Bolton's HealthMatters

JSNA: Early years and maternal

Introduction

The health of mothers and their infants is a key development stage in the shaping of future health and life experiences. Much adult ill health and disease has its roots during gestation, infancy, and childhood. The best way to achieve a fairer society is to improve health and tackle inequalities at the earliest stages of life.

Not all groups in Bolton have the same early years health outcomes; a key inequality locally being the significant difference in infant mortality between the routine and manual socioeconomic group and the rest of Bolton. If we are to improve outcomes for everyone in Bolton, we need to address social, economic, and environmental factors as well as improving care and access to that care.

The Marmot Review proposes three priority objectives to ensure that every child achieves the best start in life:

1. Reducing inequalities in the early development of physical and emotional health, cognitive, linguistic, and social skills;
2. Ensure high quality maternity services, parenting programmes, childcare, and early years education to meet need across the social gradient;
3. Build the resilience and wellbeing of young children across the social gradient.

There is increasing recognition of the crucial nature of multi-agency interventions for 0-5 year olds and investment in early years strategies that emphasise holistic 'family' thinking to prevent physical, social, and mental problems that are difficult to remedy later. Support to parents should start in pregnancy and continue through the transition of the child into primary school, including quality early education and childcare.

Giving Children a Healthy Start[1], highlighted that insufficient priority has so far been given to under-5s health and recommends that the impact, quality and value for money of services should be examined, supported by a joint set of local priorities. An independent report on *Enabling Effective Delivery of Health and Wellbeing*[2] also sets out a vision for integrated commissioning and delivery of public services for children under 5 as the highest priority for public services. It identifies the need for a strengthened children's workforce and better access to assistance for those families most in need, supported by better data and information sharing.

[1] Audit Commission (2010) *Giving Children a Healthy Start*, Audit Commission.
[2] Bernstein, H. et al (2010) *Enabling Effective Delivery of Health and Wellbeing*, Department of Health.

Bolton has a maternity spend per weighted head of population of £57, which is lower than the current average spend in England (£67) but the same as seen in the North West region (£58). Programme budget spend data shows that Bolton has a slightly lower spend than average and worse outcome for the maternity programme budget category, but this is not statistically significant.

Implications for commissioning

Local priority areas include:

1. Commissioning of the Healthy Child Programme: Pregnancy and the first five year of life, including core universal services and targeted provision for vulnerable families;
2. Commissioning of the Greater Manchester Core Maternity Services Specification;
3. Development of healthy weight and obesity care pathways for children, adults and maternal obesity;
4. Development of a child poverty strategy;
5. Social marketing and public health campaigns to address the use of Accident and Emergency and out-of-hours services for unwell infants;
6. Development of an overarching nutrition strategy to pull together the wide range of nutrition-related initiatives, including a breastfeeding strategy, full implementation of UNICEF baby friendly initiative, and promotion of access to Vitamin D and Healthy Start;
7. Commissioning of social marketing insight work with pregnant women who do not attend or opt-out of referral to stop smoking services;
8. Review of the ante-natal pathway with a focus on preparation for parenthood and parenting support;
9. Development of a needs assessment and strategy to promote maternal and peri-natal mental health;
10. Implementation of key strategies including the Alcohol, Tobacco Control and Healthy Weight Strategies.
11. Improved communication and information sharing between primary care (GPs), maternity, community health and Children's Centres.

Who's at risk and why?

Infant mortality and general infant and maternal health varies according to a number of complex and interrelated factors. The key factors include:

- Maternal age: Mothers younger than 18 years and older than 40 years have higher infant death rates. Older mothers also face an increased risk of maternal mortality whilst teenage parents have are more likely to experience poor outcomes;
- Gender of baby: Neonatal and infant death is generally higher in boys; still birth rates are similar between the sexes;
- Ethnicity: Babies born in the UK to women born in Pakistan have higher infant deaths rates and a higher incidence of low birth weight when compared to other ethnic groups;
- Low birth weight: Low birth weight is probably the most important factor affecting infant mortality (birth weight <2,500gm). Babies born with very low birth weight (<1,500gm) are at greatest risk of dying;
- Premature/pre-term delivery: Pre-term delivery is the term used when a baby is born earlier than 37 weeks of pregnancy. This is a major factor linked to infant death as babies born pre-term are more likely to suffer respiratory distress syndrome, infection, central nervous system complications, and feeding difficulties and as a consequence experience slow weight gain;
- Infection: Bacterial infection is a cause of morbidity and mortality in newborn infants;
- Congenital abnormalities: A significant factor in infant death. Risk increases with increasing age of mother;
- Consanguinity: This is the relationship between two people who are related to each other because they share a common ancestor;
- Deprivation: Income levels influence how much families can choose their housing, diet, lifestyle, and community location. Having a lower income reduces these choices and leads to poorer maternal nutrition and possible maternal stresses;
- Maternal personal behaviours: Smoking in pregnancy is the behaviour most likely to contribute to low birth weight for a baby born full-term and also puts the mother at increased risk of pregnancy complications and premature delivery. Maternal nutrition affects birth weight and the child's later risk of chronic diseases. Obesity in pregnancy is a contributor to infant mortality;
- Nutrition: There is a need to focus on areas such as promotion of breastfeeding and vitamin intake locally, particularly Vitamin D to address the effects of Vitamin D deficiency;
- Vulnerable women: This group are far less likely to seek antenatal care early in pregnancy or stay in contact with maternity services;
- Services and access: The quality and availability of appropriate care is known to be a factor in the survival of babies born with life threatening conditions. In particular, low birth weight babies have better outcomes when delivered at specialist centres.

Accessing antenatal care as early as possible can reduce the chance of an individual having a low birth weight baby, can ensure factors affecting pregnancy can be managed effectively (e.g. diabetes, smoking, alcohol etc.), and ensure even weight gain is maintained;

- Parenting: Healthy communities foster the development of healthy children through the informal support that families provide for each other. Inexperienced parents or those facing economic insecurity may need intervention from parent education and family support programmes to help the early development of cognitive skills, emotional wellbeing, social competence, and sound physical and mental health.

The level of need in the population

Fertility and births

There are around 3,900 births each year in Bolton (including stillbirths). The general fertility rate in Bolton is 74 live births per 1,000 women aged 15-44; this is higher than both England and the North West and has been increasing at a faster rate. The highest fertility rates in Bolton are seen in and around the Town Centre, especially in parts of Crompton, Halliwell, Rumworth, Great Lever, Farnworth, and Breightmet. Locally, the percentage of live births to mothers born outside the UK has been increasing in recent years; today, 27.4% (10,453) of school age children (age 5-16 years) in Bolton are from BME groups.

Multiple pregnancy is associated with higher risks for the mother and her babies; in Bolton 26.5 births in every 1,000 are multiple births, which is lower than that seen nationally.

Each year in Bolton there are around 810 caesarean sections. Around 540 deliveries are to older mothers (aged 35 years and above) and 430 are to teenage mothers (<20 years). Furthermore, 54.0% of all Bolton's babies are born into the most deprived quintile of the population, which is a greater proportion than both the North West region and England as a whole.

Infant mortality

Infant mortality denotes deaths that occur within 1 year of birth. Historically, Bolton has a higher rate of infant mortality than the regional and national averages. No significant reduction locally is evident since the 2003/05 rate. On average there are approximately 22 infant deaths per year in Bolton.

The most deprived fifth of Bolton's population experience a much higher rate of infant mortality than other socioeconomic groups, and this difference is statistically significant in Bolton. While the trend is erratic, the gap in the rolling three-year pooled trend has reduced since a recent peak in 2006-2008 and up until 2011 has maintained a consistent, but a

significant, gap above the Bolton average. Furthermore, around 60% of all infant deaths in Bolton occur in residents of Neighbourhood Renewal Strategy Areas (our most deprived neighbourhoods, but account for only 32% of Bolton's total population).

Bolton's infant mortality rate is around average for its children-specific peer group, but is only lower than Salford, Oldham, and Manchester within the Greater Manchester conurbation.

