

Improving Preconception Care in Lanarkshire

*Ashley Goodfellow
Public Health Specialist
NHS Lanarkshire*

September 2015

Contents

	Page
1. Acknowledgements	3
2. Executive summary	4
3. Introduction	8
4. Situation analysis	9
5. Evidence of effective interventions	10
6. Lanarkshire profile	15
7. Stakeholder views – methodology	22
8. Stakeholder views – results	24
9. Summary and conclusions	37
10. Recommendations	39
11. References	41
12. Appendices	43

1. Acknowledgements

I would like to thank all of the focus group participants and survey respondents who took the time to take part in this research and share their views and expertise on preconception care.

I would also like to thank my academic supervisors – Professor John Frank, Dr John McAteer and Professor Jean Rankin – for their time and support with this piece of work. Their knowledge and expertise has been invaluable.

2. Executive summary

2.1 Introduction

The early years of a child's life are critical in shaping future health and wider outcomes.¹ A life course approach with a focus on early years has been recognised as offering the best opportunity for preventing future health inequalities.² The Children and Young People (Scotland) Act 2014 will ensure that the *Getting it right for every child* principles are applied to the pre-birth stage; with services working with women and families to ensure positive pregnancy and birth outcomes.³ It is widely acknowledged that the health of the mother before or early in pregnancy impacts on the health of the child long after infancy.⁴

'Children in Scotland' has highlighted the negative social consequences and major financial costs to Scotland of unsuccessful pregnancies and poor birth outcomes.⁵ Much of this harm is preventable, therefore this is a key area for preventative spending. A two-step approach to preconception care is suggested; (1) improve preconception health for all women of childbearing age, regardless of risk and (2) target women at highest risk, whether medical or social.⁴

The aim of this situation analysis is to understand the current situation in relation to preconception health and care in Lanarkshire and make recommendations for improvement.

2.2 Evidence of effective interventions

A range of preconception care interventions are available, some with a more robust evidence base than others. Folic acid supplementation, weight management and smoking cessation interventions have been shown to be effective in the preconception period, if delivered at the appropriate intensity and duration. Evidence in relation to interventions to reduce or abstain from alcohol consumption prior to or during pregnancy is limited. There is good evidence of interventions to reduce drug misuse but a lack of evidence in relation to the benefits of screening in the preconception period. Limited evidence shows that there is benefit in screening for gender-based violence and intervening prior to conception. The efficacy of vaccines recommended in the preconception period is undisputed, however, evidence in relation to how best to ensure uptake in eligible women was lacking. In addition, there was a lack of evidence on screening and interventions for mental health in the preconception period, other than for women with a pre-existing mental health condition.

2.3 Lanarkshire profile

In Lanarkshire, women of childbearing age make up 19% of the population, many living in areas of deprivation. Rates of perinatal, neonatal and infant deaths are higher in North Lanarkshire which has higher levels of deprivation than South Lanarkshire. Uptake of folic acid supplements prior to conception is poor and is impacted by deprivation, low maternal age and lack of understanding about the importance of folic acid. Maternal obesity is higher in Lanarkshire than in Scotland as a whole (19.7% compared to 18.1% respectively) and is likely to have impacted on Lanarkshire's increasing rates of induction, caesarean section, postpartum haemorrhage and large for gestational age babies. Again, maternal obesity is associated with increasing deprivation. Almost one fifth of women in Lanarkshire are current smokers at the antenatal booking visit. Smoking in pregnancy is associated with premature birth (around 7% in Lanarkshire) which adversely affects the health of the baby. Many

women consume alcohol before pregnancy and some whilst pregnant. No data were available on the incidence of foetal alcohol spectrum disorder (FASD) but this is likely to be a significant and growing public health issue. Drug misuse in pregnancy is higher in deprived areas. No data were available on gender-based violence or uptake of relevant vaccines. However, over time, the number of babies born to Hepatitis B infected mothers has reduced.

2.4 Stakeholder views

A mixed methods approach for data collection was applied to obtain the views of stakeholders on preconception care. Qualitative focus group research was used to gather the views of a range of professionals working with women of childbearing age – GPs, practice nurses, health visitors, family nurses, guidance teachers and youth workers. In addition to the focus group research, an online questionnaire survey was undertaken with community pharmacists which provided both quantitative and qualitative data for analysis.

Key areas for focus group discussion included:

- Current delivery of preconception care interventions
- Awareness of the importance of preconceptual health
- How effectively interventions are delivered in relation to:
 - Coverage - do we get preconception care messages/interventions to the right people at the right time?
 - Provider compliance - do we provide accurate and consistent information?
 - Individual compliance – do individuals adhere to or act upon advice and interventions?
- What are the challenges, solutions and areas for future action?

Six focus groups (27 participants) were conducted and the community pharmacy survey yielded a response rate of 20% (28/143 pharmacies). Focus group transcripts were analysed by two researchers using a thematic approach.

Three key themes were identified from focus group transcripts across the professional groups in relation to preconception care. These were:

1. Current delivery of preconception care – good practice and areas for improvement,
2. Challenges in relation to the delivery of preconception care, and
3. Solutions to improve the delivery of preconception care.

The research showed a range of good practice in the delivery of preconception care interventions although practice was not consistent across and between professional groups. The Family Nurse Partnership (FNP) programme in particular had many identified strengths. Improvements were identified across all professions and better alignment with the evidence base is required. Challenges in improving preconception care were identified and included: a lack of awareness of what preconception care is and why it is important; levels of unplanned pregnancy; professional knowledge, capacity and consistency of practice; and individual's seeking and acting upon preconception care advice.

Improving preconception care in Lanarkshire requires action across professions and settings and a range of solutions were identified by focus group and survey participants. In terms of coverage, building on the Curriculum for Excellence, better communication and focused

interventions with the target group, and capitalising on existing opportunities for preconception care were all identified as areas for improvement. Enhanced training and awareness sessions for professionals to improve knowledge and consistency of practice is essential, as is ensuring equitable service provision and targeting services to need. A number of solutions were identified to improve individual compliance with interventions, mostly centred around increasing awareness through a range of marketing methods and using learning tools, teaching methods and 'incentives' which have demonstrated positive impact. Support for parents and the wider family should be provided so that they are enabled to support future parents in making informed decisions about health, relationships and parenting.

2.5 Recommendations

Coverage

- **The school curriculum needs to be reviewed in line with the forthcoming Pregnancy and Parenthood in Young People Strategy to ensure it is fit for purpose in order to meet young people's needs.** This is with a view to delivering a coherent programme which prepares young people with the knowledge and skills for future parenthood rather than simply prevention of pregnancy. Existing curricular resources can be built upon. Consideration needs to be given to young people who are disengaged from education.
- **NHS Lanarkshire and partners need to increase awareness of preconception care across all appropriate settings using a range of communication and marketing methods.** This would benefit from being part of a wider communication programme which highlights the role of the NHS in preventative healthcare.
- **The revised universal pathway for health visiting in Scotland needs to specifically include preconception care at around 12 months postnatal,** with supporting anticipatory guidance.
- **NHS Lanarkshire needs to explore all existing opportunities for preconception care across professions.** This includes:
 - Contraceptive reviews, removal of contraceptive implants, cervical smears and the mothers postnatal review (GPs and practice nurses)
 - Administration of HPV vaccines and other school-based activity (school nurses)
 - Sexual health and family planning services
 - Healthspots
 - Learning Hubs and activity agreements (youth workers)
 - Availability of preconception care in community pharmacies.
- **NHS Lanarkshire and partners need to explore available opportunities to promote key preconceptual health messages across settings** such as further education establishments and workplaces.

Provider compliance

- **NHS Lanarkshire needs to deliver training on preconception care to both health and non-health professionals** to raise awareness of key messages and promote consistency of practice. E-learning opportunities will be explored and the availability of supporting materials.
- **Health visitors require training and support in health behaviour change.** NHS Health Scotland has developed a Health Behaviour Change Competency Framework and associated e-learning materials.
- **NHS Lanarkshire needs to explore how mental wellbeing and identification and treatment of mental health problems in the preconception and interconception period can be better supported.**
- **NHS Lanarkshire needs to make available evidence-based postnatal weight management interventions for women** in preparation for subsequent pregnancies and to reduce rising levels of pregnancy and birth related complications.
- **NHS Lanarkshire needs to identify what is required to better prevent and diagnose risk of foetal alcohol spectrum disorder prior to conception.**

Individual compliance

- **The principles, tools and facilitators employed in FNP need to be adopted for use across health visiting practice.**
- **Targeted preconception care interventions for vulnerable groups of young people will be explored.** This may include focused sessions by youth workers and Home School Partnership and a 'health day' for young men and women.
- **The development and use of peer education in preconception care will be explored** in line with the evidence base.
- **Parent education materials for preconceptual health and parenting are required** to support positive family influences and role models.

