that patients requiring critical care transfer in the proposed arrangement would face are met:
 - a. Condition 1 – the provision of the retractable enclosed walkway can be implemented prior to transfer of the service
 - b. Condition 2 – that thorough joint testing of the transfer route and protocol using both bed and transfer-trolley along the entire length of passageway has been undertaken prior to the transfer of the service
 - c. Condition 3 - changes to critical care staffing models including 24/7 / 365 Critical Care Outreach provision and Level 2 critical care bed capacity are made and appropriately invested in as part of the implementation of the new service.

- d. Condition 4 – that a clear standard operating procedure describing escalation of care for the acutely deteriorating patient (including TYA patients) to the level 3 critical care unit facility be produced to describe the new process

The senate panel recognise that these recommendations are a least-worst option that does not fully remove every single element of clinical risk.

The senate panel does not make these recommendations lightly and the panel absolutely take into account the views of the RLH Critical Care staff who clearly told us that Option 4 would reduce the quality of the service that they could offer to 50-100 patients who need critical care input per year.

We would agree that the transfer arrangements for these patients in Option 4 would be more difficult, would require more staffing and investment in their service but we do not think that this is unachievable, and also would not be so different from transfer arrangements and routes between H-O and critical care in other major centres.

The panel feel that once the identified mitigations have been taken into account then the decision must be balanced between:

- a) the potential, but difficult to exactly quantify, increased risk to those patients requiring critical care transfer, the increased complexity and the cost of providing the necessary changes on the LRH site to enable a full transfer of H-O services to the new CCC-L, against
- b) the very clear benefits for the whole patient population (for both the current RLH service but also the neighbouring services at Aintree and Southport) that comes with being able to move into the outstanding facilities that will be made available in the CCC-L and out of the cramped and inadequate real-estate the staff are struggling so hard to make do with now.

As such, the senate panel believe that on-balance Option 4 provides the most appropriate answer the question 1 (*“What approach best balances the risks and benefits presented by the options available for the management of haemato-oncology inpatients prior to the opening of the new Royal (and the physical linking of the buildings)?”*) set in the terms of reference. There are hospitals in other parts of the country currently already undertaking difficult transfers of patients requiring critical care support across their sites, but without the vast upside trade-off that comes with the revitalised H-O service that can be provided for patients out of a purpose-built cancer hospital.

Regarding question 2 in the Terms of Reference (*“Can the National quality standards of the inpatient haemato-oncology service be achieved (in particular, escalation and access to critical care) within the CCC-L building ahead of the new Royal becoming operational (and the physical links between the buildings being in place)?”*) the senate panel feel that with both options 1 and 4, challenges will remain (e.g. continued compliance with JACIE standards) but that on balance it will be easier to meet the challenges if Option 4 is adopted.

In the session with CCG and NHS England Specialised Commissioners, the senate were asked to make some recommendations as to what measures could be used by commissioner to monitor and evaluate the benefits realisation and impact of change in risk profile of the move of services into CCC-L should it go ahead. As such, the senate would recommend:

- Number of transfers.
- Audit of transfer times
- Delays to admission
- Length of stay
- Ambulatory chemotherapy and bed days saved
- Number of patients seen by outreach
- Documentation on any untoward events
- Audit of NEWS2 and escalation policy adherence
- Audit of patient outcomes in both haematology, oncology and critical care registries.

Appendix 1 – Terms of Reference

INDEPENDENT CLINICAL ADVICE: TERMS OF REFERENCE

Title: The provision of independent clinical advice on the interim model for Haemato-oncology services provided by the Clatterbridge Cancer Centre

Sponsoring Organisation: Clatterbridge Cancer Centre

Clinical Senate: Northern England Clinical Senate

NHS England & Improvement regional office: North East and Yorkshire

Terms of reference agreed by:

Prof Andrew Cant, Chair, Northern England Clinical Senate

on behalf Northern England Clinical Senate and

Dr Sheena Khanduri, Medical Director, Clatterbridge Cancer Centre

on behalf of sponsoring organisation

Date: 12 August 2019

Clinical review team members

- Prof Andrew Cant, Chair, Northern England Clinical Senate

The Clinical review team is made up of members of other Clinical Senates and invited reviewers from across the England. These are:

- Dr Gail Jones – Consultant Haematologist and Clinical Director, Newcastle Upon Tyne NHS Foundation Trust
- Dr Fiona Clark - Consultant Haematologist, Queen Elizabeth Hospitals Birmingham NHS Foundation Trust and Chair of Haematology Expert Advisory Group for West Midlands Cancer Alliance
- Nurse Faye Marshall – Haematology Nurse Specialist, South Tyneside and Sunderland NHS Foundation Trust
- Dr Dave Cressey – Consultant in Intensive Care Medicine and Anaesthetics and a Corporate Clinical Director for Quality and Patient Safety, Newcastle Upon Tyne Hospitals NHS Foundation Trust and Medical Lead for the North of England Critical Care Network

- Nurse Lesley Durham – Director and Lead Nurse, North of England Critical Care Network and previously Intensive Care and Critical Care Outreach Nurse
- Dr Robin Mitchell – Clinical Director, Northern England Clinical Networks and Consultant Anaesthetist (retired)

Aims and objectives of the clinical review

The aim of the Clinical Senate review is to provide the Clatterbridge Cancer Centre with independent advice on the interim model for Haemato-oncology (H-O) services until the completion of the new Royal Liverpool Hospital build.

The objective for this advice is to enable the following questions on the interim service model to be addressed at the point of decision-making:

- Can the National quality standards of the in-patient H-O service be achieved (in particular escalation and access to critical care) within the CCC-L building ahead of the new Royal becoming operational (and the physical links between the buildings being in place)?
- What approach best balances the risks and benefits presented by the options available for the management of H-O inpatients prior to the opening of the new Royal (and the physical linking of the buildings)?

The Clatterbridge Cancer Centre would like the Northern England Clinical Senate to take the following aspects into account when providing an independent view on these issues:

- Patient safety, specifically safety of patients requiring access to critical care, on-site middle grade medical cover, and other specialties within Royal Liverpool and Broadgreen University Hospitals (RLBUHT)
- Patient safety of the wider H-O inpatient population including Bone Marrow Transplant (BMT) and Teenage and Young Adult (TYA) patients, taking into account the current RLBUHT environment, lack of inpatient beds, and the impact of 'outlying' on overall patient care
- Bed capacity, taking into account the fragile nature of H-O inpatient services in some areas of the wider health system, and the increasing drive towards centralisation of H-O inpatient services for reasons of quality and sustainability
- The intention to move H-O outpatient services into the new building May 2020
- The need to fully integrate H-O into CCC
- The quality standards applicable to the H-O service
- The possibility of having a single 'deteriorating patient team' (Critical Care Outreach), shared between RLBUHT and CCC

Scope of the review

The review will cover Haemato-oncology services and the interface with the Royal Liverpool Hospital's services, particularly critical care and out of hours imaging.

The following services at Clatterbridge Cancer Centre are **out of scope**:

- All services relating to solid tumour oncology

Methodology

The Clatterbridge Cancer Centre will provide documentation to the Northern England Clinical Senate for pre-reading which will include documents pertaining to:

- October 2018: Completion of CCC-L before the new Royal: proposed operational response
- November 2018: Assessing the impact on the haemato-oncology directorate with the completion of CCC-L prior to the new Royal Liverpool
- March 2019: Delay to the opening of the Royal Liverpool new build: the Impact upon CCC clinical services
- June 2019: Haemato-oncology move timescale options: impact on CCC clinical services June 2019: Initial response from critical care lead at the Royal Liverpool
- Full information pack setting out maps and plans of the site and the relevant activity data

The Northern England Clinical Senate will undertake an on-site visit that will include:

- A pre-meet with the sponsoring officer of the work and senior service leads for introductions and discussions on the background of the service and work to-date
- A site visit of the current service and its operating environment
- An assessment of the operational issues associated with patient transfer between the new CCC and current RLBUHT buildings
- A joint session with the senate panel and clinicians and nursing staff of the service
- A wrap up session for the senate panel to identify any additional information that needs to be supplied to enable the panel to make its recommendations and agree headline messages from the documentation review and site visit to form the basis of the final report

The Review Panel Chair will then oversee the completion of the final report including agreement of final draft with panel members.

