Nottingham City Council Health Scrutiny Committee

Case for Change for Expansion of Neonatal Capacity at Nottingham University Hospitals

1. Overview and Summary of Proposal

Nottingham University Hospitals are proposing to access NHS capital funds to increase the number of neonatal cots at the Queens Medical Centre (QMC) from 17 to 38. It is planned that this development is completed by 2023.

Current Neonatal Configuration in Nottingham

At the QMC campus there are currently 17 cots (11 Intensive care/high dependency and six special care) along with six transitional care cots on the postnatal ward (C29) which are co-located with maternity services on B Floor of the East Block. Clinically adjacent to and supporting the Neonatal service is specialised paediatric surgery within Nottingham Children's Hospital and the other paediatric tertiary specialists.

At the City Hospital campus, there are 24 cots (12 Intensive care/high dependency, 12 special care) along with six transitional care cots. The Neonatal Unit is co-located with maternity services in the maternity building. There are no other children's inpatient services at the City Hospital, and there is limited access to specialised radiology. Babies requiring specialised imaging, surgical care or other sub-speciality input are currently transferred from the City to the QMC campus. From April 2019 to April 2020, there were 147 transfers between sites.

In the same period, 116 babies could not be accommodated on either Nottingham sites and had to be transferred to other units, not just in the East Midlands, but much further afield. Destinations for these babies in 2019 included Burnley, Luton, Scunthorpe, Bradford and Birmingham.

Total Additional Neonatal Cots required

In order to address all of the Neonatal capacity issues identified and meet future demand the following additional cots are required at the QMC:

- Activity sent out of network = 6 Cots
- Reducing the QMC Neonatal Unit occupancy to 80% = 5 cots
- Activity that could no longer take place at the City Hospital Neonatal Unit if it is re-designated as a Local Neonatal Unit = 10

This is a total of 21 additional cots increasing the total number at the QMC from 17 to 38. The overall impact is shown in the table below including the reduction at City and the overall increase for the system.

Cot Type	Current			Proposed (Change)		
	QMC	City	**Total**	QMC	City	**Total**
Intensive Care	6	6	**12**	13 (+7)	2 (-4)	**15 (+3)**
High Dependency	5	6	**11**	12 (+7)	2 (-4)	**14 (+3)**
Special Care	6	12	**18**	13 (+7)	12 (-)	**25 (+7)**
TOTAL	**17**	**24**	**41**	**38 (+21)**	**16 (-8)**	**54 (+13)**

2. National Context

National Neonatal Critical Care Transformation Review

The National Neonatal Critical Care Transformation Review (NCCR) was published in December 2019. It was structured across 5 key work areas; Capacity, Workforce, Pricing, Education and Models of Care.

The aim of the Review was to make recommendations that will support the delivery of high quality, safe, sustainable and equitable models of neonatal care across England. The proposal to expand neonatal capacity in Nottingham responds to the findings of this national review as follows:

Mortality

- Local Maternity Networks (LMNs) must ensure that, where possible, all women at less than 27 weeks gestation are able to give birth in centres with a Neonatal Intensive Care Unit (NICU)
- LMNs and Operational Delivery Networks (ODNs) should aim to ensure that at least 85% of all births at 23-26 weeks' gestation are in a maternity service with an on-site NICU

Neonatal Care Capacity

- Neonatal services should have the capacity to provide all neonatal care for at least 95% of babies requiring admission for neonatal intensive care, and born to women booked for delivery within the network (i.e. the target of 95% was set to allow for the occasional woman who gives birth whilst on holiday or visiting the area)
- Neonatal services should not operate above 80% occupancy averaged over the year
- Babies requiring neonatal services should receive that care from a unit with the appropriate level of care as close as possible to the family home

The Nottingham Neonatal Service does not currently have the capacity to fulfil its service specification and provide intensive care for all Nottingham-booked and North Hub East Midlands Network (EMN) ODN babies who require it. The Neonatal Unit at the QMC usually operates at a level that is on average greater than 95% occupancy far exceeding the 80% average occupancy prescribed.

Neonatal Unit Designation:

- All neonatal units designated as NICUs must provide more than 2,000 intensive care days per year.

The proposal to increase neonatal capacity in Nottingham in the short term needs to be seen in the context of the ambition of the New Hospital's Programme (Tomorrow's NUH) when – amongst other developments – it is proposed that Neonatal Services will be delivered on a single site. The clinical case shows beyond doubt that prolonging the current situation until such time as the larger scheme is delivered, is not a realistic option, given the mortality and morbidity impacts of not having sufficient Neonatal capacity in Nottingham, combined with the issues related to patient (and families') experience as described above.

The Neonatal service is small numerically in terms of patients, but is regionally commissioned, and the current capacity shortfalls have significant long term detrimental impacts on the babies, not just in the immediate period of care, but also going forward into childhood and indeed full maturity.