3. Introduction

The early years of a child's life are critical in shaping future health and wider outcomes.¹ National policy now supports a shift in focus to prevention and early intervention in the earliest years, from pre-birth onwards. The Early Years Framework sets out the need for change from crisis management to prevention, early identification of need and early intervention through progressive universalism.¹ It highlights the value of healthy pregnancies, positive parenting and home learning environments, and quality pre-school and school provision. The Framework emphasises the importance of the wider determinants of health on future outcomes, including poverty, employment and living environments. It makes the case for long-term collaborative and multifaceted efforts to improve outcomes for children and families as the economic costs of not doing so are burdensome.¹

Moreover, a life course approach with a focus on early years has been recognised as offering the best opportunity for preventing future health inequalities.² A recent Health Inequalities Policy Review concluded that addressing health inequalities requires action across three levels – fundamental (lack of power and money), wider environmental (quality of work, housing and education) and individual (experiences, risks and lifestyle).² At the individual level, a focus on early child development is emphasised, targeting those at risk and providing tailored support for those with the greatest need. The Review highlights the increasing demands on public services of deprivation and low aspiration and states that around 40% of current spending is on interventions that could have been avoided by prioritising a preventative approach.²

The Children and Young People (Scotland) Act 2014 places the *Getting it right for every child* (GIRFEC) approach on a statutory footing by putting children and young people at the centre of planning and service delivery.³ It ensures children's rights are respected and a holistic and partnership approach is taken to supporting, safeguarding and promoting the wellbeing of children and families. These principles apply to the pre-birth stage, working with women and families to ensure positive pregnancy and birth outcomes.

It is widely acknowledged that the health of the mother impacts on the health of the child long after infancy.⁴ Many interventions can improve mother and child health outcomes if delivered before pregnancy or early in pregnancy. Preconception care is defined as 'a set of interventions that aim to identify and modify biomedical, behavioural and social risks to a woman's health or pregnancy outcome through prevention and management, emphasizing those factors that must be acted upon before conception or early in pregnancy to have maximal impact'.⁴ The goal of preconception care is to promote the health of women of childbearing age *before* conception and thereby improve pregnancy-related outcomes. Preconception care is not a single visit but a continuum of care before a first pregnancy and between pregnancies (interconception). 'Children in Scotland' has highlighted the negative social consequences and major financial costs to Scotland of unsuccessful pregnancies and poor birth outcomes.⁵ Much of this harm is preventable, therefore this is a key area for preventative spending. As highlighted previously, risk and burden of disease is unequally distributed with a small number of women experiencing the majority of pregnancy-related morbidity and mortality. Therefore a two-step approach to preconception care is suggested; (1) improve preconception health for all women of childbearing age, regardless of risk and (2) target women at highest risk, whether medical or social.⁴ The National Institute for

Health and Care Excellence (NICE) recognise that preconception care is important for a healthy pregnancy and can be achieved by:

- Optimising the management of chronic maternal health problems e.g. diabetes
- Providing lifestyle advice to avoid behaviours which are hazardous to pregnancy e.g. smoking, obesity
- Providing advice to optimise the health of mother and baby e.g. folic acid supplementation
- Identifying couples who are at increased risk of having a baby with genetic or chromosomal malformation and supporting them to make informed decisions e.g. Down's syndrome.⁶

4. Situation analysis

A situation analysis is an assessment of the current situation in relation to a specific issue.⁷ It involves identifying what is known about the issue and the epidemiology of the health outcome, its determinants and associated risk factors. A review of current interventions, their effectiveness and cost is included as well as identification of gaps in service provision. A review of the scientific literature is undertaken to establish which interventions are likely to be effective. In addition, consultation with key stakeholders may be used to complement routine and primary quantitative and qualitative data.⁷ Similar to health needs assessment, the process identifies unmet health and healthcare needs and supports improved service planning, priority setting and policy development.

The aim of this situation analysis is to understand the current situation in relation to preconception health and care in Lanarkshire and to make recommendations for improvement.

Objectives:

- To review the scientific literature in order to identify effective preconception care interventions
- To define the size and nature of the problem in relation to pregnancy and birth outcomes and related risk factors
- To provide an overview of current service provision in Lanarkshire and how well this works
- To gather the views of key professionals working with women of childbearing age on current and future delivery of preconception care
- To make recommendations to improve preconception health and care in Lanarkshire.

5. Evidence of effective interventions

A range of evidence was reviewed to establish the efficacy of interventions to improve preconception care. Relevant evidence was found by searching the US Preventive Services Task Force evidence-based recommendation statements (based on systematic reviews) and the Cochrane database of systematic reviews. A number of individually authored systematic reviews were also identified. Evidence-based guidance on preconception care was included from NICE public health guidance and clinical knowledge summaries.

Most of the evidence is from studies of women aged 18 years and over, therefore there is a need for caution when considering how it might apply to younger women. It is difficult to formulate recommendations for adolescents.

5.1 Folic acid

Consistent evidence of effectiveness was found in relation to folic acid supplementation before and during pregnancy in reducing the risk of neural tube defects (NTDs).^{8,9,10} Folate is necessary for the regulation of DNA synthesis and function and is thought to affect important events in embryogenesis that may lead to NTDs.¹⁰ A daily supplement of 400 micrograms of folic acid from one month prior to conception through the first trimester of pregnancy is recommended.^{6,10} A higher dose of folic acid (5 milligrams) is recommended for women at higher risk of having a baby with a NTD, including, those with a previous pregnancy affected by NTD, a family history of NTD, those taking anti-seizure medication, diabetics and women with a BMI of 30 or more.^{6,10} Folic acid supplementation is not associated with any serious harm at usual doses.¹⁰ The US Preventive Services Task Force (USPSTF) recommends that all women planning pregnancy should receive folic acid supplementation as there is a high certainty of substantial benefit. Moreover, given the level of unplanned pregnancy, they also recommend that all women *capable* of pregnancy should receive folic acid supplementation.¹⁰ In terms of intervention, intensive group education about folic acid supplementation was found to be more effective than brief advice on the subject.¹¹ Provision of folic acid supplements along with advice was more effective than advice alone.⁹ Food fortification and public information campaigns were also deemed effective.⁹ NICE recommend that every appropriate opportunity be used to advise women who may become pregnant to take folic acid supplements at the recommended level before pregnancy until 12 weeks' gestation to reduce risk of NTDs. Women should also be advised to eat foods rich in folate and folic acid. Women planning pregnancy who are at higher risk should be prescribed 5 milligrams of folic acid.¹²

5.2 Maternal obesity

Maternal obesity (defined as a BMI ≥ 30 kg/m² at first booking appointment) increases the risk of adverse pregnancy and birth outcomes. Complications during pregnancy and birth include: impaired glucose tolerance; gestational diabetes; miscarriage; pre-eclampsia; thromboembolism; maternal death; need for induction and longer labour; instrumental delivery; caesarean section; and postpartum haemorrhage. Maternal obesity increases the likelihood of giving birth to a larger baby as well as higher risk of foetal death, stillbirth, congenital abnormality, shoulder dystocia and subsequent obesity.^{6,13} NICE recommend weight loss prior to conception and following childbirth; weight loss during pregnancy is not advised as this can be harmful to the developing foetus.¹³ Women who return to their pre-

pregnancy weight by around six months postnatal have lower risk of being overweight 10 years later.¹⁴ Therefore, postnatal weight loss interventions can play a role in preventing future maternal obesity. Evidence suggests that all adults (18 years and over) should be screened for obesity as there is high certainty of moderate benefit/moderate certainty of substantial benefit. All those with a BMI of 30 or over should be offered referral for intensive, multicomponent intervention.¹⁵ Weight loss of 5-10% body weight is deemed realistic and beneficial.¹³

A population approach to weight loss is recommended as many pregnancies are unplanned. Weight loss interventions for women before and after pregnancy are based on those proven effective for the whole population.¹³ There is a lack of evidence on appropriate intervals for obesity screening and the direct effects of screening on long term weight and health outcomes.¹⁵ Evidence shows that obesity interventions are effective in terms of weight loss and improving cardiovascular risk factors, such as glucose tolerance, blood pressure and waist circumference. However, there is inadequate direct evidence of effectiveness on long term health outcomes.¹⁵ Effective interventions should be person-centred, sensitive, address barriers to behaviour change, include self-monitoring and goal setting and expect weight loss of no more than 0.5-1 kilogram per week.^{13,15} Weight loss is increased with higher intensity interventions with a higher number of sessions (12-26 in the first year) and interventions show the most significant weight loss at 12-18 months duration.¹⁵ Interventions should include both diet and physical activity components. Evidence from a 2013 Cochrane review found that both diet and exercise together and diet alone helped women to lose weight following childbirth.¹⁴ A combination of diet and exercise was preferable as this also improved maternal cardiorespiratory fitness and preserved fat free mass. Exercise alone had little or no effect on weight loss. Interventions did not affect breastfeeding performance. Medication use was not recommended for weight loss as there was a lack of evidence of improvement following discontinuation.¹⁵ Obesity screening and interventions were not associated with any significant harm.¹⁵ Adherence to weight loss programmes requires considerable effort and further research is needed to establish women's satisfaction and compliance with weight loss programmes.