Timeline

- Review Panel Chair identified – (July 2019)
- Review Panel members identified – (July 2019)
- Documentation on proposals to be provided by CCC for review (mid-Aug 2019)
- On-site review session with CCC and RLBUHT Staff (Oct 2019)
- Early indication of likely findings to be shared with CCC within 48hrs
- Provision of final report (Oct 2019)

Report

- A draft initial clinical senate report will be circulated within 14 days of the completion of the review
- Comments/ correction on factual accuracy from the CCC to the Review Chair to be received within 5 working days.
- The final report will be submitted to the sponsoring organisation once matters of factual accuracy are agreed.

Clinical Senate Internal Reporting arrangements

- The clinical review team will report to the Northern England Clinical Senate Council which will oversee the governance of the conduct of the senate review panel process

Communication and media handling

- The arrangements for any publication and dissemination of the clinical senate assurance report and associated information will be decided by the sponsoring organisation.

Resources

- The Northern clinical senate will provide administrative support to the review team
- CCC will provide a named lead to coordinate the advance circulation of documentation and data as well as support the arrangements for the necessary discussion and visits

Accountability and Governance

- The clinical review team is part of the Northern England Clinical Senate accountability and governance structure.
- The Northern England Clinical Senate is a non-statutory advisory body and will submit the report to the sponsoring organisation.
- The sponsoring organisation remains accountable for decision making but the review report may wish to draw attention to any risks that the sponsoring organisation may wish to fully consider and address before progressing their proposals.

Functions, responsibilities and roles

The **sponsoring organisation** will:

- provide the clinical review panel with the question to be addressed, together with relevant background and current information, identifying relevant best practice and guidance. Background information will include relevant data and activity, internal and external reviews and audits and any other additional background information requested by the clinical review team.
- respond within the agreed timescale to the draft report on matter of factual inaccuracy.
- undertake not to attempt to unduly influence any members of the clinical review team during the review process.

Clinical senate council and the sponsoring organisation will:

- agree the terms of reference for the clinical review, including scope, timelines, methodology and reporting arrangements.

The senate council will:

- appoint the clinical review team (this may be formed by members of the senate, external experts, and / or others with relevant expertise) and agree the review chair
- will endorse the terms of reference, timetable and methodology for the review
- consider the review recommendations and report (and may wish to make further recommendations)
- provide suitable support to the team and
- submit the final report to the sponsoring organisation

The senate review team will:

- undertake its review in line the methodology agreed in the terms of reference
- provide the sponsoring organisation with a draft report to check for factual inaccuracies.
- keep accurate notes of meetings.

Clinical review team members will undertake to:

- commit fully to the review and attend all briefings, meetings, interviews, panels etc that are part of the review (as defined in methodology).
- contribute fully to the process and review report
- ensure that the report accurately represents the consensus of opinion of the clinical review team
- comply with a confidentiality agreement and not discuss the scope of the review nor the content of the draft or final report with anyone not immediately involved in it. Additionally they will declare, to the chair or lead member of the clinical review team and the clinical senate manager, any conflict of interest prior to the start of the review and /or materialise during the review.
- undertake to be objective and not unduly influenced by any 3rd party

Appendix 2 – Review Day Agenda

Agenda: Clinical Senate Review - Interim Model for Haemato-oncology Service

2nd October 2019

Waterhouse Room, Foresight Centre, 1 Brownlow St, Liverpool L69 3GL

Session No.	Item	Attendees	Time
1	Breakfast meeting	CCC Exec Sponsor and Senate	9.15-9.30
2	Group session – presentation by CCC on background, proposals and documents produced to date with general Q&As from Senate Panel Members	<ul style="list-style-type: none"> • Senate Panel Members • Dr Sheena Khanduri, MD, CCC • Sheila Lloyd, Director of Nursing and Quality, CCC • Joan Spencer Interim Director of Operations, CCC • Helen Poulter- Clark, Chief Pharmacist, CCC • Dr Arvind Arumainathan, Clinical Director Haemato-oncology CCC • Liz Furmedge, Haemato-oncology General Manager • Dr Maria Maguire, Project Manager, Senate Review, CCC • Tom Pharaoh, Associate Director of Strategy, Project Management Office, CCC • Sarah Barr, Head of IM&T CCC 	9.30-10.30
Morning Refreshments			
3	Group session – Joint discussion with CCC and University Hospitals Liverpool NHS Foundation Trust leaders	<ul style="list-style-type: none"> • Senate panel • Director of Nursing and Quality/ MD/ Director Ops both Trusts • Dr Sheena Khanduri, CCC MD • Sheila Lloyd, Director of Nursing and Quality, CCC • Joan Spencer Interim Director of Operations, CCC • Helen Poulter- Clark, Chief Pharmacist, CCC • Dr Arvind Arumainathan, Clinical Director Haemato-oncology CCC • Liz Furmedge, General Manager • Dr Maria Maguire, Project Manager, Senate Review, CCC 	10.30-11.00

