Nottingham and Nottinghamshire ICS

Maternity and Neonatal Care

Clinical and Community Services Strategy

March 2020

Contents

1. Executive Summary

The Integrated Care System (ICS) ambition across Nottinghamshire is to both increase the duration of people's lives and to improve the quality of those additional years, allowing people to live longer, happier, healthier and more independently into their old age. The aim of the Clinical and Community Services Strategy (CCSS) is to support the system to achieve this by shifting the focus of our health and care delivery from reactive, hospital based treatment models to a pro-active approach of prevention and early intervention, delivered in people's homes or in community locations where this is appropriate with a long term view of beyond 5 years.

It is known that the health of mothers before and through their pregnancy has a substantial impact on their own and their baby's health after birth. Good maternal health is strongly associated with giving babies a healthy start in life. A number of outcomes are influenced by poor maternal health including:

- Neonatal deaths
- Perinatal mortality
- Maternal deaths
- Preterm births
- Low birth weight
- Stillbirths

National Health Service England (NHSE) aspires to halve still-birth rates by 2030, with a 20% reduction by 2020. Although locally, the figure is only expected to achieve a 15% reduction by 2020, continued focus on providing the right care and support where and when it is needed, can contribute to making up this shortfall leading up to the longer term target.

Some of the biggest risks and determinants to poor health across England also contribute to issues in pregnancy. These include smoking, diabetes, obesity, alcohol and drug abuse, but also deprivation, cultural diversity and poor social and mental health support. This maternity and neonatal service review seeks to align with national direction, maintain a focus on local provision for maternity and neonatal services and also align to the Local Maternity and Neonatal System (LMNS), to ensure the social care, mental health and well-being of mothers, babies and families is considered in providing equitable care and access across the Nottingham and Nottinghamshire ICS population.

This maternity and neonatal service review has been undertaken as part of the ICS CCSS work stream. This has been supported by clinical experts and stakeholders in the development of place based service models for the future to support the long term needs of our families, mothers and babies. The review also focuses on embedding prevention in our population over the next 5-10 years, by shifting our culture from one of illness to one of healthier lifestyles and self-care.

The strategy identifies key themes and transformational opportunities, which include: prevention strategies to promote a healthy start in life, improving the health of our mothers and babies. A whole pathway approach in the provision of maternity and neonatal care is crucial in order to maximise the clinical outcomes for mothers and babies, their quality of life and experience of maternity and neonatal services. This includes improved access & shared communication about mothers past medical history for maternity and neonatal care professionals from acute care settings to community settings; appropriate levels of workforce skill mix 24/7 across the ICS; standardise the access to services such as smoking cessation and breast feeding support across the ICS based on best evidence models.

A transformational 'Bridge to the Future' highlights current service offers across the ICS and identifies some potential long term next steps that can be taken to achieve the identified opportunities with proposed timelines and the expected outcome for our mothers, babies and families across Nottinghamshire.

The recommended next steps are vital in keeping the momentum of change in the future offer of improved prevention and better health for our mothers, babies and families; providing the right tools for our population to support their wellbeing; providing strong communication links for our staff is vital to enable them to provide the best care for our mothers, babies and families; the most appropriate models of care in acute settings, neighbourhood and home need to be provided equitably across the ICS and be provided using best evidence, flexibly and in a patient centred way for them to fulfil their maximum potential throughout their lifetime.

2. Introduction

Background and Purpose	In Nottinghamshire we have made great progress in improving people's health and wellbeing. Today, we can treat diseases and conditions we once thought untreatable. However, our health and care system faces change and this will impact on our services, for example, the growing prevalence of long-term health conditions places new strains on our system. There is inequality evident in both the location of challenges and in access to services. In some areas, it is easier to access a GP than in others, or to find things to do to enable citizens to stay active and fit. The ICS ambition across Nottinghamshire is to both increase the duration of people's lives and to improve those additional years, allowing people to live longer, happier, healthier and more independently into their old age. The requirement for a Clinical and Community Services Strategy (CCSS) came from the recognition that to achieve this ambition the system has to change as a whole, rather than just in its individual acute, primary care, community and social care elements. It is recognised that only by working together to describe changes in how care is provided across the system, rather than through individual organisations, will we deliver the scale of change required.
The ICS Clinical and Community Services Strategy	The aim of the CCSS is to support the system to achieve this by shifting the focus of our health and care delivery from reactive, hospital based treatment models to a pro-active approach of prevention and early intervention. This should be delivered closer to people's homes or in community locations where this enables better prevention, more supported self-care and earlier intervention to support citizens. The Strategy recognises that achieving this change is a long term programme that will be delivered over the next 5 years and beyond. This is also necessary to enable a necessary long term investment in the health and care buildings and infrastructure in the system. An overall CCSS whole life model framework has been developed to focus on the need to support people through their lives from living healthy, supporting people with illness and urgent and emergency care through to end of life care. Citizens can experience different parts of the system at different stages in their lives. With the development of the overall Strategy framework the next phase of work is to review the 20 areas of service across the ICS that collectively form approximately 80% of the volume of clinical work in the ICS. This will ensure that overall the Strategy is described as a coherent whole and generates a programme of change for the whole ICS. This review of Maternity and Neonatal care is one such review and is part of the first phase of work.
NHS Long Term Plan	The National Health Service (NHS) Long Term Plan (LTP) is clear that to meet the challenges that face the NHS it will increasingly need to be: more joined up and coordinated in its care; More proactive in the services it provides; More differentiated in its support offer to its individuals. The ICS has focused on describing 5 areas of focus for the delivery of the NHS LTP. These requirements are reflected in each of the service reviews that collectively will describe the CCSS **1. Prevention and the wider determinants of health -** More action on and improvements in the upstream prevention of avoidable illness and its exacerbations **2. Proactive care, self management and personalisation -** Improve support to people at risk of and living with single and multiple long term conditions and disabilities through greater proactive care, self-management and personalisation **3. Urgent and emergency care -** Redesign the urgent and emergency care system, including integrated primary care models, to ensure timely care in the most appropriate setting **4. Mental health** - Re-shape and transform services and other interventions so they better respond to the mental health and care needs of our population **5. Value, resilience and sustainability -** Deliver increased value, resilience and sustainability across the system (including estates)

3. Approach and Scope

Approach	This strategy has been developed through an open and inclusive process which weaves together the expertise of both clinicians and care experts with citizens in determining the future shape of services across the system. There have been a variety of stakeholder and service user events to develop a clinical and community services model. An extensive system wide piece of work is taking place across a minimum of 20 services. The CCSS Programme Board have reviewed these services against a range of quantitative and qualitative criteria and agreed the prioritisation of five service reviews. These include; Cardiovascular Disease to Stroke ; Respiratory – asthma and COPD; Frailty; Children and Young People; Maternity and Neonates. This document discusses the approach, scope, the key issues and potential transformational opportunities within maternity and neonatal services across the ICS health, social care, public health, and the voluntary sectors identified by reviewing the current service offer across the ICS. The service review was taken over approximately 24 weeks and there were 3 workshops held with stakeholders from across the ICS. An evidence review pack was developed which considered national and local best practice to inform the development of potential themes and new models of care where transformational change may take place across the ICS in the future.
Scope	This service review has been aligned to the focus of the LMNS, but seeks to identify opportunities for 5 years plus. This alignment includes: • Better Births (BB) • Saving Babies Lives Care Bundle (SBLCB) • Long Term NHS Plan (Better Newborn Care) It was agreed with the steering group to focus on the ICS population for maternity and neonatal pathways, including preconception, health/lifestyle, maternity, miscarriages, stillbirths and neonatal deaths, terminations for medical reasons, all babies up to age 1, maternal mental health up to 2 years post birth, maternal deaths, mother's up to 6 week check. There is a defined evidence based pathway which include the following: • Prevention • Antenatal and Postnatal Care • Intrapartum or Birth Care • Care of the Newborn
Engagement	The maternity and neonatal services review has been supported by an overarching Clinical Design Group and a tailored Maternity and Neonatal Steering Group including stakeholders and clinical experts from across the ICS. They have provided expert advice, guided, confirmed and challenged assumptions throughout the period of review and connected to other workstreams. These two groups have formed part of the governance process along with the CCSS Programme Board. Three workshops have been held which enabled a wide breadth of stakeholders (clinicians, allied health professionals (AHPs), charitable and voluntary groups, nurses, heads of service, social care, public health, commissioners and others) to be proactively involved in re-evaluating current service offers across the ICS in developing potential themes and agreeing transformational change for the future Clinical and Community Services Strategy. In addition focus groups have been held in collaboration with Sure Start, Emily Harris Foundation, Zephyrs and Maternity Voice Partnership, which has enabled parents to confirm and challenge assumptions and play an active part in the co-design of any future service changes across the ICS.