5.3 Smoking

Smoking whilst pregnant increases the risk of miscarriage, premature birth, intrauterine growth restriction (IUGR), perinatal and infant death.^{6,16} All adults should be asked about tobacco use and cessation services offered to those who smoke as there is a high certainty of substantial benefit.¹⁶ Women who are planning pregnancy and who may become pregnant should be advised to stop smoking and referred to cessation services, initially without use of Nicotine Replacement Therapy (NRT). The risk of this nicotine exposure to the foetus has not been established and is avoided if the woman can stop without using NRT. If those who may become pregnant are unable to stop with counselling alone, then NRT can be offered.⁶ Bupropion and Varenicline should not be prescribed as there is a lack of evidence regarding their safety during pregnancy.

There is a lack of evidence on the impact of preconception-specific smoking cessation interventions on pregnancy outcome, although some studies were deemed effective in terms of reduced smoking rates.^{8,9} In adults generally, there is convincing evidence that interventions (behavioural counselling and pharmacotherapy) are effective for smoking cessation.¹⁶ More intensive interventions (more or longer sessions) were most effective,

resulting in higher quit rates. Quit rates appear to plateau at 90 minutes of total counselling contact time.¹⁶ A combination of behavioural counselling and pharmacotherapy was more effective than either intervention alone. No harms were associated with behavioural counselling and minimal risk of harm was associated with pharmacotherapy.¹⁶

5.4 Alcohol

Alcohol use in pregnancy can increase the risk of miscarriage, preterm birth, low birth weight and foetal alcohol spectrum disorder (FASD).^{17,18} FASD is the most important cause of serious developmental delay and disability in developed countries and is characterised by pre and postnatal growth restrictions, facial anomalies and central nervous system dysfunction. Incidence of FASD is estimated at around 9 per 1,000 live births.¹⁸ It is estimated that more than 20% of pregnant women worldwide consume alcohol (although this may be higher in the first trimester before pregnancy is recognised). Evidence suggests that seven or more standard drinks per week in pregnancy places the baby at risk of serious lifelong developmental and cognitive disabilities.¹⁸ There is uncertainty and confusion about a safe level of alcohol consumption in pregnancy. There is no evidence of harm to the infant when mothers have consumed 1-2 units per week.⁶

It is recommended that women who are pregnant, planning pregnancy or may become pregnant avoid drinking alcohol. Recommendations should apply to women planning a pregnancy or those who may become pregnant given many women are unaware of pregnancy in the early stages.⁶ If women choose to drink, risk should be minimised by drinking no more than 1-2 units of alcohol once or twice per week and women should not binge drink.⁶ Women should be offered support to reduce alcohol consumption to recommended limits if required. Specialist referral should be offered if a woman is unable to reduce consumption with support in primary care. Screening for alcohol misuse in all adults (18+ years) is recommended and those with risky drinking behaviours (i.e. drinking more than the recommended limits) referred for intervention, as there is high certainty of moderate benefit/moderate certainty of substantial benefit.¹⁷ There is sufficient evidence that a range of screening tools are effective in detecting alcohol misuse but a lack of evidence in relation to optimal intervals for screening.¹⁷

There is evidence to show that behavioural counselling interventions are effective in risky drinkers.^{9,17} Interventions reduced weekly consumption rates and increased compliance with recommended limits. There is limited and inconsistent evidence of effectiveness of psychological or educational interventions in pregnant women to encourage abstinence.^{17,18} Evidence suggests that multi-contact behavioural counselling (of 6-15 minutes duration) was most effective. Single contact interventions (of less than 5 minutes) had limited effect.¹⁷ Further evidence is needed to demonstrate the effect of interventions on long-term maternal and infant health outcomes. The harms associated with screening and intervention for alcohol misuse was deemed small. The safety of pharmacological interventions in pregnancy has not been demonstrated.¹⁸

5.5 Drug misuse

No illegal drugs are safe for use in pregnancy. Cocaine use is associated with premature birth, low birth weight, smaller head circumference, intracerebral haemorrhage and behavioural problems. The impact of opioid use is confounded by poor diet and smoking but

includes low birth weight, IUGR and infant distress due to withdrawal.⁶ There is fair evidence of improved health outcomes when drug use is stopped or reduced.¹⁹ Women planning pregnancy should be advised to stop drug use if they are able or referred for support if they are unable to stop on their own. Contraceptive advice should be offered to those misusing drugs that may become pregnant. Injecting drug users should be offered tests for Hepatitis B and C and HIV.⁶

There is inconclusive evidence to assess the benefits and harms of screening for drug misuse in adolescents, adults and pregnant women and referring asymptomatic individuals. Most trials involved patients who had already developed problems due to drug use so it is not known if findings are generalisable to those whose drug use is detected through screening.¹⁹ There are valid and reliable screening tools available but their widespread use in clinical settings has not been evaluated. In terms of treatment, there is good evidence of the effectiveness of interventions on reducing drug use. The impact of interventions on long-term outcomes is not known as follow-up is rarely longer than six months.¹⁹ There is no evidence of harm associated with screening or interventions.

5.6 Gender-based violence

One systematic review was identified on intimate partner violence (IPV) and preconception care. IPV can result in a range of health consequences including unintended pregnancy, sexually transmitted infections, substance abuse and chronic mental health conditions. IPV in pregnancy is associated with preterm birth and low birth weight.²⁰ It is recommended that all women of childbearing age are screened for IPV and provided with/referred for intervention if screened positive as there is high certainty of moderate benefit/moderate certainty of substantial benefit.²⁰ Women who are not pregnant may be screened at obstetrics/gynaecology appointments, family planning or preconception care visits. There is adequate evidence to show that available screening tools can identify current and past abuse and increased risk of future abuse, although there is no evidence to define appropriate screening intervals.²⁰ Evidence from randomised controlled trials (RCTs) supports use of a range of interventions including counselling, home visits, information cards, referral to community services and mentoring. There was adequate evidence to show that effective interventions can reduce violence, abuse and physical or mental harms for women of childbearing age.²⁰ Interventions have a dose-response effect; the more intensive the more effective. The harms of screening and intervention were deemed to be small.

5.7 Vaccination

The NICE Clinical Knowledge Summary on preconception care sets out the recommendations for vaccination prior to conception. All women who may become pregnant should be vaccinated for Rubella if they have no existing immunity. Pregnancy should be avoided for one month thereafter as the Rubella vaccine is a live vaccine. Maternal immunity to Rubella prevents infection which can lead to a range of birth defects known as Congenital Rubella Syndrome (characterised by eye problems, deafness, heart abnormalities and brain damage).⁶

Women should be vaccinated for Varicella (chickenpox) prior to conception if they have no existing immunity and are eligible. Eligible groups include healthcare workers in direct contact with infected patients or those who are close contacts of immunosuppressed

individuals. Varicella infection can result in Congenital Varicella Syndrome, foetal damage due to herpes zoster and severe or fatal disease in the neonate.⁶

Women at risk should be vaccinated against Hepatitis B if planning or at risk of pregnancy. High risk groups include intravenous drug users, those who frequently change their sexual partners, those with chronic renal or liver disease and those in close contact with people with Hepatitis B (e.g. healthcare workers, prisoners, those travelling to/residing in areas of high prevalence).⁶

5.8 Mental health

Limited evidence was available on preconception care and mental health. The NICE Clinical Guideline 192 - Antenatal and postnatal mental health: clinical management and service guidance²¹ sets out recommendations for women of childbearing age during the preconception period but this is limited to those already identified as at risk and/or under the care of mental health services.

Depression and anxiety are the most common mental health problems in pregnancy with around 12% of women experiencing depression and 13% experiencing anxiety. Depression and anxiety also affect 15-20% of women in the first year following childbirth (and the interconception period).²¹ Mental health problems can often go unrecognised and untreated during pregnancy and postnatally.