3. The Local Case for Change - Why is this Investment and Change Needed?

There are four key drivers for change for this proposal:

1. Insufficient capacity within the Nottingham Neonatal Service to meet local demand resulting in babies being sent out of network for their care. This has a serious impact on mortality and morbidity as highlighted in the December 2020 Getting it Right First Time (GIRFT) Report.
2. The need to respond to the NNCR Report and in particular the requirement for NICUs to provide more than 2,000 critical care cots days per year.
3. The environment and space available on the Neonatal unit at the QMC is not fit for purpose, leading to increased risk of cross-infection and mortality.
4. Insufficient obstetric theatre space with only one full sized obstetric theatre.

The NHS Outcomes Framework 2019/20 includes the following domains specific to Maternity and Neonatal Services:

- Preventing babies from dying prematurely
- Ensuring that people have a positive experience of care (women's experience of maternity services)
- Treating and caring for people in a safe environment and protecting them from avoidable harm

This proposal aligns with the NHS Outcomes Framework 2019/20 by creating a larger, neonatal intensive care service at QMC campus, supported by Special Care Baby Unit at City campus, which will improve outcomes for pre-term infants in terms of mortality, as the number of babies needing to be transferred out of area will be significantly reduce. Prematurity and congenital abnormalities are the single largest causes of deaths among babies less than one year in age. Also, the proposal aims to improve families' experience of neonatal intensive care by ensuring they are cared for in a safe suitable environment, again aligning to the NHS Outcomes Framework.

The Getting It Right First Time (GIRFT) report identified serious concerns in the EMN ODN as follows:

- Major capacity issues in the three NICUs (two in Nottingham and one in Leicester) are causing excess deaths and poorer quality of care for babies in the EMN ODN.
- The proportion of high-risk babies (extremely premature babies and babies requiring intensive care) dying in local neonatal units and special care baby units in the first week of life is more than twice the national average and is higher than any other network.
- The mortality rates in the NICUs in EMN ODN are low/ average (i.e. NICU performance is not an issue)
- Critically unwell babies are not being transferred from Local Neonatal Units (LNUs) and Special Care Units (SCUs), due to lack of capacity in the NICUs

The GIRFT report also cited serious concerns regarding capacity at Nottingham, including that the capacity gap is the greatest in any NICU nationally. Local data from NUH shows that:

- Occupancy levels across all cot types at the QMC are the highest in the country at nearly 100%. Combined special and transitional care cots at the QMC are insufficient for the number of live births (lowest decile) and special care occupancy is consequently well above recommended levels at nearly 125%.
- Total cot occupancy at City is just under the recommended 80% with special care cot occupancy greater than 80%.
- Capacity transfers for non-clinical reasons are five times higher than the NICU average for the QMC, and in the upper quartile at City

- Both hospitals are in the lowest performing decile in relation to the percentage of pre-term infants born in the NICU
- There are significant numbers of 'out born' babies who need to be transferred back into the NICU having received care out of network

Patient/Family Experience

Whilst the clinical benefits to the families of neonates in terms of the significant reduction in the risk of pre-term babies being transferred out of Nottingham (as well as the improved environment in the new, expanded unit) are clear, there are other practical considerations in relation to access, travel and car parking.

Commissioners will work closely with NUH to ensure that for those families who will in future be able to access this expanded local NICU capacity, access and travel concerns are addressed during in-patient and subsequent family visiting periods. We will also analyse feedback from families who have used the current service, some of whom will have seen first-hand the shortfall in resource, and the consequence of having neonatal care provided far from home.

4. Conclusions

This is a major quality improvement for a small number of pre-term babies and their families. The expansion of neonatal intensive care cots at QMC campus will reduce significantly the number of babies needing to be transferred to other hospitals, and the realignment of neonatal care between City and QMC will provide better resources – numbers of staff, expertise, equipment and physical space – for those patients. By way of context the total births at NUH per annum is. circa 8500, albeit that this key clinical development will only apply to approximately 250 babies. The benefits to these families are significant but numerically this development represents an adjustment to a clinical pathway rather than a major service redesign.

Commissioners will work alongside NUH to engage widely with citizens who will access services at both QMC and City to ensure that the development meets user requirements.

The proposed targeted engagement approach comprises three main strands:

1. Review of existing patient experience data. Working with NUH and the CCG Quality team, available patient experience data covering the period of April 2019 to date will be collated and analysed, with a focus on understanding both positive and negative experiences of individuals who have accessed Neonatal services at both QMC and City. Existing research/engagement publications in this area will also be scoped and reviewed to provide a broad evidence base for change.
2. Engagement with patients. This will be focused on previous/current service use, the proposed change and asking for feedback. Methods will include an online survey and/or paper survey, which will include questions about previous/current use of the service, what went well, and what could be improved. There will also be the opportunity to take part in focus groups and workshops to allow patients to provide detailed information about their experiences. Working in partnership with NUH, the Nottingham and Nottinghamshire Maternity Voices Partnership, the CCG's Patient and Public Engagement Committee, Healthwatch Nottingham and Nottinghamshire and other relevant community groups (including organisations such as Zephyr's) will ensure that the voices of those who may be disproportionately impacted are heard, and that the engagement exercise reaches the right people.
3. Ongoing patient and public assurance. The survey, its responses and a "You Said, We Did" summary will be published on the CCG website and disseminated through partners engagement channels.