4. Contents

Strategy Development	This Strategy Document consists of five key elements. These have been developed through a process of design and iteration at the three workshops and several steering groups. The strategy has been developed with reference to the Evidence Review document and the patient focus groups that have been held.
Priorities for Change	The work of the Steering Group and the first Workshop identified four key areas of focus that need to change in the ICS for Maternity and Neonatal services. These were based on a review of the current issues facing the ICS and the views of the Steering Group and workshop attendees.
Proposed Future Care System	Following the evidence review at Workshop 2, attendees started to develop the future care system for the Maternity and Neonatal services to address the Priorities for Change. The future care system is described against two dimensions • **Location** split between - Home (usual place of residence) – Acute Hospital with 24/7 medical presence – Neighbourhood representing all community/primary care and ambulatory care settings • **Urgency** split between - **Emergency/Crisis** requiring a service provided 24/7 to avoid crisis or risk to life – **Urgent** requiring a service 7/7 but not 24/7 to meet urgent care needs – **Scheduled** reflecting any arrangement where an appointment is agreed between a professional and a citizen The intention of the system model is to focus future care delivery closer to home and also with greater levels of scheduled care to best use the available resources and reduce demand on urgent and emergency care services. The new system to address the Priorities for Change is presented for each location and then summarised overall for the ICS.
Transformation Proposal	The Transformation proposal described the key initiatives or programmes that are required to deliver this new model. Namely, • **Priority** – What is the priority of the initiative in the view of the steering group and workshop attendees? • **Alignment** – At what level of the system should we aim to deliver each initiative? In most instances this is Integrated Care Provider (ICP) level but there are some instances where the recommendation is for delivery to be at ICS level where the greater value is perceived to be in an overall consistent approach. Alternatively, it is at Primary Care Network (PCN) level where differential delivery would benefit the needs of very local populations • **Enabling Requirements** – What is required to enable each Programme to deliver? This includes workforce, technology, estate or service configuration. There are also requirements of culture or finance and commissioning to allow the system to work together differently • **Benefits and Costs** – Where available, the key benefits of the initiative at system level are summarised
Bridge to the Future	The 'Bridge to the Future' was generated at Workshop 3 and with the steering group. It summarises the current challenges for the maternity and neonatal system in the ICS now (Priorities for Change), where we would like to be and how we plan to get there. Progress with the Bridge to the Future and the partnering vision can be returned to with stakeholders as the work develops to ensure the work remains on track.

Maternity and Neonatal Services Key Themes in Nottingham and Nottinghamshire

Prevention

- Smoking
- Obesity
- Preventable Medical Conditions

Antenatal Care/Postnatal Care

- Partnership working
- Location
- Workforce

Birth Care

- Safety - Workforce
- Location
- Reduction in Variation

Care of the Newborn

- Admission Avoidance
- Demand for Neonatal Care
- Workforce
- Transition

Physical and Mental Health Support

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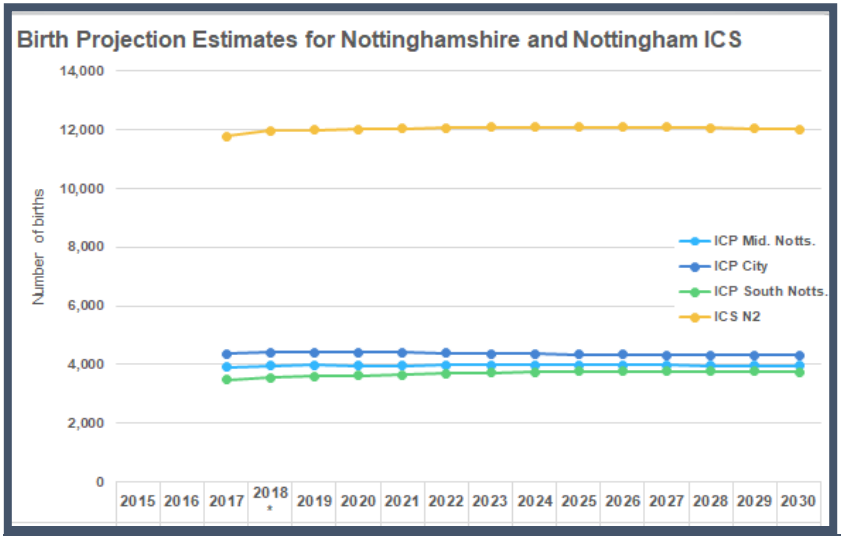
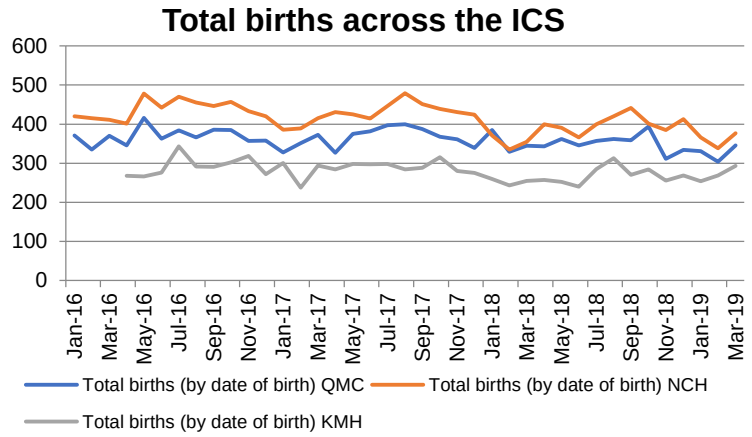
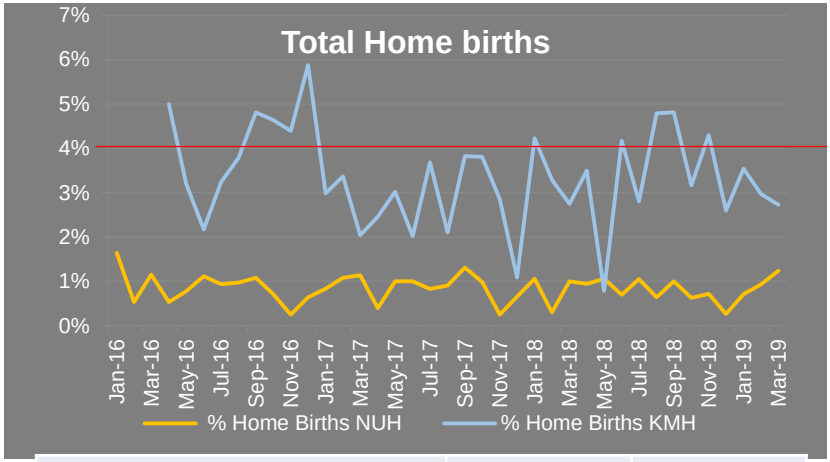


The birth projection has recently been revised for Nottingham and Nottinghamshire ICS –the sharp increase in births previously forecast is no longer expected.



By 2021 there is a target of **4%** home births, double the current rate. There is also aimed to be an increase in midwife led births and a reduction in obstetric led births.



Number of women giving birth	Local baseline 2016/17 No.	%		Trajectory March 2019 No.	%	Trajectory March 2020 No.	%	Trajectory March 2021 No.	%
Nottinghamshire LMS/ICS - Home birth	212	1.6		244	2	369	3	494	4
Nottinghamshire LMS/ICS MV led	1,989	15		2,444	20	2767	22.5	3,089	25
Nottinghamshire LMS/ICS Obstetrics	11,059	83.4		9,532	78	9,159	74.5	8,772	71
Total	13,260			12,220		12,295		12,355	

Review of obstetrics in Stafford Oct 16 for 'low risk' women there was no significant difference in adverse perinatal outcomes between Freestanding Midwifery Led Unit & Attached Midwifery Led Unit and planned births in Obstetric Led units.

Number of women able to choose from three places of birth	Local Baseline (Jan 2017)		Trajectory March 2019	Trajectory March 2020	Trajectory March 2021
No of women offered and recorded three choices of birth settings at booking	0		6,110 50%	9,222 75%	11,737 95%

January 2019 Activity Date			
January 2019	NUH	SFH	National
Total Booked	955	455	61,877
Average Age	29.6	28.8	29.8
Complex Social Factors	12%	19%	10%
Smoker at Booking	14%	21%	12%
Total No. of Births	635	245	49,447

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Stillbirths and neonatal deaths, Rate per 1,000 births (*From 24w gestation*) (Jan- Dec, data period)	Previous data (2014)	Local baseline (2015 figures)	Trajectory March 2019 (2016)	Trajectory March 2020 (2017)	Trajectory March 2021 (2018)
Nottinghamshire LMS Rate (15% reduction)	-	5.88	5.35	5.17	5.0
Nottinghamshire LMS No's.	-	70	65	64	62

The LMNS prediction of reducing still births by 15% will fall short of NHS England's 20% reduction by 2020 and will make the 2030 reduction of 50% less likely to be achieved.

Mid-Notts Activity:

Antenatal Appts.	Approx. number/ year
Community visits (home)	3,700
Clinic Environment	20,500
Kingsmill Antenatal Clinic	13,500
Ultrasound Scans (Kingsmill)	23,400 (incl. booking scan)
Postnatal home visits	18,300

The increasing age of mothers is associated with a higher likelihood of pregnancy complications:

Year	% fathers age 30+	% mother's age 30+
2016	68	54
2006	66	48
1996	59	41

	National	East Midlands	Local ICS	Mansfield & Ashfield CCG	Newark & Sherwood CCG	Nott. City CCG	NNE CCG	NW CCG	Rush-cliffe CCG
Smoking at time of delivery 2018-19 Q1,Q2 & Q3	10.3%	15.0%	15.3%	22.1%	17%	15.9%	12.3%	12%	5.7%

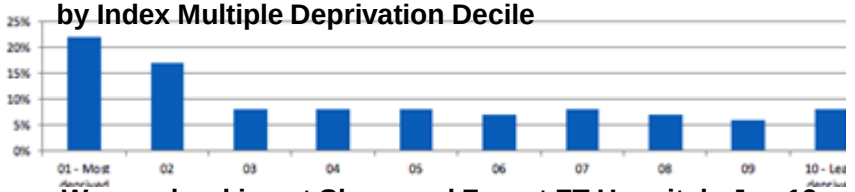
With the exception of Rushcliffe, smoking at time of delivery is much higher across the ICS, with rate in Mansfield and Ashfield twice as high as England.