In terms of preconception care, NICE recommend that a discussion takes place with all women of childbearing age who have a new, existing or past mental health problem about;

- The use of contraception and plans for pregnancy
- How pregnancy and childbirth might affect a mental health problem and risk of relapse
- How a mental health problem and its treatment might affect the woman, foetus and baby
- How a mental health problem and its treatment might affect parenting.²¹

Women of childbearing age should not be offered Valproate for acute and long term mental health problems due to the risk of foetal malformations and adverse neurodevelopmental outcomes.²¹ When prescribing psychotropic medication for women of childbearing age, the latest data on risks to the foetus and baby should be accounted for. If women planning pregnancy have a current or past severe mental health problem, they should be referred to a secondary mental health service for preconception counselling (preferably a specialist perinatal mental health service).

6. Lanarkshire profile

The data in this section of the report illustrate a number of key risk factors in the preconception period that, if improved, would positively influence pregnancy and birth outcomes that are increasingly prevalent and which disproportionately affect those living in the most deprived areas.

In 2013, Lanarkshire had a population of 572,300 made up of two coterminous local authority areas – North Lanarkshire and South Lanarkshire. The median age of the population was 41 years. There were 109,505 women aged between 15 and 44 years (around 19% of the population). Lanarkshire had 18.2% of its datazones in the 15% most deprived datazones in Scotland (SIMD 2012) compared to 15% nationally. This equated to 101,982 of the Lanarkshire population living in the 15% most deprived datazones in Scotland.²²

6.1 Births

Births, perinatal deaths, neonatal deaths and infant deaths in Lanarkshire (2011-2013) are presented in Table 1 below.

		CHP		Lanarkshire CHPs	NHS Lanarkshire	Scotland
		North	South			
Live births	No.	3824	3383	7207	6238	57544
	Rate ¹	56.4	56.9	56.6	56.0	54.7
Stillbirths	No.	14	13	28	24	269
	Rate ²	3.7	3.9	3.8	3.9	4.7
All births (live and still)	No.	3838	3396	7234	6263	57813
	Rate ¹	56.6	57.1	56.8	56.2	55.0
Perinatal deaths ³	No.	24	18	41	37	372
	Rate ²	6.2	5.2	5.7	6.0	6.4
Neonatal deaths ⁴	No.	12	7	19	17	146
	Rate ⁵	3.1	2.1	2.6	2.7	2.5
Infant deaths ⁶	No.	16	8	24	22	214
	Rate ⁵	4.3	2.4	3.4	3.6	3.7

Source: NHS Lanarkshire Public Health 2013/14: The Annual Report of the Director of Public Health

1 Rate per 1,000 women aged 15-44.

2 Rate per 1,000 births.

3 Stillbirths and deaths in the first week of life.

4 Deaths at ages under 28 days.

5 Rate per 1,000 live births.

6 Deaths during the first year of life.

Stillbirths in NHS Lanarkshire continue to decrease (from 24 in 2012 to 20 in 2013) and this is lower than that of the national average, 3.9/1000 compared to 4.7/1000 respectively.²² Numbers are small and therefore fluctuate from year to year. Other than neonatal deaths,

NHS Lanarkshire compares favourably to the Scottish average across all indicators. Infant deaths are higher in North Lanarkshire CHP than in South Lanarkshire CHP, 4.3/1000 compared with 2.4/1000 respectively. There is a similar pattern in neonatal deaths and perinatal deaths; likely exacerbated by the higher levels of deprivation in North Lanarkshire. Given the small numbers, none of these differences are statistically significant.

6.2 Pregnancy and birth risk factor and outcomes

Tables 2 and 3 present data at both Lanarkshire and Scotland levels (where available) on preconception risk factors and pregnancy and birth outcomes respectively.

Table 2: Risk factors for pregnancy and birth outcomes

Risk factor	Lanarkshire	Scotland
Folic acid intake	Data not available	40% of women sampled took supplements prior to conception cf. 79% in the first trimester. ¹
Maternal obesity	19.7% (2012/13) ² 17% unknown	18.1% (2012/13) ² 14.1% unknown
Smoking at booking	18.5% (2012/13) ²	18.4% (2012/13) ²
Drinking behaviour before and during pregnancy	Data not available	87% consumed alcohol before pregnancy and 35% consumed alcohol during pregnancy. ¹
Drug misuse in pregnancy	8.4/1000 (2010/11-2012/13) ²	19.7/1000 (2010/11-2012/13) ²
Gender based violence	Data not available	Data not available
Rubella, Varicella, Hepatitis B	Data not available	Data not available

Table 3: Pregnancy and birth outcomes

Pregnancy/birth outcome	Lanarkshire	Scotland
Neural tube defect	0.79/1000 diagnosed antenatally (2007-2011) <i>(Includes terminations, stillbirths and live births to 1 year)</i> 0.56/1000 births (2007-2011) <i>(Excluding unregistered pre-viable births)³</i>	1.02/1000 diagnosed antenatally (2007-2011) <i>(Includes terminations, stillbirths and live births to 1 year)</i> 0.55/1000 births (2007-2011) <i>(Excluding unregistered pre-viable births)³</i>
Impaired glucose tolerance	Data not available	Data not available
Gestational diabetes	Data not available	Data not available
Miscarriage (<20 weeks gestation)	3.2/1000 in women 15-44 years (2012/13) ²	4.6/1000 in women 15-44 years (2012/13) ²
Pre-eclampsia	No cases of eclampsia (2014/15) 23 caesareans due to pre-eclampsia (2014/15) ⁴	Data not available
Thromboembolism	Data not available	Data not available
Induction of labour	27.3/1000 live births (2012/13) ²	25.4/1000 live births (2012/13) ²
Instrumental delivery (forceps)	9.3/1000 live births (2012/13) ²	9.7/1000 live births (2012/13) ²
Caesarean section	16.5/1000 live births emergency (2012/13) 13.9/1000 live births elective (2012/13) ²	15.7/1000 live births emergency (2012/13) 12.8/1000 live births elective (2012/13) ²
Postpartum haemorrhage	190 ≥1.5 litres-<2.5 litres (2014/15) 38 ≥2.5 litres (2014/15) ⁴ Major obstetric haemorrhage 5.2/1000 (n=28) in Wishaw General (2012) ⁵	Major obstetric haemorrhage 5.8/1000 (n=339) (2012) ⁵
Maternal death	2 (2014/15) ⁴	10.12/100,000 UK maternities (n=243) (2010-12) ⁶
Small for gestational age (SGA)	3.7% (2012/13) ²	3.8% (2012/13) ²
Large for gestational age (LGA)	6.3% (2012/13) ²	6.2% (2012/13) ²
Shoulder dystocia	0.2% of births (n=8) (2014/15) ⁴	Data not available
Stillbirth (<20 weeks gestation)	3.9/1000 births (2011-2013) ⁷	4.7/1000 births (2011-2013) ⁷
Subsequent childhood obesity	9.0% P1 children at risk of obesity (2013/14) ⁸	10.1% P1 children at risk of obesity

		(2013/14) ⁸
Premature birth	7.1% births (n= 426) (2012/13) ²	7.3% births (n=4132) (2012/13) ²
Low birth weight	6.2% live births (n= 372) (2012/13) ²	6.4% live births (n=3568) (2012/13) ²
Foetal alcohol spectrum disorder (FASD)	Data not available	Data not available
Babies affected by maternal use of drugs	4.8/1000 live births (2010/11-2012/13) ²	5.9/1000 live births (2010/11-2012/13) ²
Small head circumference	Data not available	Data not available
Intracerebral haemorrhage	Data not available	Data not available
Behavioural problems	Data not available	Data not available
Congenital Rubella Syndrome	Data not available	Data not available
Congenital Varicella Syndrome	Data not available	Data not available
Babies born to mothers infected with Hep B	4 (2014/15) ⁴	Data not available

Sources:

¹ Infant Feeding Survey 2010

² Births in Scottish Hospitals 2014

³ Scottish Perinatal and Infant Mortality and Morbidity Report (SPIMMR) 2014

⁴ NHS Lanarkshire Clinical Quality Department 2015

⁵ Scottish Confidential Audit of Severe Maternal Morbidity (SCASMM) 2014

⁶ Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK (MBRRACE UK) 2014

⁷ NHS Lanarkshire Public Health 2013/14: The Annual Report of the Director of Public Health

⁸ Primary 1 Body Mass Index (BMI) statistics for school year 2013/14

The majority of women in Scotland take folic acid supplements in the first trimester of pregnancy but less than half (40%) take folic acid prior to conception. Data were not available for Lanarkshire however, given the number of pregnancies which are unplanned; many women may already be pregnant prior to taking folic acid supplements for the prevention of NTDs. Intake of folic acid prior to conception increased with maternal age, and intake at any point before or during pregnancy increased with decreasing deprivation. Forty-four percent of women who understood the benefits of taking a folic acid supplement took this prior to conception compared to 19% of women who were not aware of the benefits. Rates of antenatal diagnoses of NTDs are lower in Lanarkshire than in Scotland; 0.79/1000 compared to 1.02/1000. However, the rate of those born with a NTD was similar; 0.56/1000 births in Lanarkshire and 0.55/1000 births in Scotland.