Commissioners and providers are keen to proceed expeditiously to access the capital funding available to support this major development for Nottingham and Nottinghamshire

To this end, the CCG wishes to consult with the Health Scrutiny Committee on this proposal, and in parallel, approval is requested from the Health Scrutiny Committee to proceed with a targeted engagement approach (rather than public consultation), the findings of which will be reported back as required. The consideration of the decision to proceed with this work is imminent and therefore a formal response to this request is required before 25th November 2021.

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NHS Nottingham and Nottinghamshire CCG

Appendix – Key Drivers

Insufficient capacity within the Nottingham Neonatal Service to meet local demand:

- The Nottingham Neonatal Service does not have sufficient capacity to provide care for all of the sickest and most vulnerable babies it is expected to care for. An average of 116 babies per year (average for 2018-2020) was transferred out of Nottingham and to elsewhere in the UK for their care (in-utero and ex-utero). This has a significant impact on outcomes (as demonstrated within the recent GIRFT report) and detrimentally impacts upon parents and families.
- The GIRFT report showed that the Nottingham Neonatal Unit has the most serious capacity issues of any NICU nationally, and this is having a demonstrably negative impact on both quality of care and mortality for high risk babies born elsewhere in the network who are unable to access the service when they need it. The capacity gap is very significant, and there is currently no agreed plan to resolve this issue which the MNRr business case being put forward seeks to address. Of particular concern within the GIRFT report are:
    - Occupancy levels across all cot types at the QMC which are the highest in the country at nearly 100%.
    - Capacity transfers for non-clinical reasons are five times higher than the NICU average for the QMC, and in the upper quartile at City
    - There are significant numbers of 'out born' babies who need to be transferred back into the NICU having received care out of network (this is the 116 babies noted above).
    - Transfers out of Nottingham affect surrounding neonatal and transport services, creating a ripple effect on hospitals throughout the UK as demand and capacity issues are passed on.
    - This is currently a risk score of 15 within the Family Health risk register (Datix reference: 5507).

The need to respond to the Neonatal Critical Care Transformation Review report:

- The NCCR sets some standards for Neonatal Units which are not currently achieved within the Nottingham Neonatal units. In particular:
    - All neonatal units designated as NICU must provide more than 2,000 intensive care days per year. The neonatal unit at the QMC does not consistently provide more than 2,000 intensive care days per year and the neonatal unit at the City Hospital does come close to meeting this threshold. As neither of the Nottingham neonatal unit currently meets the requirements to be designated a NICU there is a risk that they could both be re-designated as LNUs. If NICU status were lost and the units were both re-designated as LNUs, it is unlikely that neonatal surgery could continue at the QMC. Other important services would also be affected, such as supra-regional neonatal neurosurgery, some neonatal nephrology and foetal medicine services. This would have major consequences for Neonatal and Maternity Services in Nottingham.
    - Neonatal services should not operate above 80% occupancy averaged over the year. The Neonatal Unit at the QMC usually operates at a level that is on average greater than 95% occupancy far exceeding the 80% average occupancy prescribed.

The environment and space available on the Neonatal unit at the QMC is not fit for purpose, leading to increased risk of cross-infection and mortality.

- This impacts on the quality of care, infection control and patient, parent and staff experience.
- Lack of space is an incredibly significant risk for cross-infection between patients and the ultimate harm from this is death. There have been documented outbreaks on the neonatal units within the period 2016-2021 with documented evidence of harm in babies.
- Isolation of babies when an infection occurs is not possible due to lack of suitable spaces.
- Based on Health Building Note (HBN) regulations, the current space is 2-2.5 times too small per cot space.
- This risk is recorded on the Family Health risk register with a score of 20 (Datix reference: 9300).

Insufficient obstetric theatre space with only one full sized obstetric theatre

- Providing two complex cases simultaneous is difficult (is this due to the size of the theatre and or other reasons)? When looking at the performance of complex elective and emergency operations.
- The existing theatres will not be able to provide sufficient capacity to meet increased needs arising from an increase in Neonatal Activity at the QMC. Specific to the small theatre is the fact that any complex case involving a premature baby and a complex delivery will be difficult to manage in the small theatre with equipment and staff needed. Is there a clinical risk to mother and baby with the current size.

Based on the local, regional and national strategies, existing arrangements and the case for change, the investment objectives for this project are as follows:

- To redevelop the environment and space on the Neonatal Unit at the QMC and to be closer to national recommendations (HBN 09-03)
- To increase the NICU capacity on the QMC campus from 17 to 38 cots
- To improve the experience of the mothers and families of babies needing Neonatal Care
- To increase Obstetric theatre space and improve the Obstetric theatres environment at the QMC.
- To achieve balance of service configuration across Obstetric theatres, Obstetric beds and Neonatal