Perinatal mortality denotes deaths within 7 days of birth and this includes stillbirths ('infant mortality' concerns only live births). There are around 30 perinatal mortalities in Bolton each year. For several years prior to 2009, Bolton had a higher perinatal mortality rate than the North West and England averages, but this has reduced to a similar level for the latest period. The significant gap in perinatal mortality between the most deprived fifth of the population compared to Bolton as a whole has reduced over recent periods.

Maternal mortality

Maternal deaths are very infrequent in Bolton and nationally. The mortality rate is above that seen regionally and nationally, but due to very small numbers the difference is not statistically significant.

National evidence indicates that women living in the most deprived areas of England have a 45% higher maternal death rate than women in the least deprived areas. Also, single mothers are three times more at risk than those in stable relationships and women in families where both partners are unemployed and face social exclusion are 20 times more likely to die than women from more advantaged groups.

Low birth weight

Around 8.0% of all Bolton births (including both live and stillborn births) are low birth weight (<2,500gm). Bolton has a greater proportion of low birth weight births than is average for both England and the North West region. However, the proportion of low birth weight births has reduced over recent years.

There are inequalities by deprivation group for low birth weight births, and whilst Bolton's current level of inequality is not statistically significantly higher than the England median inequality, it is very close to being so.

For some areas of Bolton, the proportion is more than twice the borough average. Some of these areas fall within parts of Bolton

Smoking during pregnancy

In Bolton 17.3% of mothers were regular smokers at the time of delivery of their baby; this is higher than the proportion seen nationally (13.2%). In Bolton, smokers in pregnancy have been reducing over recent years and this is in line with decreases in the smoking prevalence in Bolton as a whole.

Prevalence of smoking during pregnancy is generally associated with socioeconomic disadvantage. In addition, younger women are more likely to smoke than older age groups, with around 45% of teenage mothers smoking at time of delivery. There is a strong association between maternal smoking and sudden infant death (SUDI), and local data indicates maternal smoking in over 80% of SUDI cases.

Breastfeeding

In Bolton 67.6% of maternities initiate breastfeeding, and this falls to 36.0% for infants totally or partially breastfed as a percentage of all infants due a 6-8 weeks check.

Bolton has higher breastfeeding rates at both initiation and at 6-8 weeks than is average for the North West region, but the Bolton prevalence is much lower than the national average in both cases. Over recent years, breastfeeding initiation has been increasing but prevalence at 6-8 weeks is more static locally, regionally, and nationally.

In Bolton there persists an inequality gradient between the most and least deprived fifths of the population with breastfeeding at initiation and 6-8 weeks significantly higher for the least deprived. This inequality translates across the geography of Bolton with the more deprived predominantly White British areas having a lower prevalence of breastfeeding (Breightmet, Farnworth etc.).

The highest levels of breastfeeding at discharge are displayed in the least deprived areas of Bolton. The deprived areas with relatively high levels of breastfeeding at discharge have a significant BME population. There is a noticeable difference between Bolton's two dominant BME populations with just 60% of Pakistani mothers breastfeeding at discharge from hospital compared to 90% of Bolton's Indian mothers.

Vaccination and immunisation

Bolton generally performs well in terms of immunisation programmes for young children and has a higher uptake than seen nationally. Child immunisation coverage as a whole is typically between 90% and 100% and so the difference between small areas of Bolton is not often significant.

Key JSNA Indicator Sheets

CHILD AND MATERNAL HEALTH: Infant mortality

CHILD AND MATERNAL HEALTH: Perinatal mortality

CHILD AND MATERNAL HEALTH: Low birth weight births (<2,500 grams)

CHILD AND MATERNAL HEALTH: Breastfeeding

CHILD AND MATERNAL HEALTH: Childhood Immunisation

Current services in relation to need

All pregnant women should access maternity services for a full health and social care assessment by 12 weeks and 6 days of their pregnancy, enabling them to be offered important ante-natal screening and support during pregnancy. A local Antenatal and Newborn Screening Board has been established to oversee the commissioning, coordination and quality assurance of local screening programmes.

A personalised maternity plan is developed to help improve the experiences and outcomes for both the mother and child. Health inequalities should be reduced by focusing on the vulnerable and socially excluded through targeted outreach programmes.