Maternal obesity increases the risk of a range of poor pregnancy and birth outcomes. The proportion of pregnant women who are obese is higher in Lanarkshire than in Scotland; 19.7% compared to 18.1% respectively (although the level of incomplete data should be noted - 17% for NHS Lanarkshire). Maternal obesity increases with increasing deprivation. The key pregnancy and birth outcomes linked to this risk factor to note from the data presented in Table 3 include induction of labour, caesarean section, postpartum haemorrhage and babies born large for gestational age (LGA). In Lanarkshire, 27.3/1000 live births were induced compared to 25.4/1000 in Scotland. There is an increasing trend in induction of labour since 2009 when the rate was 18.6/1000 live births. Both the emergency and elective caesarean section rate is higher in Lanarkshire than in Scotland and is generally increasing year on year. In 2012/13, 16.5/1000 live births were to emergency caesarean section compared to 15.7/1000 in Scotland. The number of women experiencing postpartum haemorrhage is increasing in Lanarkshire from 117 in 2012/13 to 190 in 2014/15 (for blood loss ≥ 1.5 - < 2.5 litres) and from 28 in 2012/13 to 38 in 2014/15 (for blood loss ≥ 2.5 litres). Babies born out with the healthy birthweight range can be small for gestational age (SGA) or LGA. The proportion of babies born LGA is increasing and now accounts for 6.3% of births in Lanarkshire (6.2% in Scotland) and is linked to the rise in population level obesity.

Almost one fifth of women who book for pregnancy are current smokers (18.5% in Lanarkshire and 18.4% in Scotland in 2012/13). Smoking in pregnancy increases the risk of premature birth and IUGR (resulting in babies who have low birth weight or are SGA). In 2012/13, 426/5988 babies were born prematurely in Lanarkshire; 48.1% had a low birth weight (LBW) (1500-2499 grams) and 13.6% very low birth weight (VLBW) (less than 1500 grams). This compares to 45.3% LBW and 13.9% VLBW in Scotland. In Lanarkshire, 3.7% of babies were born SGA; 3.8% nationally. There are challenges associated with reducing rates of preterm birth. Even if all preconception care preventative interventions were applied (e.g. smoking cessation) the premature birth rate would only reduce by 5%. This is because in high income countries, many premature births relate to non-medically indicated caesarean delivery and labour induction, as well as an increase in assisted conception and multiple fetuses. Very little reduction is currently possible and 0% preterm birth cannot be achieved unless preventive therapies are identified that eliminate all maternal, foetal and obstetric complications.²³

The Infant Feeding Survey 2010 showed that 87% of Scottish women consumed alcohol before pregnancy (and therefore potentially during pregnancy if conception was unplanned and women were unaware of the pregnancy). Thirty-five percent of women consumed

alcohol during pregnancy. No Lanarkshire level data was available. Alcohol consumption in pregnancy increases risk of miscarriage, premature birth, LBW and FASD. Due to challenges associated with diagnosis, rates of FASD in Lanarkshire and Scotland are not available but could be contributing significantly to physical and developmental impairments.

In Lanarkshire, drug misuse was recorded in 8.4/1000 maternities, significantly lower than the national rate of 19.7/1000 maternities. However, these data should be interpreted with caution as differences are likely to be due to variable levels of recording across NHS Boards and the number of 'unknowns' (38% in NHS Lanarkshire). There appears to be an increasing trend over time in drug misuse in pregnancy but this is probably due to improved data recording over time. Higher rates were found in the most deprived areas in Scotland (28.2/1000 maternities in the most deprived compared to 7.1/1000 in the least deprived). Maternal drug misuse affects the health of the baby, including neonatal abstinence syndrome. Babies affected by maternal use of drugs was 4.8/1000 live births in Lanarkshire in 2010-13 compared to 5.9/1000 in Scotland.

No data were available on levels of gender based violence before or during pregnancy. Gender based violence can increase the risk of premature birth and LBW.

No data were available on uptake of Rubella, Varicella and Hepatitis B (Hep B) vaccination in women of childbearing age and in those in at risk groups. However, the number of babies born to mothers infected with Hep B has reduced over time in Lanarkshire from 17 in 2012/13 to 8 in 2013/14 and subsequently 4 in 2014/15. It is not clear if this is due to increased uptake of the Hep B vaccine in at risk groups or better use of contraception in this particular group of women. Given the small numbers, this is likely to fluctuate and may increase over time in relation to differences in birth cohorts and levels of risk taking behaviour.

Data presented would suggest that the focus of preventative interventions in Lanarkshire should be maternal obesity, smoking and alcohol consumption; targeting those groups more likely to be affected. More data is required on gender based violence.

7. Stakeholder views - methodology

A mixed methods approach for data collection was applied to obtain the views of stakeholders on preconception care. Qualitative focus group research was used to gather the views of a range of professionals working with women of childbearing age (see Table 4 below). Focus groups were organised by type of professional. Qualitative research aims to understand, describe and interpret social phenomena as perceived by individuals, groups and cultures.²⁴ Focus groups are a useful way of eliciting thoughts, ideas and perceptions on a specific topic from a number of people who have common characteristics or experiences.²⁴ The interaction between participants is important and allows the researcher to identify consensus and divergence about particular issues. In addition to the focus group research, an online questionnaire survey was undertaken with community pharmacists which provided both quantitative and qualitative data for analysis.

7.1 Recruitment

The professional groups participating in the focus group research were contacted through the appropriate NHS or Local Authority senior manager and provided with an information sheet about the research. Focus groups were conducted with GPs, practice nurses, health visitors, family nurses, guidance teachers and youth workers. A short PowerPoint presentation was also provided which summarised the evidence base on effective preconception care interventions. Potential participants were invited to review the information provided and volunteer to participate in a focus group if they so wished. Names were collated and a focus group organised at a suitable time and venue for participants. The online survey was distributed to all community pharmacies in Lanarkshire (n=143) and responses invited by return within four weeks. A covering letter accompanied the survey which explained the purpose of the research and encouraged pharmacists to share their views.

7.2 Data collection and management

Two focus group guides were developed to elicit information from participants; one for health professionals the other for non-health professionals. The focus group guides were only marginally different to suit the needs of the profession and workplace setting. Key areas for questioning are described below:

- Current delivery of preconception care interventions
- Awareness of the importance of preconceptual health
- How effectively interventions are delivered in relation to:
 - Coverage - do we get preconception care messages/interventions to the right people at the right time?
 - Provider compliance - do we provide accurate and consistent information?
 - Individual compliance – do individuals adhere to or act upon advice and interventions?
- What are the challenges, solutions and areas for future action?

Focus groups were digitally recorded with permission and transcribed verbatim by *1st Class Secretarial Services*. All digital recordings and electronic transcripts were kept on a NHS Lanarkshire password-protected laptop and paper copies in a locked filing cabinet in the

researcher's office. Verbatim quotations from participants used in the final report have been anonymised.

As described earlier, data were collected from community pharmacists using Survey Monkey. The survey questions were derived from the focus group guide described above and the survey was developed using the Survey Monkey web-based resource. The web-based resource also collates responses from participants in the form of an electronic report.

7.3 Data analysis

Focus group transcripts were analysed by two researchers using a thematic approach. Firstly transcripts were read thoroughly to gain a sense of the whole content of discussions and so that the researchers could become familiar with the data. For each transcript, significant statements were identified and highlighted; these were then extracted for each professional group and meanings formulated. These formulated meanings were then further categorised into theme clusters and emergent themes, under which the study findings can be described.

The survey provided quantitative data and descriptive statistics have been used to present the results. Free text responses to specific survey questions were used in the qualitative thematic analysis.

8. Stakeholder views - results

8.1 Focus groups

Six focus groups were conducted, the composition of which is shown in Table 4.