Women in the most deprived communities are **12x** more likely to smoke than those living in affluent areas

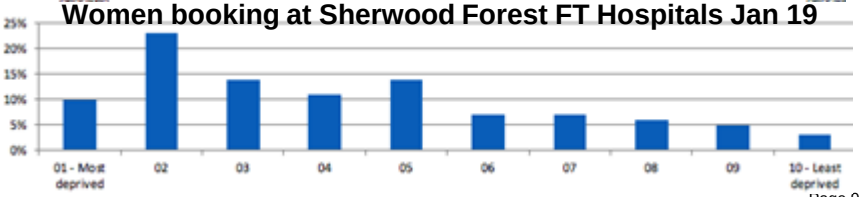
	Maternal smoking	Secondhand smoke exposure
Low birth weight	Average 250g lighter	Average 30-40g lighter
Stillbirth	Double the likelihood	Increased risk
Miscarriage	24%-32% more likely	Possible increase
Preterm birth	27% more likely	Increased risk
Heart defects	50% more likely	Increased risk
Sudden Infant Death	3 times more likely	45% more likely

Source: Passive Smoking and Children, Royal College of Physicians and Royal College of Paediatrics and Child Health, 2010

Women booking at Nottingham University Hospitals Jan 19 by Index Multiple Deprivation Decile



Women booking at Sherwood Forest FT Hospitals Jan 19



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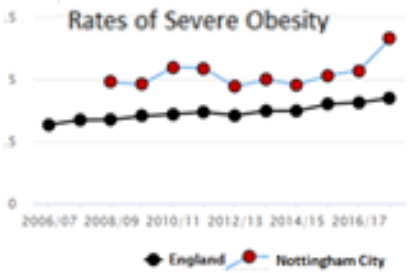
1 in 3 people will be obese by 2034

NHS England



PHE fingertips

	Maternal smoking
Low birth weight	Average 250g lighter
Stillbirth	Double the likelihood
Miscarriage	24%-32% more likely
Preterm birth	27% more likely
Heart defects	50% more likely
Sudden Infant Death	3 times more likely

Source: Passive Smoking and Children, Royal College of Physicians and Royal College of Paediatrics and Child Health 2010

1 in 10 will develop type 2 diabetes.

NHS England

Over weight or obese:
1 in 5 risk of miscarriage / recurrent miscarriages
(1 in 4 if BMI >30)

Obesity in Pregnancy

Higher risk of

- Overdue pregnancy
- Caesarean Delivery
- Developing Pregnancy Complications
- Gestational Diabetes
- Postpartum infection

NHS

2021 National Smoking at Time of Delivery target <6%

Mid-Notts negotiated higher target:

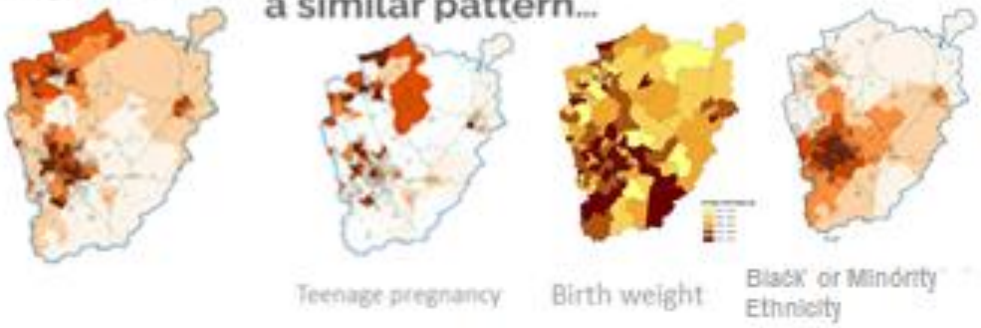
- Mansfield & Ashfield 10%
- Newark & Sherwood 8%
- Rest of Notts ICS 6%

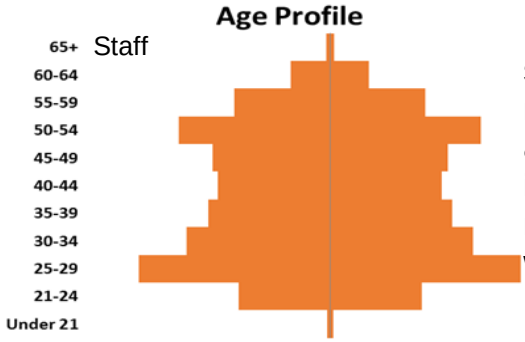
Depression and anxiety affect **15-20%** of women in the first year after childbirth.

NICE

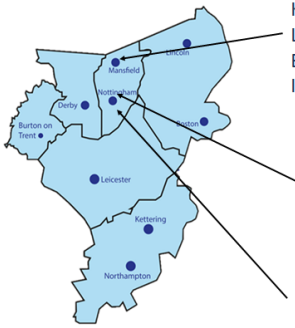
Deprivation

Lots of indicators show a similar pattern...





Experienced Maternity staff are reaching retirement age. Staff aged 30-50 reduction is possibly due to maternity leave then working part-time.



KMH Local Neonatal Unit
Local Neonatal Unit
Babies >28 weeks
Intensive care for short periods only

NUH (City Campus)
NICU
All gestations

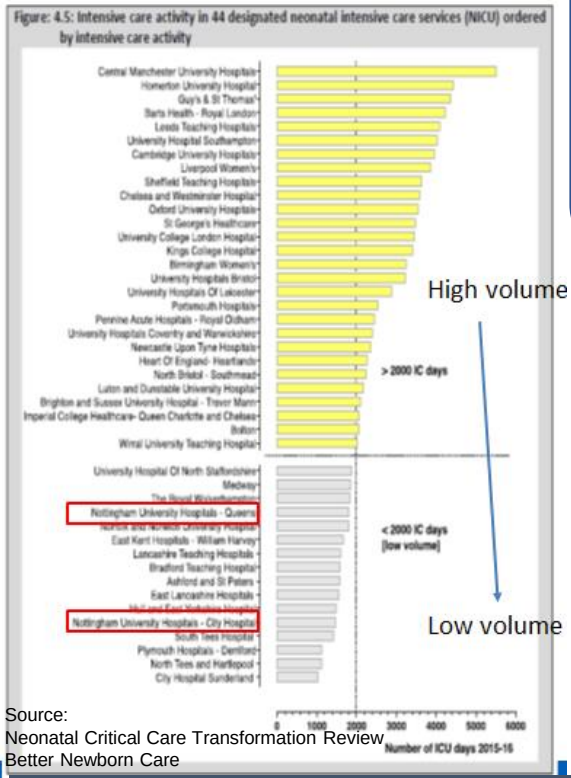
NUH (QMC Campus)
NICU and surgical
All gestations

The number of transfers out of the Trent Perinatal Network for care in other networks are shown in the table below:

Year	Number of Babies	Number of care days
2012 - 2013	146	2,199
2013 - 2014	194	2,962
2014 - 2015	206	3,428
2015 - 2016	181	2,901
2016 - 2017	157	2,625
5 year average	177	2,823

Occupancy Rates

QMC Nottingham	105%
City Campus Nottingham	92.3%
King's Mill Hospital	65.5%



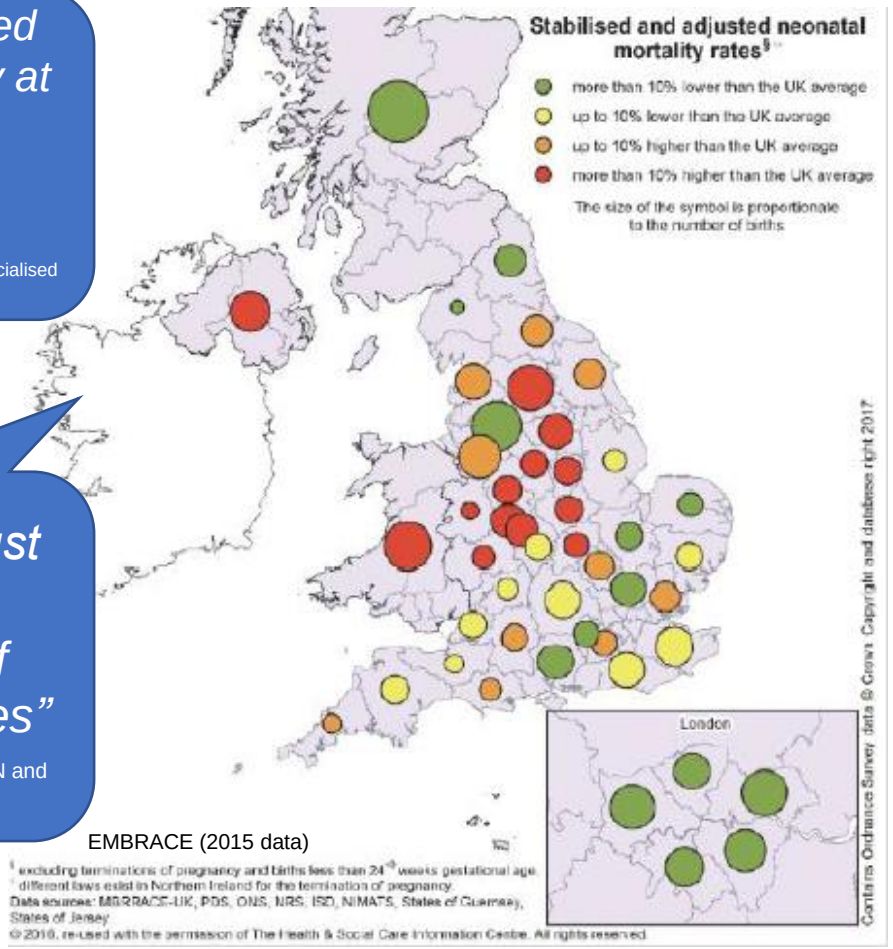
Source:
Neonatal Critical Care Transformation Review
Better Newborn Care

"There is clearly a need for additional capacity at the lead centres of Nottingham and Leicester".