		<ul style="list-style-type: none"> • Tom Pharaoh, Associate Director of Strategy, Project Management Office, CCC • Dr Tristan Cope, MD Liverpool University Hospitals NHS Foundation Trust • Dianne Brown, Chief Nurse Liverpool University Hospitals NHS Foundation Trust • Dr Paul Fitzsimmons, Interim Chief Operating Officer, Liverpool University Hospitals NHS Foundation Trust 	
4	Walk through of proposed critical care transfer route	<ul style="list-style-type: none"> • Senate Panel • Dr Arvind Arumainathan, Clinical Director Haemato-oncology CCC • Liz Furmedge, General Manager • Dr Sheena Khanduri, CCC MD • Sheila Lloyd, Director of Nursing and Quality, CCC • Joan Spencer Interim Director of Operations, CCC • Helen Poulter- Clark, Chief Pharmacist, CCC • Dr Paul Fitzsimmons, Interim Chief Operating Officer, Liverpool University Hospitals NHS Foundation Trust • Dr Maria Maguire, Project Manager, Senate Review, CCC 	11.00-11.45
5	Visit to current wards and service- Haemato-oncology	<ul style="list-style-type: none"> • Senate Panel • Dr Arvind Arumainathan, Clinical Director Haemato-oncology CCC • Liz Furmedge, General Manager • Rose Foulds, Matron, Haemato-oncology CCC • Priscilla Hetherington, Matron Haemato-oncology CCC • Eddie Lawson, Matron Haemato-oncology CCC • Sheila Lloyd, Director of Nursing and Quality, CCC • Joan Spencer Interim Director of Operations, CCC • Tom Pharaoh, Associate Director of Strategy, Project Management Office, CCC 	12.00-12-45
Lunch			13.00-13.15
6.	Teleconference with service commissioners	<ul style="list-style-type: none"> • Michelle Timony Liverpool Clinical Commissioning Group • Sue McGorry, NHSE, NHSI 	13.15-13.30

		<ul style="list-style-type: none"> • Susanne Fennah, NHSE, NHSI • Anna Vogiatzis, Commissioning Manager 	
7.	Service Specific Session: CCL Haemato-oncology staff	<ul style="list-style-type: none"> • Senate Panel • CCC Haemato-oncology Consultants: • Dr Rahman Salim • Dr Gillian Brearton • Rose Foulds, Matron, CCC • Priscilla Hetherington, Matron, CCC • Ian Hincks, Clinical Nurse Specialist • Dr Lynny Yung, Liverpool University Hospitals NHS Foundation Trust 	13.30-14.00
8.	Service Specific Session: Liverpool University Hospitals NHS Foundation Trust ITU staff	<ul style="list-style-type: none"> • Senate Panel • Dr Peter Hampshire, CD ITU, Liverpool University Hospitals NHS Foundation Trust • Dr Gary Masterson, Consultant ITU, Liverpool • Tracey Rawlings, ITU General Manager, Liverpool University Hospitals NHS Foundation Trust • Sue Ryan, Matron, Liverpool University Hospitals NHS Foundation Trust 	14.00-14.30
9.	Walk through of new CCC-L	<ul style="list-style-type: none"> • 5 Members of the Senate Panel (Prof Andrew Cant, Dr Fiona Clark, Dr Gail Jones, Dr Dave Cressey, Nurse Faye Marshall) • Laura King, PropCare • Dr Maria Maguire, CCC 	14.45-15.45
Afternoon refreshments			15.45-16:00
10.	Closed session: Senate Review Panel reflection of views heard and summation of initial panel views	<ul style="list-style-type: none"> • Senate Review Panel only 	16.00-16:45