Early access to services is a useful indicator to promote service accessibility. In Bolton 93.3% of pregnant women access maternity services for a full health and social care assessment by 12 weeks and 6 days of their pregnancy; this is a higher proportion than the North West (83.3%) and England (84.0%).

The National Nursing Research Unit[3] reports that a higher number of midwives FTE (full time equivalent) per birth are associated with a lower probability of readmission. In 2010/11 96.2% of all births to Bolton women occurred at the Royal Bolton Hospital and there were 32.5 deliveries per midwife. The Royal College of Midwifery (RCM) cites a required ratio of one midwife (FTE) for every 28 hospital births (and one midwife (FTE) for every 35 home births). The National Nursing Research Unit also points to how a higher ratio of obstetric and gynaecology consultants to midwives is associated with a lower probability of readmission. For the majority of Bolton births (those at Royal Bolton) there were 176.4 deliveries per consultant, 5.4 midwives per consultant, and there were 40 hours of consultant presence required on the ward (the suggested number of hours for maternity units with less than 5,000 births per annum). Looking ahead, when future data is released

[3] National Nursing Research Unit (2013)
http://www.kcl.ac.uk/nursing/research/nnru/index.aspx

there will likely be more than 5,000 births per annum at the Bolton unit as it now includes Bury and Salford births.

A pregnant woman may be referred to maternity services through various pathways including Accident and Emergency and referrals from GPs and obstetricians. In Bolton, the rate of A&E attendances where there is a pregnancy complication is 27.1 per 1,000 A&E attendances by women aged 15-44 years. This is much higher than the equivalent rate nationally of 13.4 per 1,000 attendances. The rate in Bolton has increased over recent years. In Bolton 15.2% of obstetric admissions were recorded for reasons other than delivery compared to 9.8% across England as a whole. This has been slowly reducing over recent years.

Regarding antenatal activity 46.9% of mothers received 1-6 antenatal check-ups in Bolton, 26.5% had 7-9 check-ups, and 18.1% had 10-14 check-ups (no check-ups 1.2%; 15 or more check-ups 7.3%). Women resident in Bolton have on average 1.13 follow-ups for every first outpatient attendance requiring an antenatal appointment. The follow-up rate is higher in England as whole at 2.45.

The reasons for stillbirth are complex and varied. As well as individual characteristics of the woman (weight/age etc.) outcomes may be influenced by the quality of the maternity service. In 2010 the stillbirth rate in Bolton was 5.4 per 1,000 total births; this compares to 5.1 per 1,000 total births for England. The stillbirth rate per consultant obstetrician and gynaecologist FTE in Bolton is 0.25 per 1,000 total births per consultant which compares to 0.14 per consultant obstetrician and gynaecologist in England.

Many women who are low risk still attend hospital to give birth; evidence suggests that home births are as safe as hospital births for low risk women. In Bolton 1.9% of births are non-hospital births which is lower than the national proportion of 2.7%. This proportion has been steadily reducing in Bolton over recent years.

Risks to the mother and child are lower during a normal vaginal delivery. Compared to women experiencing vaginal birth, women undergoing caesarean sections have twice the risk of severe maternal morbidity and five times the risk of antibiotic treatment. Babies are twice as likely to experience a stay of seven days or more in a neonatal intensive care unit, and have twice the risk of neonatal morbidity up to the time of discharge from hospital. In Bolton 21.8% of deliveries are caesarean sections; whilst it may be difficult to change the level of caesarean section required by medical intervention, elective caesareans may be easier to influence and in Bolton 8.4% are elective compared to 10.1% in England as a whole.

Mothers in Bolton have an average length of stay at delivery of 2.1 days which is lower than the North West (2.4 days) and just lower than England (2.2 days).

A series of recent national reviews[4] [5] [6] have sets out a new vision for tackling child poverty and enhancing the life chances of every child, by investing in the 'Foundation Years', prevention and early intervention, an approach that includes all early years policy (pregnancy to five). Key strands of this approach include support for parents in their parenting role (with access to parenting courses ante-natally and for all new parents), support for a good home learning environment, affordable graduate-led childcare for disadvantaged children from age two, non-stigmatising, low cost universal provision, in addition to targeted support for families with more complex needs.