East Midlands Capacity Report (EM-ODN and Specialised commissioners) 2017

"These issues must be addressed.. to meet the needs of babies and families"

East Midlands Capacity Report (EM-ODN and Specialised commissioners) 2017



EMBRACE (2015 data)

§ excluding terminations of pregnancy and births less than 24 weeks gestational age
† different laws exist in Northern Ireland for the termination of pregnancy
Data sources: MBRRACE-UK, PDS, ONS, NRS, ISD, NIMATS, States of Guernsey, States of Jersey
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Recommendation that NICUs should do >2000 IC days / year. Both Nottingham NICUs below this

5. Priorities for Change

The workshops identified 4 key themes highlighting potential areas of change with a strong emphasis of physical and mental health support across all themes. These include:

- Prevention (with emphasis on smoking, obesity, preventable medical conditions);
- Antenatal and Postnatal Care (promoting partnership working, location of services and workforce);
- Intrapartum/ Birth Care (reviewing safety – workforce, location of birth care and reduction in variation);
- Care of the Newborn (admission avoidance, demand for neonatal care, workforce, transition)

Prevention	Having a baby is now safer than 10 years ago. Since 2010, despite increases in some risk factors such as age and comorbidities of mothers, there has been an 18.8% reduction in stillbirths, a 5.8% reduction in neonatal mortality and an 8% reduction in maternal mortality. Through the NHS LTP, the NHS will accelerate action to achieve 50% reductions in stillbirth, maternal mortality, neonatal mortality and serious brain injury by 2025. Locally, this will be an ambitious target with higher levels of smoking in many of the county's areas, including Mansfield and Ashfield, Sherwood and Newark and also Nottingham City. The smoking cessation offer across Nottinghamshire is variable – *Smokefree Life* is available in Mid-Notts, easily accessible with self-referral possible even from your phone. *Stub-It* is the Stop Smoking Service available in Nottingham City via the Nottingham City General Practice Alliance (NCGPA). This service requires a GP referral. It is the aim to reduce the prevalence of smoking in pregnancy from 10.7% to 6% or less. However, Mid Notts. Clinical Commissioning Groups (CCGs) acknowledged the issue in 2018 and agreed local Smoking at Time of Delivery (SaToD) targets of 10% in Mansfield & Ashfield (where in Q1 2017/18 it had the 3rd highest SaToD nationally) and 8% in Newark & Sherwood by 2022. Unless agreed within the system each CCG or provider should be working towards the National target of 6% or less of Smoking at Time of Delivery by 2022, the remaining CCGs in the Nottingham and Nottinghamshire ICS are working towards 6%. Data shows that during pregnancy and childbirth, obesity presents a series of health risks to the foetus, the infant and the mother. Obesity in pregnancy is associated with an increased risk of serious adverse outcomes including miscarriage, foetal congenital anomaly, thromboembolism, gestational diabetes, pre-eclampsia, dysfunctional labour, postpartum haemorrhage, wound infections, stillbirth, neonatal death and maternal death. There is also a higher caesarean section rate and lower breastfeeding rate in this group of women compared with women with a healthy body mass index (BMI). Global obesity rates have tripled since 1975 and the UK ranks amongst the worst in Europe. The rate of obesity is increasing in Nottingham City at a higher rate than England. Furthermore, obesity in children is increasing which will impact on the next generation of mothers. The burden of obesity is not experienced equally across society with far higher rates in more deprived areas. The incidence of gestational obesity is also increasing as a result of obesity in the general population and with more pregnancies in older women. It is important that women with type 1 diabetes receive appropriate preconception advice as a controlled reduction of plasma glucose levels before conceiving, reduces the risk of congenital malformations in the baby. Only 35% of pregnant women with Type 2 diabetes are making contact with Kings Mill prior to 10 week gestation (50% Type 1) this is well below the national average. Good health is much more than the absence of illness. It's a state of wellbeing that includes our mental as well as our physical health. The government has aimed to provide people with greater access to mental health services and, in doing so, it is anticipated that the 'treatment gap' will close between mental and physical health. In pregnancy and the postnatal period, many mental health problems have a similar nature, course and potential for relapse as at other times. However, there can be differences; for example, bipolar disorder shows an increased rate of relapse and first presentation in the postnatal period. Some changes in mental health state and functioning (such as appetite) may represent normal pregnancy changes, but they may be a symptom of a mental health problem. The management of mental health problems during pregnancy and the postnatal period differs from other times because of the nature of this 'life stage' and the potential impact of any difficulties and treatments on the woman and the baby. There are risks associated with taking psychotropic medication in pregnancy and during breastfeeding and risks of stopping medication taken for an existing mental health problem.

Antenatal and Postnatal Care	An area of focus in Better Births is working across boundaries to provide and commission maternity services to support personalisation, safety and choice, with access to specialist care whenever needed. The local set up of antenatal services across Nottinghamshire is variable and does not always allow smooth communication and partnership working across key functions, e.g. mothers at high risk are often picked up late by the integrated women and families teams and the vital early education for women can be delayed. Better Births recommend establishing community hubs, where maternity services, particularly antenatal and postnatal, are provided alongside other family-orientated health and social services provided by statutory and voluntary agencies. Community hubs should work closely with their obstetric and neonatal unit(s). More needs to be done across the county to provide women with more choice, especially in promoting home births. Mid Notts are closer to the target of 4% for home births at around 3%, whereas Greater Notts only achieve around 1% of home births (average of 2% for the region). Models are being explored to consider closer partnership working between midwives in Nottingham University Hospitals and Sherwood Forest Hospitals to improve cover regionally. Communication is vital, bereaved parents told us how communication between the hospital and community based services was poor. Many encountered health professionals who did not know their baby had died. Support for breastfeeding is often provided locally by health visitors, midwife-led clinics and a range of local support services, including peer support. Peer support breast feeding champions found it difficult to access and support new mothers in Mid Notts prior to their discharge. Mothers reported that they were also being discharged before they were able to successfully breastfeed their baby and that more support in this area was essential. This support was variable between both Nottingham University Hospitals (NUH) and Sherwood Forest Hospitals (SFH), with mothers reporting mixed experiences. Social and mental health support across the county for women can be improved. Women suffering from post natal depression often found their midwife or health visitor was unable to understand their needs and provide the required support.
Birth Care	Better Births found that despite the increases in the number of births and the increasing complexity of cases, the quality and outcomes of maternity services had improved significantly over the previous decade, due to the hard work and dedication of midwives, doctors and other health care professionals. However, the review also found meaningful differences across the country, with further opportunities available to improve the safety of care and reduce stillbirths. The review called for a safer workforce that was nurtured and well supported. There is an obstetric led units at Kings Mill Hospital (KMH) with an integrated midwifery led unit. Both Queens Medical Centre (QMC) and Nottingham City Hospital (NCH) have obstetric led units with co-located midwifery led units. In recent years there has been an increasing demand in consultant led deliveries due to increasing complexity of birth care resulting from an increase in maternal age, maternal physical and mental health and other risk factors (Black Asian and Minority Ethnics (BAME), obesity, smoking risks). Nationally 88% of obstetric units report regular gaps to middle grade doctor rotas. Increased resident consultant presence is in part a response to this, whilst middle grade rotas remain a challenge to fill. In Nottingham, there is an appetite to move to a single site obstetric led maternity and neonatal unit, which would improve neonatal outcomes and provide long term safety and sustainability for the obstetric workforce.
Care of the Newborn	As foetal and neonatal care has developed, pre-term birth is more common and the survival rate of sick newborn babies is continuing to improve. Neonatal critical care capacity needs to keep pace with these advances to improve short and long-term outcomes for these children. There is strong drive through the Better Births neonatal safety plan – Avoiding Term Admissions Into Neonatal units (ATAIN), with transitional care and outreach commissioning for quality and innovation (CQUIN) to be met. The neonatal network operates across the East Midlands, with two units in the ICS footprint – NUH hosting neonatal intensive care units at both QMC and NCH and SFH hosting a Local Neonatal Unit (LNU) at Kingsmill Hospital. The Nottingham neonatal capacity is short of meeting standards and avoidable non-clinical transfers of neonates have to be carried out to neighbouring networks (such as Sheffield). With a variation in outcomes (mortality) across the UK, evidence has shown there is a clear link between volume and outcome, where larger NICUs with higher activity have been show to have improved outcomes. NICUs are recommended to do >2000 intensive care days each year and both of the NICUs in Nottingham sit below this. Furthermore, the LNU at SFH is just below the 1000 IC days / year for an LNU. Despite the increasing demand for neonatal service, the ICS has seen no increase in capacity in 15 years and the 2017 East Midlands Capacity Report (EM ODN) stated there is a clear need for additional capacity at the lead centres of Nottingham and Leicester. These issues must be addressed, to meet the needs of the babies and families.