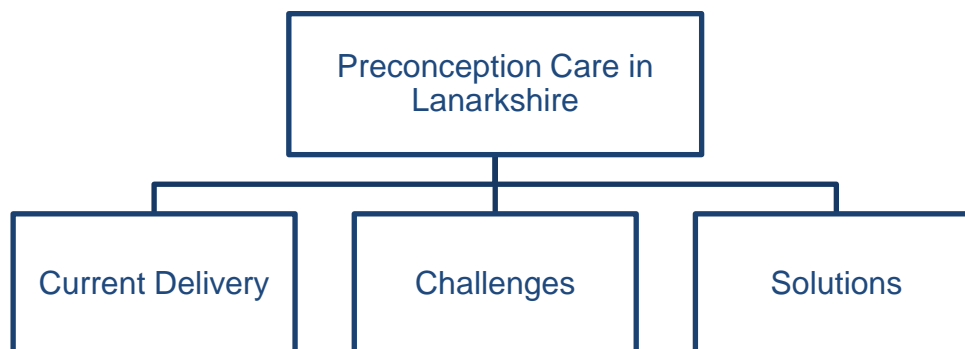
Table 4: Focus group composition

Focus group	Number of participants
GPs	7
Practice nurses	2
Health visitors	4
Family Nurses	3
Guidance teachers	3
Youth workers	8
Total	27

Three key themes were identified from transcripts across the professional groups in relation to preconception care, as shown in Figure 1. These were:

1. Current delivery of preconception care – good practice and areas for improvement,
2. Challenges in relation to the delivery of preconception care, and
3. Solutions to improve the delivery of preconception care.

Figure 1: Preconception care in Lanarkshire



8.1.1 Current delivery

Figures 2 and 3 below set out good practice in current delivery and identified areas for improvement categorised across professional groupings.

Figure 2: Identified good practice

Guidance Teachers and Youth Workers	Family Nurses	Health Visitors	GPs and Practice Nurses
<input type="checkbox"/> Existing resources in use	<input type="checkbox"/> Therapeutic relationships	<input type="checkbox"/> Alcohol brief interventions	<input type="checkbox"/> GPs deliver preconception care when removing implants
<input type="checkbox"/> Delivery is needs led	<input type="checkbox"/> Co-production in identifying solutions	<input type="checkbox"/> Smoke free homes project	<input type="checkbox"/> GPs deliver contraceptive advice to drug misusers
<input type="checkbox"/> Delivery of general health and wellbeing	<input type="checkbox"/> Brain development/attachment	<input type="checkbox"/> Routine enquiry for domestic abuse	<input type="checkbox"/> GPs provide prophylactic folic acid
<input type="checkbox"/> Good pupil-staff relationships	<input type="checkbox"/> Motivational interviewing	<input type="checkbox"/> Delivery of public health messages	<input type="checkbox"/> Practice nurses undertake contraceptive reviews for all epileptics
	<input type="checkbox"/> Self efficacy and good decision making	<input type="checkbox"/> Preconception care messages understood by health visitors	
	<input type="checkbox"/> Tools and facilitators		
	<input type="checkbox"/> Asset based approach		
	<input type="checkbox"/> Accurate and consistent messages		
	<input type="checkbox"/> Clients responding to advice and support		
	<input type="checkbox"/> Father's role is developed		

Figure 3: Areas for improvement

Guidance Teachers and Youth Workers	Family Nurses	Health Visitors	GPs and Practice Nurses
<ul style="list-style-type: none"> <input type="checkbox"/> Review of how preconception care is delivered to young people <input type="checkbox"/> Clear linkage of health and wellbeing to preconception care <input type="checkbox"/> Coherent approach to delivery of preconception care <input type="checkbox"/> Roles and responsibilities of teaching team <input type="checkbox"/> Strengthen programmes by accessing other services 	<ul style="list-style-type: none"> <input type="checkbox"/> Adopt existing good practice for mainstream use <input type="checkbox"/> Identification of and support for mental health issues 	<ul style="list-style-type: none"> <input type="checkbox"/> Clearer messages regarding safe use of alcohol <input type="checkbox"/> Extension of smoke free homes to all areas <input type="checkbox"/> Improved uptake of vitamin supplements postnatally <input type="checkbox"/> More structured delivery of preconception care <input type="checkbox"/> Improved focus on maternal health and wellbeing <input type="checkbox"/> Structured approach to addressing maternal obesity postnatally <input type="checkbox"/> Support for health visitors to address behaviour change 	<ul style="list-style-type: none"> <input type="checkbox"/> Utilise every opportunity to deliver preconception care <input type="checkbox"/> Integrate preconception care into routine practice <input type="checkbox"/> Link healthy lifestyle advice to preconception care <input type="checkbox"/> Ensure women are aware that they can seek preconception care advice

In terms of good practice, secondary school guidance teachers and youth workers had the most opportunity to work with young people prior to conception. Existing resources were in use across both denominational and non-denominational schools which were felt to be appropriate in terms of standard and content. The Scottish Catholic Education Service 'Call to Love' programme was delivered in denominational schools and includes elements of planning for a healthy pregnancy. Non-denominational schools were generally using NHS Lanarkshire curricular resources on sexual health, relationships and parenthood. General health and wellbeing was delivered through Personal, Social and Health Education (PSHE). However, the importance of these was not specifically linked to the preconception period. Guidance teachers felt that good staff-pupil relationships facilitated engagement in and open discussion about health-related topics. Delivery of health issues by youth workers was needs-led and responded to issues raised by young people themselves. Guidance teachers and youth workers identified areas for improvement of current delivery (Figure 3). There was a sense from this professional group that preconception care and other aspects of parenthood should be delivered more comprehensively across the curriculum, with existing health and wellbeing topics specifically linked to this life stage. Health and wellbeing is currently delivered in a fragmented way across curriculum areas:

"We tend to have input from several departments so it's not focused on one area so PE might do sort of general exercise and fitness and home economics will do just healthy eating" [Guidance Teacher].

Roles and responsibilities should be clarified to ensure all members of the teaching team are aware of what they are tasked with delivering to young people. Other agencies should be used to strengthen delivery of preconception care, for example, the NHS, school nurses and topic experts.

A range of good practice was found across the Family Nurse Partnership (FNP) programme. This is an evidenced-based prescriptive early intervention programme to support young, first time mothers from pregnancy to two years postnatal. The programme allows for the development of therapeutic relationships between family nurses and clients which promotes trust, co-production and positive decision-making. FNP tools and facilitators are used to build relationships and self-efficacy, for example:

"We've got a facilitator around decisional balance, choices that they're making, that you use. It could be around domestic abuse, it could be around smoking, it could be around drinking, and it's just kind of them looking at the benefits and the drawbacks of them continuing... and helping them form the choices, which can be quite powerful" [Family Nurse].

The FNP programme also focuses on developing the father's role within the family. Family Nurses felt that mental health was an area that could be supported further. It was felt that young people disengaged from school and therefore support services, may be living with mental health issues when they become pregnant:

"So young people that might have had support initially whilst they're at school, and they might have disengaged, or they might have been discharged, but their mental health issues are still there, or the, kind of, negative coping strategies are still there" [Family Nurse].

Given the potential promise of positive outcomes from the FNP programme, Family Nurses felt that this good practice should be adopted for mainstream use.

Health visitors identified good practice in delivery of the universal pathway and additional supports offered. This included delivery of key public health messages, brief interventions for alcohol use, routine enquiry for domestic abuse and the Smoke Free Homes project to tackle second hand smoke within the home environment. Health visitors felt they had sufficient knowledge to deliver preconception care. A revised universal pathway for health visiting will be implemented from late 2015. This will increase the number of contacts, particularly home visits, which health visitors have with individual children and families. Health visitors felt that this was an opportunity to provide more focused input on maternal health and wellbeing and a structured approach to delivery of preconception care in the interception period. Health visitors felt that they required further support in facilitating behaviour change, particularly when circumstances were challenging. A consistent message about safe alcohol use in pregnancy was lacking, with reports of colleagues across Lanarkshire providing different advice. Equitable provision of successful programmes such as Smoke Free Homes was highlighted, as some more rural areas often miss out.

GPs rarely had contact with women specifically about preconception care. Preconception care was provided to women on removal of contraceptive implants. For more vulnerable groups, contraceptive advice was the focus of discussion. Prophylactic folic acid was prescribed for women who have not yet decided whether to continue with their pregnancy. Six-monthly contraceptive reviews were undertaken by practice nurses and this was viewed as a good opportunity to review general health and wellbeing and provide advice, especially for individuals with specific conditions such as epilepsy (given the risk of epilepsy medications to pregnancy). In terms of improvement, there were opportunities for delivery of preconception care that could be capitalised on more fully, particularly by practice nurses. It was felt that healthy lifestyle advice provided could be linked to preconception care when appropriate. However, given time constraints, practice nurses felt that women should be made aware that they can make an appointment to discuss preconception care specifically, which would allow for a fuller discussion:

“If this is going to come up at different appointments, it’s the time it takes as well, you know... that should be an appointment on its own...and I don’t know if women would know that they could do such a thing as make an appointment for preconception care” [Practice Nurse].