Sure Start Children's Centres continue to be at the centre of this vision, with a renewed focus on the most disadvantaged families. Children's Centres are also expected to be a hub of the local community and enhance their role in promoting parenting and nurturing skills.

The Healthy Child Programme – pregnancy to five years - is the main preventative, early intervention programme for the early years. It encompasses all aspects of early child development across the three 'prime areas' of the foundation stage: physical development; personal, social and emotional development; communication and language development. Alongside Children's Centres and family support services it also delivers the model of primary and secondary prevention recommended by Munro[7] as the key strategy to reduce the number of children at risk of suffering significant harm.

Publication of the Local Government Association's Targeting Children's Centre Services on the Most Needy Families research and the recently revised inspection framework have outlined a clear transition to coordinating universal provision and providing targeted intervention[8].

Early identification of need is a key function of universal health provision, including universal health screens and the 2.5 year development reviews.

Children's attainment, wellbeing, happiness and resilience are profoundly affected by the quality of the guidance, love and care they receive during the first years of their lives. The revised Early Years Foundation Stage identifies three prime areas of learning, including: Personal, Social and Emotional Development; Physical Development; and Communication and Language, which are critical to making sure children have the foundations for school, and introduces a progress check for every 2 year old in early education so parents and professionals can be confident children are developing well. Bolton was successful in

[4] Marmot, M. (2010) *Fair Society, Health Lives*, UCL.
[5] Field, F. (2010) *The Foundation Years: Preventing poor children becoming poor adults,* The Cabinet Office.
[6] Tickell, C. (2011) *The Early Years: Foundations for life, health, and learning,* Department for Education.
[7] Munro, E. (2011) *The Munro Review of Child Protection: Final Report,* Department for Education.
[8] Lord, P. et al (2011) *Targeting Children's Centre Services on the Most Needy Families*, National Foundation for Educational Research.

becoming a wave two payment by results trial authority, with a focus on child development and promoting school readiness. This multi-agency project developed a new Early Years Foundation Stage assessment tool 'Playing and Learning Together', for use in childcare settings and to provide information for parents.

In order to tackle the early years attainment gap and reduce social inequalities the government wants local authorities to provide free early education for the most disadvantaged two year olds. In total, approximately 140,000 two year olds will be able to benefit from an extra year of free early education from September 2013. The Government wants local authorities to consider giving places to other two year olds who may get particular benefit – especially Looked After Children and children with special educational needs and disabilities. Children who have access to high quality early education are more likely to start school ready and able to learn, with the skills they need to succeed.

Bolton already has developed partnership working through Children Centre Multi-Agency Resource Panels. The MARP process safeguards children whilst supporting improved outcomes for children and families. The three district level MARPs facilitate collaborative working between agencies to ensure an coordinated step up and step down process. This supports interventions for children and families moving between levels on the Bolton Framework For Action.

The Allen Review[9] [10] highlighted the need for selective primary prevention programmes offered to families in high risk groups. The Bolton Family Nurse Partnership is an example of an evidence-based, targeted preventative programme for young first-time mothers identified at most risk of poor health and social outcomes.

Families with additional needs also have to access Webster Stratton, Strengthening families, Strengthening Communities Triple P and Solihull parenting approaches through health, early years and children's social care services, ensuring evidence based parenting programmes support improved outcomes.

Cost-effectiveness

Pregnancy is the largest single reason for admission to hospital and for the average clinical commission group (CCG) of 250,000 people, around 3,000 women a year will use maternity services, costing around £8.6million. The cost of maternity services is expected to rise with increasing numbers of high risk and complex pregnancies. As commissioners can do little to influence the number of local women getting pregnant, they will need to work in close collaboration with their local maternity providers to ensure that services are both clinically

[9] Allen, G. (2011) *Early Intervention: The Next Steps*, The Cabinet Office.
[10] Allen G. (2011) *Early Intervention: Smart Investment, Massive Savings*, The Cabinet Office.

and cost effective. At the same time strategies to improve general population health, through changes in lifestyle and pre-conceptual advice, can improve maternal health status and improve maternity outcomes.