6. Proposed Future Care System

Home

Planned/Scheduled	Urgent – 24 hours	Emergency/Crisis – 4 hours
Prevention - Smoking/ Obesity/ Preventable Medical Conditions • Early education and information, including preconception services/ advice– available via Web/ TV/ App (smoking, obesity, impact of other medical conditions) – updated information including benefits of breastfeeding for mother and baby • Mental Health/ Social care support for women/ families at home - preconception • Team based continuity of carer across all settings including the home Sustainable by: • Improved preconception support and understanding of risks allows early involvement of required specialist services (e.g. Children and Families integrated services, epilepsy, obesity) and awareness to promote self-care • Improved outcomes for mother and baby - reduced risks of still birth by lowering smoking in pregnancy, improved care planning for obese women and those with preventable medical conditions (such as controlling diabetes prior to pregnancy) • Improves chances of successful breast-feeding (Healthy Child Programme) – improved health of infants and in latter years		Prevention - Smoking/ Obesity/ Preventable Medical Conditions Sustainable by: • Provides quick response enables earlier intervention and support to avoid crisis services
Antenatal/ Postnatal Care – Partnership Working, Physical and Mental Health • Robust pathway of care with a multidisciplinary approach in the supported by robust communication and shared records between different professions (Midwife/Health Visitor/Social Care). • Holistic pregnancy and parenting preparation, including breastfeeding education and peer support volunteers • Post birth contraceptive advice • Reduced duplication enables higher levels of support based on need. Booking practice reviewed to take into account adverse childhood experience (ACE)/holistic care needs. Sustainable by: • Delivers quality of care more efficiently, less duplication of tasks • Improves chances of successful breast-feeding (Healthy Child Programme) – improved health of infants and in latter years	Antenatal/ Postnatal Care – Partnership Working, Physical and Mental Health • Breastfeeding support from MDT to carry out feeding assessment also from trained peer support volunteers • Outreach team at home to support antenatal/postnatal mental health • Better use of technology to link with women and families Sustainable by: • Improves chances of successful breast-feeding (Healthy Child Programme) – improved health of infants and in latter years • MH support to prevent long-term issues developing. Improved and faster communication with mothers/ families through technology Apps – provides timely response for urgent intervention/ self-care.	Antenatal/ Postnatal Care – Partnership Working, Physical and Mental Health • Home antenatal assessments in early labour • Helpline to respond to questions and concerns of new parents • Mental health/ Social care support and safeguarding response team – support focus for domestic violence and sexual abuse Sustainable by: • Prevent anxiety, assess and support women at home prior to delivery where risk is low • Timely intervention from mental health services to improve outcomes and crisis admissions • Support for vulnerable women
Birth Care – Safety-Workforce, Reduction in Variation • Increase availability and provision of home births through a cross ICS service offer • Personalised care plan supported by continuity of carer Sustainable by: • Meets national target of home births ('Better Births') of 4%	Birth Care – Safety-Workforce, Reduction in Variation • Personalised care plan supported by continuity of carer • Self-care advice and support for planned home-birth concerns Sustainable by: • Improves access to services and outcomes through earlier intervention and education for self-care • Continuity of carer improves experience and outcomes	Birth Care – Safety-Workforce, Reduction in Variation • East Midlands Ambulance Service (EMAS) supported transfer to Labour Suite delivery setting in the event of significant complications during home birth • Clear communications and transfer to optimised place of birth for In Utero transfers Sustainable by: • Service confidence helps support meeting the national target of home births ('Better Births') of 4%
Care of the Newborn – Admission Avoidance, Transition • Cross community MDT service provision for care of the newborn. • Clear plan of home support post delivery • Peer support breastfeeding volunteers Sustainable by: • Supports care at home		

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6. Proposed Future Care System

Neighbourhood

Planned/Scheduled

Prevention - Smoking/ Obesity/ Preventable Medical Conditions

- Enhance early education in schools to broaden awareness further – including understanding of ACEs and having trauma informed workforce
- Nicotine Replacement Therapy and advice to be made available locally (target areas of disadvantaged groups)
- NHS awareness adverts in GP practices/ hubs – TV based target smoking/ obesity/ mental health support/ preventable medical conditions
- Multi-skilled workforce in community hubs/GP practices/ – all contact to be able to advise/ support prevention agenda (incl. family nurses, pharmacists, dentists, children's centres, social services and voluntary and community sectors)
- Improved support for smoking/ obesity risks – commissioned unrestricted services (incl. <18yrs) - staff training to provide accessibility to same support
- Continuity of Carer across all settings

Sustainable by:

Long term prevention initiatives reduce burden on future demand of complex/ specialist cases

- Deliver benefits with continuity of carer (Sandal and Coxton, RCM; 2014)

Antenatal/ Postnatal Care – Partnership Working, Physical and Mental Health

- Partnership working across roles and organisations working from community hubs or local GP practices (including rural areas)
- Antenatal and postnatal clinics in community hubs also for routine scans, bloods and consultant clinics

Sustainable by:

- Improved productivity reducing duplication and release midwifery time to support and advise women
- Provides care local to home – reducing requirement to attend hospital during the antenatal period

Care of the Newborn – Admission Avoidance, Transition

- Transition of care across services particularly into children's services via an MDT approach
- Partnership working to ensure coordination of care where babies discharged from neonatal service/ unit are linked to ongoing services – early discussions to plan for complex babies/ families/(disease/ social care)
- 'Appropriate babies' seen in community hub clinics (Newborn and infant physical examination/Neonatal outreach)

Sustainable by:

- Service transition supports continuity of care and knowledge

Urgent – 24 hours

Prevention - Smoking/ Obesity/ Preventable Medical Conditions

- Specialist support in community hub setting to support substance misuse, smoking cessation, safeguarding, MH teenage pregnancy support, domestic violence sexual abuse services – universal offer available within 24 hours

Sustainable by:

- Provides local access to required support in community hub or GP practice to support prevention agenda – includes preconception advice across roles with appropriate training (making every contact count)

Antenatal/ Postnatal Care – Partnership Working, Physical and Mental Health

- Breastfeeding drop in 1:1 health visitor (HV) support in community hubs, breastfeeding support at baby clinics. breastfeeding cafes, Sure Start children's centres, peer support volunteers

Sustainable by:

- Access to urgent medical support locally
- Improves chances of successful breast-feeding (Healthy Child Programme) – improved health of infants and in latter years

Emergency/Crisis – 4 hours

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6. Proposed Future Care System

Acute Hospital

Planned/Scheduled	Urgent – 24 hours	Emergency/Crisis – 4 hours
Prevention - Smoking/ Obesity/ Preventable Medical Conditions • Specialist O/P clinics not in community settings (type 1 diabetes, epilepsy, etc.) and also for specific patient groups • Consistent education of all healthcare professionals – ensure every contact counts – consistent message and offer • Access to smoking cessation • Peer support groups on wards, especially breastfeeding • Continuity of Carer across all settings, not passed from one to the next Sustainable by: • Deliver benefits with continuity of carer (Sandal and Coxton, RCM; 2014)	Prevention - Smoking/ Obesity/ Preventable Medical Conditions • Advice/ Helpline (triage) and availability of specialist appointments for complex cases Sustainable by: • Improved signposting, access for urgent cases	
Antenatal/ Postnatal Care – Partnership Working, Physical and Mental Health • Organisational and cross-role partnership working for rapid referral to Tertiary care/ Specialist care (e.g. inpatient unit for mother and baby, fetal medicine) • Post birth contraceptive advice Sustainable by: • Improves access into specialist care	Antenatal/ Postnatal Care – Partnership Working, Physical and Mental Health • Day and postnatal assessment units • Access to diagnostic tests • <27/40 delivery in tertiary centre • Sustainable by: • Supports national ambition for improvements in IUT • Improve outcomes through earlier access/ intervention to avoid crisis services • Clear neonatal pathway decision making	Antenatal/ Postnatal Care – Partnership Working, Physical and Mental Health • Optimisation of birthplace for In Utero Transfer (IUT) – senior decision maker communication with EMAS • Optimise In-patient beds/ labour wards Sustainable by: • Supports national ambition for improvements in IUT • Effective and improved outcomes
Birth Care – Safety-Workforce, Reduction in Variation • Consistent messages/service offers in all units supported by partnership working across all organisations • Single centre for maternity and neonatal services in Nottingham 'Better Births' (with Alongside Midwifery Led Units) to improve neonatal outcomes and long term safety and sustainability Sustainable by: • Equity of care providing better outcomes • Alleviates workforce pressures and prevents avoidable transfers	Birth Care – Safety-Workforce, Reduction in Variation • Service provision for induction that does not impact labouring women/also for women requiring stabilisation (magnesium sulphate ($MgSO_4$), etc.) Sustainable by: Ensures service availability and choice of birth location can be supported	Birth Care – Safety-Workforce, Reduction in Variation • Obstetric led birth care to be provided at KMH and QMC with adequate birthing beds and theatres at each unit Sustainable by: • Improved efficiency through economies of scale on a Nottingham single site
Care of the Newborn – Admission Avoidance, Transition • 'Better Births' neonatal safety plan, Avoiding Term Admissions into Neonatal Units (ATAIN), transitional care work and Outreach CQUIN all to be met Sustainable by: Aligns with national objectives, improves outcomes		Care of the Newborn – Admission Avoidance, Transition • Adequate neonatal unit (NNU) and neonatal intensive care unit (NICU) capacity and service availability to care for Nottinghamshire neonates within Nottinghamshire neonatal units except in exceptional circumstances Sustainable by: • Improved service sustainability through economies of scale at single Nottingham site • Prevents avoidable transfers out of unit

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6. Proposed Future Care System

Level of Care	Availability	Acute/ MH Hospital	Neighbourhood	Home
4 hours or less	24/7	• Birthplace optimisation for IUT • Optimise In-patient beds/ labour wards • Obstetric led birth care to be provided at KMH and QMC • Adequate NNU and NICU capacity and service availability to care for Nottinghamshire neonates		• Home antenatal assessments in early labour • Helpline to respond to questions and concerns of new parents • Mental health/ Social care support and safeguarding response team – support focus for domestic violence and sexual abuse • Clear communications and transfer to optimised place of birth for In Utero transfers
24 hours/ Walk up and wait	7 days	• Advice/ Helpline (triage) and availability of specialist appts. • Access to diagnostic tests • <27/40 delivery in tertiary centre • Appropriate service provision for induction and women requiring stabilisation ($MgSO_4$, etc.)	• Specialist support in community hub setting to support substance misuse, smoking cessation, safeguarding, MH teenage pregnancy support, DASV services – universal offer available within 24 hours • Breastfeeding drop in 1:1 HV support in community settings	• Breastfeeding support • Outreach team at home to support antenatal/postnatal mental health • Better use of technology to link with women and families • Personalised care plan supported by continuity of carer • Self-care advice and support for planned home-birth concerns
Scheduled	Appt based	• Access to smoking cessation • Peer support groups on wards, especially breastfeeding • Continuity of Carer across all settings, not passed from one to the next • Organisational and cross-role partnership working • Consistent messages/service offers in all units • Single centre for maternity and neonatal services in Nottingham	• Enhance early education in schools • Improved support for smoking/ obesity risks –unrestricted services (incl. <18yrs) • Partnership working across roles and organisations • Antenatal and postnatal clinics in community hubs also for routine scans, bloods and consultant clinics	• Mental Health/ Social care support at home - preconception • Team continuity of carer across all settings including the home • Holistic pregnancy and parenting preparation, incl. breastfeeding education and peer support volunteers • Increase availability and provision of home births • Cross community MDT service provision for care of the newborn