8.1.2 Challenges

Figure 4 below sets out the challenges associated with providing preconception care in relation to awareness, coverage, provider compliance and individual compliance. Professional groups felt there was a lack of awareness in women of childbearing age (and their significant others) about preconception care and its importance to maternal and child health:

“They have no idea how to prepare their bodies for pregnancy” [Guidance Teacher].

Examples provided included women not recognising obesity as an issue, lack of recognition and normalisation of gender-based violence and harm from excessive consumption of

energy drinks. Focus group participants thought that women had limited knowledge of the role health services have in preventative care.

Figure 4: Preconception care challenges



The main challenge in terms of coverage i.e. getting the right care to the right people at the right time is the level of unplanned pregnancies among women of childbearing age. Women were not actively planning pregnancy and therefore taking steps to improve their health prior to conception. The timing of preconception care interventions was crucial, hampered by lack of planning and late presentation of pregnancy to allow appropriate management of relevant conditions and promotion of healthy lifestyles for pregnancy. During the interconception period, health visitors focused on the early postnatal phase rather than preparation for subsequent pregnancies. It was felt that preconception care was not appropriate during this early phase when women may not be receptive to this advice. As mentioned previously, a number of missed opportunities were identified across professional groups whereby women could be provided with preventative preconception care advice. It was felt that generally healthy women would not access their GP and even those actively planning pregnancy tended not to seek advice from their GP. Practice nurses felt that even when they had contact with women of childbearing age, they did not necessarily disclose that they were planning a pregnancy:

“People don’t talk to us and say they’re going to get pregnant [Practice Nurse].

Reducing the PSHE available to senior pupils in 5th and 6th years was identified as a missed opportunity to educate young people about preconception care. In addition, some teachers lacked confidence in the delivery of such a topic and felt this could be construed as promoting pregnancy.

Professionals were asked to identify challenges in relation to their own compliance with delivery of preconception care. Four key areas emerged. Lack of knowledge of preconception care messages was identified by some groups, particularly non-health professionals. Health professionals tended to identify a lack of knowledge in specific areas of preconception care, including weight management and interventions to address gender-based violence. Practice nurses and community pharmacists were less aware of evidence-based guidelines for preconception care. Time constraints were identified as a challenge to delivery of preconception care across health visiting and nursing. There were also competing priorities across the curriculum for the delivery of health and wellbeing. It was felt that health messages changed frequently and information from different sources was often inconsistent. The lack of uniformity of the practice nurse role across Lanarkshire resulted in inconsistent delivery of interventions. The focus different professional groups have was also felt to be a challenge for provider compliance. For guidance teachers and youth workers in particular, the focus was safe sex and prevention of pregnancy rather than preconception care. This led some to believe that PSHE was not fit for purpose as young people were not being equipped with appropriate life skills for future parenthood:

“We spend that much time to get them to avoid having sex, you know... we’re not really preparing them for... future life, we’re trying to think about here and now. You know, healthy relationships, don’t be promiscuous, if you’re going to [have sex] you need to use contraception” [Guidance Teacher].

A range of challenges were identified in relation to individual compliance with preconception care messages. Professionals felt that preconception care was not viewed as a priority for women of childbearing age. Not taking vitamin supplements even when provided free of charge was given as an example. It was felt this was seen as a ‘hassle’ to young people.

Young people in particular were said not to comply with good preconception care as they had no intention of becoming pregnant:

“... on a sex level, the aim isn't to get pregnant, you know it's more sort of... if you're planning a baby and they're [the young people] like aye right!!” [Guidance Teacher].

There was a general view that women did not seek support for preconception care either because of a lack of knowledge or lack of planning. It was again highlighted that women may not understand that their health can impact on the health of their baby and given advances in health care, healthy babies can be born to mothers who have a poor lifestyle. Those who needed most support in this area were the least likely to ask or want to be referred. Acting on advice given was another issue. For example, advice can be given to young people, but if they think they won't become pregnant, they are not going to act on it. The point was made that acting on preconception care advice was difficult for some, particularly in terms of addressing addictions. A key challenge of patient compliance was the development of trusting professional-client relationships. This was felt to be a strength of FNP however, other professionals did not have time to develop such relationships. Health visitors suggested that one discussion about a certain issue was not effective and that time to revisit such conversations was limited. Trust was felt to be essential for disclosure of and discussion about more sensitive topics. Finally, the influence of the wider family was sometimes a challenge in relation to individual compliance. The extended family can have a significant impact on decisions and choices made by women, which could be both positive and negative depending on family beliefs and availability of role models.

8.1.3 Solutions

Figure 5 outlines the range of solutions that were identified by professionals to improve preconception care. Key themes included coverage, provider compliance, individual compliance and other solutions. In relation to coverage, the school curriculum was identified as being a key vehicle to support improved preconception care. Preconception care should be meaningfully built into a comprehensive curriculum on healthy relationships, sexual health and preparation for parenthood, with high quality delivery by confident and well-equipped staff. Use of Home School Partnership Officers was also suggested to support delivery. Existing NHS Lanarkshire and Scottish Catholic Education Service resources could be supplemented to include preconception care with delivery better co-ordinated across curricular areas. Effective communication to promote and raise awareness of preconception care was suggested, including better use of social media and mobile phone apps. Advertising, including in health centres and GP practices to prompt women to ask about preconception care, was suggested. It was also felt that national organisations had a responsibility to promote preconception care by way of TV and radio advertising. Interventions targeted at those most in need of support were suggested in terms of reducing inequalities in preconceptual health and early intervention was deemed essential:

“... you are more likely to, because you are disengaged from education, school or unemployment, you're more likely to smoke heavy, drink heavy, be obese” [Youth Worker].

This included events in local area hubs for young women, a health day on preconception care and parenthood specifically targeted at young people. The point was made that young

men should not be excluded and that appropriate messages should be targeted to this group also. In terms of the interconception period, focussed intervention around twelve months postnatal was felt appropriate as part of the universal health visiting pathway. It was emphasised that this should be explicitly included in the revised universal pathway and appropriate time allocated:

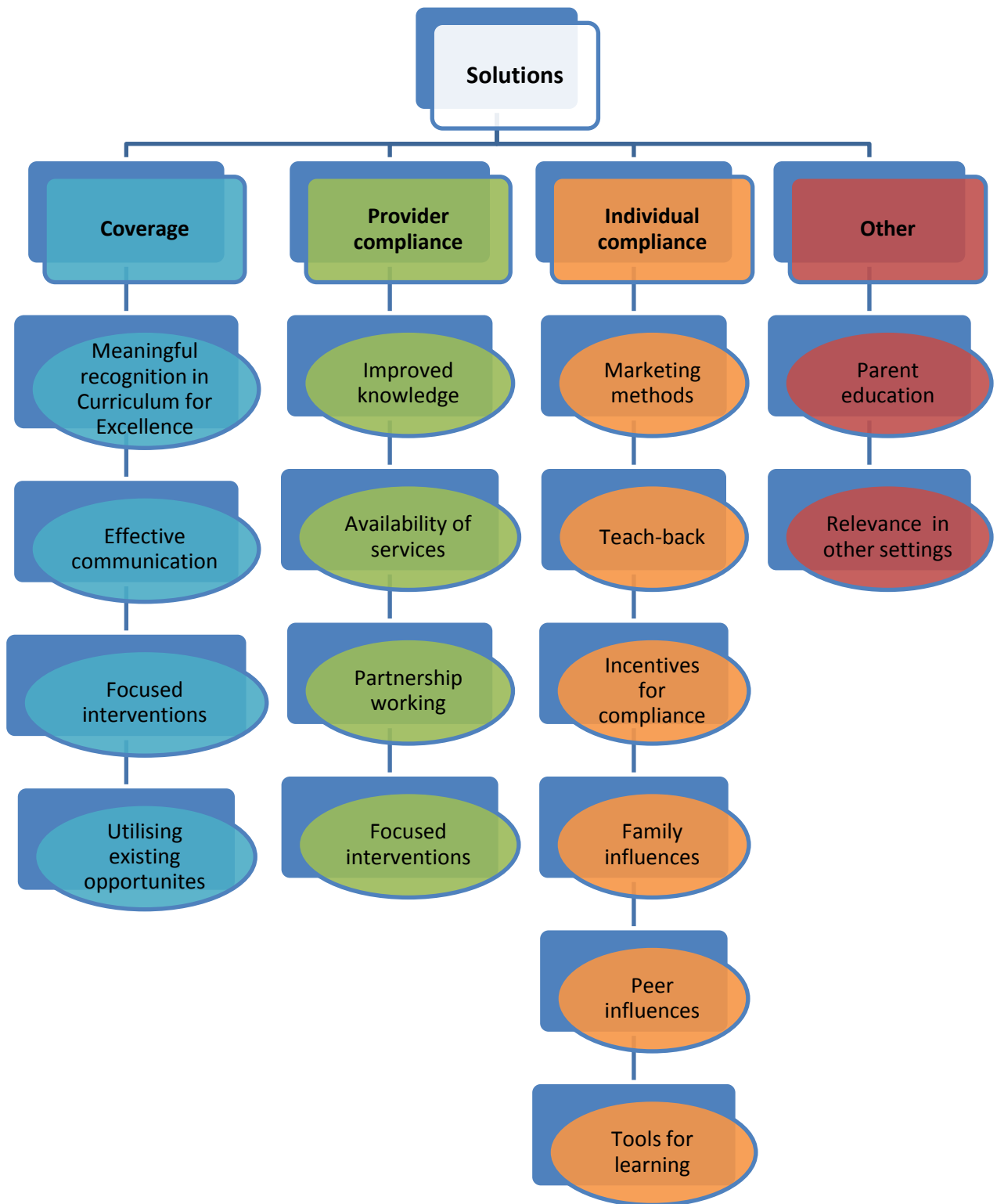
“And actually have it in our pathways and models, and give it the credit... you know, that it is actually a credible piece of work to do, and then it’s timed within the pathway, and manpower is provided within the pathway” [Health Visitor].