In Bolton 65.5% of births were normal deliveries, with 34.0% requiring medical intervention. Normal deliveries are associated with better outcomes for mother and baby. In addition, there are considerable cost savings when a mother has a normal vaginal delivery. A natural birth costs £595 on average compared to £1,415 for a caesarean section. It is not known how much consideration was given to the additional inpatient stays so the costs attributed to a caesarean section could actually be greater.

Compared to children who were breastfed in infancy, children who were not breastfed have between a 30% to 200% higher risk of chronic diseases such as diabetes and obesity. NICE believes that the NHS could save at least £5.6million over 4-5 years if breastfeeding prevalence at six months was increased by 10%.

There are also wider cost-benefits of better early years development that include lower mental health problems (including conduct disorder) and the long-term benefits of school readiness to future life chances.

Projected service use and outcomes

Population projections suggest that Bolton is in the middle of a stage of rapid growth in 0-4 year olds which will peak around 2014 at 18,200 and then fall back to current levels. Projected fertility rates show a similar pattern peaking in 2016 and then falling back to current levels by 2026. This obviously places additional burdens on local services over the next decade.

Some lifestyle factors such as obesity are expected to increase in the coming decades in the general population and so may impact on the numbers of obese women during pregnancy. Smoking is decreasing in prevalence but locally has fallen at a faster rate in men than women so will need continued focus for pregnant women.

Evidence of what works

Bolton's Health Matters has created a collection of evidence and intelligence to ensure best practice in decision within this area. To view this collection, please click here

Community views and priorities

Key areas for action were identified through the needs assessment process and stakeholder involvement (2011) including: action to tackle childhood obesity; a campaign to promote safe sleeping and reduce sudden infant deaths; action to reduce exposure to tobacco smoke

in pregnancy and the home environment; development of integrated ante-natal and preparation for parenthood programmes, particularly support for vulnerable families; the ante and post –natal support for teenage parents.

Other options highlighted for potential development include to volunteer peer support for families with young children (e.g. to support parenting or breastfeeding).

Research and consultation with local women, including BME mothers, has highlighted the need for better support for breastfeeding.

Equality impact assessments

No recent local equality impact assessments have been carried out that we are aware of. If you are aware of any such work locally please let us know at Bolton Health Matters

Unmet needs and service gaps

A number of key issues and service gaps were previously identified through the analysis of health outcomes as part of the health needs assessment process and the visit of Infant Mortality National Support Team in December 2009, as highlighted in the priority areas, (below).

The most deprived fifth of the population takes a significant and considerable burden of the infant deaths in the borough. This has been a persistent trend in Bolton. Also, there are higher rates of perinatal death to mothers of Black and Pakistani origin, mothers who book late, and mothers who are homeless or unsupported.

The NHS Institute has reviewed clinical practice and the organisation of services and has concluded that a 20% caesarean section rate is both achievable and sustainable. Bolton is currently slightly higher than this target (21.8%) but lower than the England average.

With almost a quarter of births in Bolton being to mothers born outside the UK, it is increasingly important to look beneath District-level indicators to understand the needs of the very different sub-population's that are part of Bolton's diverse ethnic and cultural make-up. Overall there has been improvement in most key indicators of maternal and early years health and wellbeing, and the focus increasingly needs to be on addressing the existing or widening within-district inequalities, including measures of school readiness.

Recommendations for further needs assessment work

Assessment and regular monitoring/analysis of the Public Health Outcomes Framework indicators linked to early years and maternal health are necessary. These are: 1.1 Children in

poverty; 1.2 School readiness; 2.1 Low birth weight births; 2.2 Breastfeeding; 2.3 Smoking status at time of delivery; 2.4 Under 18 conceptions; 2.5 Child development at 2-2.5 years; 4.1 Infant mortality.

Areas for further needs assessment include:

1. An audit of the characteristics of women who book late for antenatal care;
2. An audit of attendances of febrile/unwell infants at the Accident and Emergency Department.

Key contacts

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