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Health improvement service development to support healthy pregnancy and early childhood years including preconception advice **High Priority**	In order to deliver the prevention agenda, cut rates of smoking, levels of obesity and know who the high risk women are at preconception, all service professionals need to develop an understanding of the issues and appropriately contribute to tackling these. Education is key here, supported by Public Health professionals. When planning and developing local services women should be involved to ensure services are flexible, and meet the need of the women and families it aims to support ensuring services are accessible including: • Smoking cessation across the county with local delivery supported by a range of healthcare professionals who should receive brief training allowing them to advise or signpost accordingly • Social and mental health support needs to be available for women and families from preconception, as this is often when issues are missed. Re-engagement of GPs to work with expectant mothers locally as required and be able to advise at preconception. Midwives and health visitors to be upskilled to understand and support social and mental health needs of women and families better to ensure this need does not go missed **Impact & Benefit** • Help those that want to quit smoking, live healthier lives and have the opportunity to provide their child with the best start in life. Supporting pregnant smokers to stop is 3-6 times as cost effective as treating smoking-related problems in new-born infants (NICE, 2006) • Improving healthy living for the ICS population and reducing progression of obesity and impact this may have on the health of their child • Working with women and families from preconception to help them understand and avoid the risks from existing preventable conditions • Long term financial gains can be realised through delivering this and the Better Births agenda enabling healthier lives for women and their babies and families **Alignment –** Health improvement service development to support healthy pregnancy and early childhood years can only be successful if the approach is universal across the ICS. It requires bringing organisations together and working in partnership on the same agenda. Delivery of this agenda would be at an ICP level, with the foundations of the direction of travel set at ICS level.
Whole Nottinghamshire approach to deliver consistently available homebirth service **Med/ High Priority**	Better Births aims to support an increase in women giving birth at home or in midwifery led settings, mainly as this tends to be linked with uncomplicated births. There is an aim to have 4% of births at home by 2020 which will represent double the current level. There is also aimed to be an increase in midwife led births and a reduction in obstetrics led births. The main obstacle preventing this target being met locally is workforce challenges, especially in Nottingham city. Some developments are being considered to better cover out of hours between the two trusts, but the large patch still presents challenges with doing this, and so with the problems recruiting midwives (national shortage), this is an area that will require considerable planning, working with professional bodies and training establishment, to more strongly promote and encourage roles in midwifery. **Impact & Benefit** • Home births provide immediate bonding and helps with breastfeeding, which helps the mother stop bleeding and clears mucus from the baby's nose and mouth • Planned homebirths include lower rates of maternal morbidity, lower rates of intervention (such as episiotomy) are required • It is estimated the cost of a homebirth can be up to 60% less than a hospital births • Planned homebirths provide mothers with high rates of satisfaction, feeling more comfortable in their home environment and more in control of the experience **Alignment –** Although achieving the national target of 4% is on the Better Births agenda, there are challenges with staffing that need to be overcome. Rather than have competition between units, this proposal requires a system wide ICS approach to enable its delivery.

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Development of Nottinghamshire Neonatal capacity to ensure Nottinghamshire neonates can be cared for within the ICS - with single site neonatal unit and obstetric led care in Nottingham and network pathways, at the QMC **High Priority** (Med timescale)	The Neonatal Critical Care Transformation Review (Better Newborn Care) Stakeholder Engagement, 2019, highlights the variation in outcomes and resources for sick newborn babies that we see across England. Mortality and ill health are unequivocally linked to child poverty and social disadvantage. Although social and demographic factors are responsible for some of the variation identified, the Evidence Review identifies other differences that relate to how we organise and deliver our maternity and neonatal services. The Actions presented define how we optimise and build on the success of the local neonatal teams and Operational Delivery Networks, and work with Sustainability and Transformation Programmes and the Maternity Transformation Programme to reduce current variation due to service factors; these actions ensure that every baby with specialised needs will experience optimal outcomes and the very best chances for their future. Neonatal services are inextricably interdependent with Maternity services, and a key part of the implementation of “Better Births” – the Maternity Transformation Programme. Emerging indicative direction of travel is for Obstetric and Neonatal services in Nottingham to coalesce at QMC, combined with the development of more local community based maternity care. This vision would support the development of a larger neonatal intensive care unit in Nottingham, which would enable >2000 intensive care days each year to be established in Nottingham and would support the LNU at Kingsmill to achieve >1000 IC days each year. It would also help alleviate some of the staffing and safety challenges faced in obstetrics, through economies of scale and improved clinical cover, in line with national recommendations for the size of neonatal units and the long term workforce sustainability of maternity care. **Impact & Benefit** • Review capacity at both QMC and SFH improving the efficiency in Nottingham bringing neonatal and obstetric led maternity units together • Meets national standards keeping families together and babies on identified pathways • Prevents out of network transfers improving safety and outcomes • Help meet safe staffing standards around the Clinical Negligence Scheme for Trusts/ Maternity Incentive Scheme and work towards HEE safe staffing number requirements and RCOG recommended hours of cover • Brings two ways of working together in partnership, cuts out perverse incentives linked to transfers out • Public opinion – change may be challenging **Alignment –** The alignment of this proposal should be supported at ICS level with local delivery through the ICPs
Continuity of carer (team) provision through antenatal, intrapartum and postnatal care **High Priority**	One of the most frequently mentioned concerns raised in the maternity focus groups was the number of times women had to ‘repeat their story’. ‘Better Births’ state that to ensure safe care based on a relationship of mutual trust and respect in line with the woman’s decisions, they should have continuity of carer. Every woman should have a midwife from a small team of 4-6 midwives, based in the community who knows the women and family, which can provide continuity throughout the pregnancy, birth and postnatally. The team should have an identified obstetrician to advise on issues as appropriate, with the midwife liaising closely with the obstetric, neonatal and other services ensuring the mother gets the care she needs and that it is joined up with the care she is receiving in the community. **Impact & Benefit** • Continuity of carer improves experience and outcomes • Provides safer care working across boundaries to ensure rapid referral and access to the right care in the right place • Leadership for safety culture within and across organisations and investigations, honesty and learning when things go wrong • Better postnatal and perinatal mental health care, having significant impact on the life chances and wellbeing of the woman, baby and family • Multi-professional working breaking down barriers between midwives, obstetricians and other professionals to deliver safe and personalised care for women and their babies **Alignment –** In line with Better Births, continuity of carer should be delivered closer to the home in the community and so be organised at an ICP level with local delivery through PCNs.

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Development of breastfeeding support/ advice in all settings **High Priority**	Breast milk is a fantastic first food for babies because it protects them from illness. Breastfeeding has lots of benefits for mothers too. Because breastfeeding is a natural experience, many new mums assume that they should be able to do it straightaway, in reality, it may come easily to some, but not others, so appropriate support from the midwife and health visitor is essential. Within Nottinghamshire, there are breastfeeding support groups and also a number of peer support champions. Analysis by Unicef UK said there was a "strong economic case" for supporting more women to breastfeed. It said £11m every year could be saved by preventing infections and £31m by reducing the cases of breast cancer. There is still some variation in support and advice across the ICS, with some mothers left without the help they need. Providing a robust support and advice structure across all settings would maximise the opportunity for all mothers to breastfeed their babies. This is an area where transformation of care can be quickly effected with positive gains for mothers and babies, inexpensively. **Impact & Benefit** • Breastfeeding provides ideal nutrients for babies and contains important antibodies and so reduces disease risks • Breast milk promotes healthy weight in babies, breastfeeding also prevents obesity in latter years and helps the mother loose weight following pregnancy • Promotes mother and baby attachment, reducing risk of depression • Breastfeeding saves time and money – also low cost initiative with high gain • Antenatal provision results in higher engagement • Enables support from wider workforce improving healthy lives **Alignment –** In order to provide universal access to breastfeeding support and advice, an ICS delivered approach is required to ensure consistency of offer, however, delivery should be at PCN level adopting the same approach, providing the same access
Development of antenatal community hubs for the provision of obstetric and midwifery antenatal services including an MDT to support holistic care **Medium Priority**	Collaboration with the family nurse partnership pilot and other outreach schemes to identify additional opportunities for providing intensive and ongoing support are key. Having local community hubs out of which services can be accessed/ delivered increasing proportion of contacts close to home, whilst improving the prevention agenda with better access to social care support from the same base so that health care professionals can work in partnership with agencies that support women who have complex social and emotional needs. This includes substance misuse services, youth and teenage pregnancy support and mental health services, breast feeding peers. Re-engagement of GPs with appropriate and formalised in-house training. Community hubs supporting maternity care can provide capacity for obstetric outreach support. Community hubs can provide the opportunity to introduce new support roles over several services (e.g. smoking cessation). Opportunity to move ultrasound scanning to community – presents potential issues for sonographers who are already stretched and in short supply. **Impact & Benefit** • Stronger partnership working and trust/ shared and integrated working • More effective use of workforce • Release acute estate • Care closer to home • Increased accessibility • Promotes easier continuity of carer **Alignment –** Delivery of community hubs would be an undertaking at the larger ICP level, however, they should be run at a PCN level

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Maternal wellbeing and mental health care service provision development in all care and urgency settings **High Priority**	Pregnancy and having a baby is a life-changing event: the body undergoes major changes. For most women, this is a happy and positive experience, but for some women there may be considerable discomfort or even ill health while pregnant. Recognising depression or anxiety and supporting pregnant women who experience it is important for maternal health and the ultimate health and welfare of the child. Estimates suggest that up to 1 in 7 mothers will experience a mental health problem in the antenatal or postnatal period. Engagement with services during pregnancy offers valuable opportunities to promote mental wellbeing and for the prevention of mental health problems. The support women need is not equitably available across the region. By providing access to MH support in all care and urgency settings, this can improve outcomes for women and their babies. **Impact & Benefit** • Fewer crisis episodes (including reduced suicides) improving the wellbeing of the woman and her baby • Supports families **Alignment –** Provision of maternal wellbeing and mental health care services need to align to the ICS with local delivery at ICP and PCN level
Personalised Care Plan Development **High Priority**	One of the key findings following the Better Births review, was that personalised care, centred on the woman, her baby and her family, based around their needs and their decisions, where they have genuine choice, informed by unbiased information, was central to ensuring that women received the best care possible. Personal care is safe care. It means listening to women, understanding what they want and what they need and putting in place a personal care plan. Ensuring maternity care is safe runs through every aspect of the maternity transformation programme, the more we centre care around each individual woman, the safer that care will be. Neonatal Critical Care forms a key part of the maternity services, providing part of the routine service for all women and their newborn babies in the delivery room and during the early postnatal period. Involving the family and providing support and advice to them is integral to the delivery of high quality, personalised, Neonatal Critical Care. This engages the family to become part of the team looking after their new baby, minimises separation, promotes attachment, helps families to understand their baby's needs and to develop confidence in caring for their baby. **Impact & Benefit** • Person centred approach will eventually produce a care plan which reflects women's and families' wants and needs • Quick win, but true impact will require technology and data, which have a clear role to play in helping to deliver more proactive, predictive and personalised services to people • Promotes choice **Alignment –** Personalised care plans through personalisation and choice needs to be focused at an ICS level

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7. Transformation Proposal

	Priority (High/ Med/ Low)	Alignment (ICS/ ICP/ PCN)	Workforce	Technology	Estate/ Configuration	Finance/ Commissioning	Culture	LMNS/ LTP Area of focus	Area for focus/ Action
Health improvement service development to support healthy pregnancy and early childhood years including preconception advice (e.g. obesity, smoking) and post pregnancy opportunities, (e.g. weight management)	High	ICS/ICP	PH Cons./ DVSA cross role training Specialist support/ Voluntary sector	App/ Web/ TV preconception e-platform advice/ information sharing	Need to make use of current estate differently		Breakdown professional barriers and budget to improve access for all Shared working with integration of organisations and workforce	LMNS Maternal Health & Better Postnatal Care Work streams Smoking Cessation Plans, SBLCBv2, Postnatal Improvement Plan in place **Work underway in LMNS**	
Whole Nottinghamshire approach to deliver consistently available home birth service	High/ Med	ICS approach	Partnership workforce across system/ needs midwives 24/7 availability	Shared Care record/ single ICS wide IT System including mobile tech.	Linked to working from hubs		Alignment of system processes and cross organisational contracts	LMNS Personalisation & Choice Work Stream Choice Offer in place, plans to increase home birth rate, workforce modelling. **Work underway in LMNS**	
Development of Nottinghamshire Neonatal capacity to ensure Nottinghamshire neonates can be cared for within the ICS - with single site neonatal unit and obstetric led care in Nottingham and network pathways, at the QMC	High (Med timescale)	ICS/ ICP	Partnership workforce/ Paediatric radiologist cover, more AHP time Sustainable staffing rosters More staff for to meet national numbers	Shared Care record/ single ICS wide IT System (Badger?) With AHP staffing at recommended levels according to professional bodies	Review capacity at QMC/ SFH Huge estates development at QMC	Note impact on stability of SFH activity/ service – need to support neonatal at SFH to prevent impact on maternity services across the system Impact of NICU on ODN	Bringing together two ways of working Closer working between SFH and NUH Cuts out perverse incentives linked to transferred babies Public opinion – change may be challenging	LMNS Better Postnatal & Neonatal Care Work Stream in place. ODN representation at LMNS Programme Board **TBC Business Case** **LMNS Programme Board in place with the ability to support/ coordinate**	
Continuity of carer (team) provision through antenatal, intrapartum and postnatal care	High	ICP/PCN	Competency based training and joint roles	Shared Care record/ single ICS wide IT System	Access to community Hubs		Integrated working across roles and organisations	LMNS CoC T&F Group. Delivery plans in place, pilots underway, evaluation commissioned. **To upscale with future investment**	
Development of breastfeeding support/ advice in all settings	High	ICS approach delivered at PCN level	RCN/ Link workers Access for peer support BF volunteers – needs staff and volunteers across services Community champions	App based or digital peer support Tech. enabled services e.g. Skype consultations with specialists High use of Apps	Makes good use of existing estates with community hub add-on		Breakdown professional boundaries especially midwife and health visitor Increased partnership working with improved communication	LMNS Better Postnatal & Neonatal Care Work Stream BFI full accreditation Postnatal Care Improvement Plan **Work underway in LMNS**	
Development of antenatal community hubs for the provision of obstetric and midwifery antenatal services to increase proportion of contacts close to home, improving prevention agenda and access to social care services, including an MDT to support holistic care (shared protocols and guidelines)	Med	ICP – delivery at PCN level	Obstetric outreach requirement - Staff to cover running of hubs Technician can reduce impact on workforce across several services , e.g. for scanning,, with video links for support. Obstetric outreach GP re-engagement/ training Much closer working across organisational boundaries.	Shared Care record including social care – central repository High use of Apps and handheld devices More sonographers , (already stretched within acute setting)	Community Hub capacity US Scanning facilities in community setting Free up space in acute areas Equipment in suitable accommodation will be required		Stronger partnership working and trust. Need to unblock difficulties around cross charging Shared and integrated working towards successful MDTs	LMNS Better Postnatal & Neonatal Care, Personalisation & Choice **Hubs yet to be developed, aligned to Better Birth Recommendations and local PCN requirements – this will form part of the overall Clinical and Community Services Strategy review across several services requiring community hub capacity**	
Maternal wellbeing and mental health care service provision development in all care and urgency settings including preventative, supportive and crisis	High	ICS approach delivered at ICP/ PCN level	More MH staff and appropriate training of maternity staff including midwives	Interconnected systems to prevent repeated questions/ information requests - Integration with NHS App	Access to community hubs			LMNS Perinatal MH Work stream, plans being developed to include LTP. ICS MH Strategy **Work underway in LMNS**	
Personalised Care Plan development	High	ICS	Would require extra planning time, therefore more staff Holistic working/ training	Shared Care record/ single ICS wide IT system Co-author capabilities linked to maternity records	Minimal impact on estate, but more hub based working		Demands a focus on shared decision making Mapping out PCPs can be used to offer holistic joined up care Women's voices as important as professionals	LMNS Personalisation & Choice PCP Developed with digital solutions **Work underway in LMNS**	

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8. Enabling Requirements

Workforce	Transforming services for maternity and neonatal care, requires the following main considerations for workforce: • Cross pathway working (primary and secondary care) with outreach obstetric support and cross pathway MDT functionality • Strong involvement from Public Health consultants to lead the prevention agenda, providing appropriate training across the service • Widespread training of healthcare professionals (HCPs) to empower them to provide appropriate advice or signposting for smoking cessation, mental health and social care support • Increased midwifery workforce to promote homebirths, continuity of carer and enable 24/7 across system availability • Sustainable medical staffing model • Inclusion of MDT working as appropriate in job plans to ensure adherence/ attendance across the pathway • Upskill workforce to advise on prevention agenda and signpost for social care and MH support • Support for breastfeeding peer champions
Technology	The main areas in which technology can effect transformation for maternity and neonatal care include: • A single IT system providing appropriate access to electronic shared care records – across both health and social care settings • App development/ promotion for smoking cessation/ signposting locally. Waiting rooms in various health and social care settings to use screens with rolling information on health and social care advise/ support services available – promote healthier living • Better use of reliable handheld devices across community and home setting to improve access to records, prevent duplication and repeating
Estate	• Development of community hubs for the provision of obstetric and midwifery antenatal services, including: o Community perinatal psychiatry services for improved mental health support o Maternal outreach clinics integrating maternity, reproductive health and psychological therapy o Bringing care as close to home as possible through expert maternity and neonatal centres • There is an emerging indicative direction of travel, for Obstetric and Neonatal services in Nottingham to coalesce at one site. This vision would support the development of a larger neonatal intensive care unit in Nottingham in line with national recommendations for the size of neonatal units and the long term workforce sustainability of maternity care. Current services would continue to be offered at Kings Mill Hospital
Culture	• To drive a culture change we need shared and integrated use of workforce across organisations to enable the sharing of resources as there are limited availability of staff groups and expertise, with the introduction of MDTs this should improve education across the workforce • Organisational trust and changes in how future services are commissioned will provide the greatest influence on the future of integrated service provision and how best evidence can influence the future maternity and neonatal service offer across the ICS

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9. Maternity and Neonatal Services Vision

Maternity and Neonatal Services Vision:

From…	Phase 1 1st year	Phase 2 2-3 years	Phase 3 5 years +	To…
• High Smoking Rates at Delivery • Severe obesity increasing • Low rates of diabetics presenting early at KMH	**Prevention** Introduce preventative approach very early in schools Build skilful community based brief intervention adopting what already works well Aligning pathways across the system – making access easy Offering a specific service for pregnancy readiness including smoking and obesity Identify and implement key sections from national programmes	Develop community based training models Building capacity of volunteers and peers around prevention Smoking cessation platform rolled out centrally Engaging and learning from parents Joined up prevention messages - workforce trained Standardised fetal growth monitoring across system	Family centred consistent approach Postnatal handover to services focused on improving health status for next pregnancy Working with local authorities in schools on prevention agenda	• Meet national targets in smoking and delivery (6% SATOD) • Additional support available for the population in addressing and reducing obesity • Robust smoking cessation service • Targeted support where need is highest • Holistic approach to care which continues post pregnancy to prepare for next pregnancy • Joined up prevention messages and service to support this • Early detection of preventable conditions
• Cross role/ organisation working difficult with paper-based record/ poor IT system • Poor social/ mental health support/training for midwives	**Antenatal Care/ Postnatal Care** A robust mother and baby focused/ family focused pathway so include the partner NOT only midwifery – Every Contact counts Retaining more midwives and focus on workforce Early quick wins for interoperability improved access to community perinatal and psychiatry services Priority for IT workstream	A joined up approach/ delivery. Better engagement with community voluntary sector + parents, volunteers. Hubs in community Training for all staff who will have contact Combined dashboard Single point of access to maternity Defined IT system	Single IT system operability Total update of IT infrastructure Procurement and implementation of programme across hubs and ICS New roles with breadth/ generalist skills	• Compatible IT system across all services – ONE record (fed by multiple systems) • Accessible electronic patient records – accessible for patients too • Widening scope of midwifery – maximise skillsets and dads involved + valued in care package • Continuity of carer achieved for majority • Well trained +equipped workforce supported by pathways to provide robust mental health care with training for all
• Mainly obstetric led births, some midwife led births with minimal homebirths in Nottingham • Obstetric led care City, NUH, Kings Mill. • Scans in hospitals only	**Birth Care** Listen to parents – personal care plan developed between staff and family. Increased support skill around critical moments. Well supported and protected homebirths service Information for women to make choices which are supported by clinicians	Scans in hubs where other services are available, e.g. breastfeeding, smoking cessation, diabetic clinic etc. Move away from paternalistic attitudes	Increased care in the community 4% homebirths service Midwifery led services available at KMH Standardised ICS pathways	• Increased opportunities for low risk pregnancies, births in community or hubs – including obstetric outreach • Majority of women receiving continuity of carer – targeted on highest need+ equitable outcomes • Greater choice of birth setting supported by robust staffing models • Scans offered in hubs with skype/ web links for urgent consultation • Highly skilled workforce able to work across whole pathway • Reduction in number of obstetric led births and increase in homebirths
• High levels of neonatal avoidable transfers • Services understaffed and struggling to recruit • 2 NICU sites in Nottingham with activity below recommended level.	**Care of the Newborn** Review services required to support healthy pregnancy and outcome. Promote maternity and NNU as an attractive profession. Planning for single site Consistent risk assessment Increase capacity at one site for higher risk babies in Nottingham Utilise KMH site and staff better Attain early discharge	Consider investing in Unicef Baby friendly Initiative for NNU - will inspire staff and mothers Adjusted acuity levels between QMC + City NNU (Half way house – Leicester model) Public engagement Estates plans including decant and resources Staff model being recruited to	Build in progress for new single site women's and children's hospital Recruited staff in post Standardised postnatal offer (adapted to ICP need and patient)	• Specialist centre – well staffed with passionate staff and volunteers • A creative workforce that deliver outcomes in maternity and NNUs. Support for staff • Neonates cared for on a one site specialist unit in Nottingham • Well staffed services, higher levels of retention • No transfers out with improved mortality/ brain injury rates • Reduced separation with improved family experience

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10. Conclusions and Next Steps

Conclusions	The review of maternity and neonatal services as part of the development of a Clinical and Community Services Strategy for Nottingham and Nottinghamshire has been undertaken using a co-design model. Patients, families, carers, key stakeholders and voluntary sector groups such as the Zephyr and Maternity Voice Partnership, and aligned to the work of the LMNS, has enabled collaborative working together to shape a vision for a future care system for maternity and neonatal service in Nottingham and Nottinghamshire. The workshops identified 4 key themes highlighting potential areas of change with a strong emphasis of physical and mental health support across all themes. These include: • Prevention (with emphasis on smoking, obesity, preventable medical conditions and mental health); • Antenatal and Postnatal Care (promoting partnership working, location of services); • Intrapartum/ Birth Care (reviewing safety – workforce, location of birth care and reduction in variation); • Care of the Newborn (admission avoidance, demand for neonatal care, workforce, transition) The review describes a future care system in optimal care settings and with care provided at different levels of urgency and envisages 6 high priority, 1 high/ medium and 1 medium priority programmes to transform care: • **High** - Health improvement service development to support healthy pregnancy and early childhood years including preconception advice • **High/ Med** - Whole Nottinghamshire approach to deliver consistently available homebirth service • **High** - Development of Nottinghamshire Neonatal capacity to ensure Nottinghamshire neonates can be cared for within the ICS - with single site neonatal unit and obstetric led care in Nottingham and network pathways, at the QMC • **High** - Continuity of carer (team) provision through antenatal, intrapartum and postnatal care • **High** - Development of breastfeeding support/ advice in all settings • **Med** - Development of antenatal community hubs for the provision of obstetric and midwifery antenatal services • **High** - Maternal wellbeing and mental health care service provision development in all care and urgency settings • **High** - Personalised Care Plan development To achieve these there are a range of enabling requirements for the ICS across workforce, estate, technology, culture and financial systems. Collectively these initiatives can transform and provide long term health improvement and sustainability in the areas of maternity and neonatal care in Nottingham and Nottinghamshire.
Next Steps	This strategy sets the future direction of development for Maternity and Neonatal Care in the ICS and it is proposed it will shape future work of the ICS in a number of ways: • The identified priorities and programmes should be used to inform commissioning, ICS, ICP and PCN activity • The enabling activities require development and inclusion in the relevant ICS workstreams to inform their work programmes • The estate and configuration changes proposed require inclusion in a programme of pre-consultation business case development alongside the service changes recommended from other reviews • The aggregate impact of the collective suite of service reviews should be used to shape focus of future service provision in acute and community settings in the ICS.

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11. List of Abbreviations

1°, 2° Care	Primary, Secondary Care	LNU	Local Neonatal Unit
A&E	Accident and Emergency	LoS	Length of Stay
ACE	Adverse Childhood Experience	LTC	Long Term Conditions
ACP	Advanced Care Practitioner	LTOT	Long Term Oxygen Therapy
ATAIN	Avoiding Term Admission Into Neonatal units	LTP	Long Term Plan
BAME	Black, Asian and Minority Ethnic	MDT	Multi-Disciplinary Team
BB	Better Births	$MgSO_4$	Magnesium Sulphate
BF	Breast Feeding	MH	Mental Healthcare
BFI	Baby Friendly Initiative	Mid Notts.	Mansfield & Ashfield, Newark & Sherwood
BMI	Body Mass Index	NCH	Nottingham City Hospital
CCG	Clinical Commissioning Group	NHS	National Health Service
CCSS	Clinical and Community Services Strategy	NHSE	National Health Service England
CoC T&F	Continuity of Care Task and Finish	NHSI	National Health Service Improvement
COPD	Chronic Obstructive Pulmonary Disease	NICE	National Institute for Health and Care Excellence
CQUIN	Commissioning for Quality and Innovation	NICU	Neonatal Intensive Care Unit
DASV	Domestic Abuse and Secual Violence	NNU	Neonatal Unit
EM ODN	East Midlands Operational Delivery Network	Notts.	Nottinghamshire
EMAS	East Midlands Ambulance Service	NRCP	National Register of Certified Professionals
EoL	End of Life	NRT	Nicotine Replacement Therapy
eSCR	Electronic Shared Care Record	NUH	Nottingham University Hospitals
FT	Foundation Trust	PCN	Primary Care Network
GP	General Practitioner	PCP	Personalised Care Plan
GPRCC	General Practice Repository for Clinical Care	PH	Public Health
HCP	Healthcare Professional	PHE	Public Health England
HES	Hospital Episode Statistics	PHM	Population Health Management
HV	Health Visitor	PID	Project Initiation Document
IAPT	Improving Access to Psychological Therapies	QIPP	Quality, Innovation, Productivity and Prevention
IC	Intensive Care		
ICP	Integrated Care Partnership	QMC	Queen's Medical Centre
ICS	Integrated Care System	RCN	Royal College of Nursing
IT	Information Technology	RCOG	Royal College of Obstetricians and Gynaecologists
IUT	In-Utero Transfer	SaToD	Smoking at Time of Delivery
KMH	Kings Mill Hospital	SBLCB	Saving Babies Lives Care Bundle
LMNS	Local Maternity and Neonatal System	SFH	Sherwood Forest Hospitals

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12. Data Sources

Data Sources	Local Data – SFHFT, NUH, Public Health Public Health England Fingertips NHS RightCare NHS Long Term Plan LMNS (Local Maternity and Neonatal System) East Midlands Capacity Report (ODN) Public Health England NICE guidance Department for Health and Social Care National Maternity Review (Better Births) Neonatal Critical Care Transformation Review (Better Newborn Care) Royal College of Obstetricians and Gynaecologists (RCOG) Department of Health Health Education England MBRRACE-UK NHS Resolution National Maternity and Perinatal Audit Royal College of Physicians and Royal College of Paediatrics SmokeFreeAction.org.uk

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