Exploring the role First Steps workers in focused interventions was suggested. Given current capacity limitations, it was felt that existing opportunities should be capitalised on to improve preconception care. Opportunities were identified by practice nurses including contraceptive reviews, removal of contraceptive implants and potentially cervical smears and the postnatal mothers six month review. It was emphasised that these are already busy appointments and it may be that a separate appointment for preconception care is necessary. Youth workers identified a range of opportunities that could be utilised to promote preconception care, including use of ‘Healthspots’ (dedicated youth health service) in local areas and at youth bases where young people collect free condoms:

“Youth base... because they are not pregnant then and they’re engaging with services... and they’re talking or thinking about having sex” [Youth Worker].

This would ensure that although emphasis was on prevention of pregnancy and safe sex, young people would be informed about planning for a healthy pregnancy in future. Learning hubs run by youth workers have a strong focus on health and wellbeing and there is potential for preconception health to be included within this framework. Sexual health and family planning services were identified as another opportunity to access preconception care advice, when seeking contraception or testing for sexually transmitted infections. Other opportunities included preconception care advice delivered by school nurses when administering HPV vaccinations and exploring opportunities for better engagement in pharmacies.

Figure 5: Solutions for improved preconception care



Solutions offered to improve provider compliance with delivery of preconception care included improving knowledge, availability of services, partnership working and focused interventions. Non-health professional groups felt that the NHS should provide them with accurate and consistent preconception care messages along with supporting materials to use with young people. An example given was the benefit of PowerPoint presentations and lesson plans provided by the 'Call to Love' programme for catholic schools. Pharmacists identified a number of topics where more information would be helpful and training for practice nurses was needed. Alcohol was mentioned specifically and the benefit of consistent messages on safe levels. Availability of services for preconception care was identified as a potential solution, specifically in relation to equitable access of services across urban and rural areas and uniformity of roles/consistency of practice. Effective preconception care is likely to be supported by enhanced partnership working. One example given was partnership working between school nurses, Home School Partnership and youth workers so that preconception care can be better co-ordinated for young people. Finally, professional groups identified topic areas where future focused interventions may be beneficial. These included smoking, gender-based violence, maternal obesity and alcohol, which concurs with those indicated through available data.

Solutions were identified to encourage and support individual compliance with preconception care advice. Marketing methods were discussed but this produced conflicting views among professionals. Some felt that 'shock tactics' should be employed to illustrate the importance of maternal health before and during pregnancy to child health outcomes, for example, showing future parents the impact of alcohol use and FASD:

"... I know what you mean about shock tactics and that maybe does help people... are you going to go into foetal alcohol syndrome and then... addiction, babies born with drug addictions... so are you going to relate it all back to, if you don't do this, this is what your baby could be born like, this is what your baby could be facing"
[Guidance Teacher].

Others felt that marketing of messages should be subtle to inform future decisions i.e. a 'drip-feed' effect. The importance of teach-back was highlighted by nursing staff; revisiting discussions to reinforce messages and assess understanding and using tools so that future parents can learn by doing. NHS staff themselves were seen as a useful resource to encourage individual compliance as their messages were viewed to have more impact on young people than teachers. Professionals identified situations where there would be an incentive to comply with preconception care advice and felt these should be capitalised on. Firstly, building on the motivation future parents have to do the best for their child. Women who experience fertility challenges or are engaged in IVF treatment have an incentive to comply with preconception care and in fact must meet specific criteria relating to healthy lifestyles. In addition, young people attending local Learning Hubs develop an 'activity agreement' and often improved lifestyles and health and wellbeing is a feature of these. Positive family influence may also encourage compliance with preconception care and in particular, the vital role of attachment and nurturing within the family unit as well as availability of role models within the extended family. Peer influence was also deemed important and the value of peer education. Young people in particular are more likely to listen to their peers and the participation of young people in a promotional video on preconception care for their peers was suggested as a motivational tool.

Other solutions identified included parent education and the relevance of preconception care in other settings. Often parents were uncomfortable with discussing certain issues with young people and need to feel confident about having sensitive conversations. It was viewed as important that parents provide accurate advice as this is where young people are likely to spend a lot of their time:

“... we [youth workers] work with them for maybe two hours a week, and then that’s what they go home to” [Youth Worker].

Much of the discussion on preconception care centred on young people, however it was noted that this issue is not just relevant to young people and therefore preconception care is relevant to many other settings which could be explored e.g. further education establishments and workplaces.

8.2 Community pharmacy survey

Twenty eight out of 143 pharmacies responded to the survey; a response rate of 20%. Not all respondents answered every question. The response rate is low and therefore findings may not be representative of pharmacists across Lanarkshire. Most respondents said that they delivered preconception care and to women planning pregnancy rather than all women of childbearing age. The most commonly delivered interventions were smoking cessation and folic acid supplementation. The majority of respondents said that they did have the opportunity to engage with women prior to pregnancy although not all women actively sought preconception care advice. Some pharmacies wanted more information on supporting preconception care, most commonly in relation to maternal obesity. The key challenge identified to providing this support was women not being aware that they could access preconception care from a pharmacy. More detailed results can be found in Appendix 1.

9. Summary and conclusions

A range of preconception care interventions are available, some with a more robust evidence base than others. Folic acid supplementation, weight management and smoking cessation interventions have been shown to be effective in the preconception period, if delivered at the appropriate intensity and duration. Evidence in relation to interventions to reduce or abstain from alcohol consumption prior to or during pregnancy is limited. There is good evidence of interventions to reduce drug misuse but a lack of evidence in relation to the benefits of screening in the preconception period. Limited evidence shows that there is benefit in screening for gender-based violence and intervening prior to conception. The efficacy of vaccines recommended in the preconception period is undisputed, however, evidence in relation to how best to ensure uptake in eligible women was lacking. In addition, there was a lack of evidence on screening and interventions for mental health in the preconception period, other than for women with a pre-existing mental health condition.

In Lanarkshire, women of childbearing age make up 19% of the population, many living in areas of deprivation. Rates of perinatal, neonatal and infant deaths are higher in North Lanarkshire which has higher levels of deprivation than South Lanarkshire. Uptake of folic acid supplements prior to conception is poor and is impacted by deprivation, low maternal age and lack of understanding about the importance of folic acid. Maternal obesity is higher in Lanarkshire than in Scotland as a whole and is likely to have impacted on Lanarkshire's increasing rates of induction, caesarean section, postpartum haemorrhage and large for gestational age babies. Again, maternal obesity is associated with increasing deprivation. Almost one fifth of women in Lanarkshire are current smokers at booking. Smoking in pregnancy is associated with premature birth (around 7% in Lanarkshire) which adversely affects the health of the baby. Many women consume alcohol before pregnancy and some whilst pregnant. No data were available on the incidence of FASD but this is likely to be a significant and growing public health issue. Drug misuse in pregnancy is higher in deprived areas. No data were available on gender-based violence or uptake of relevant vaccines. However, over time, the number of babies born to Hepatitis B infected mothers has reduced.

The research showed a range of good practice in the delivery of preconception care interventions although practice was not consistent across and between professional groups. The FNP programme in particular had many identified strengths. Improvements were identified across all professions and better alignment with the evidence base is required. Challenges in improving preconception care were identified and included: a lack of awareness of what preconception care is and why it is important; levels of unplanned pregnancy; professional knowledge, capacity and consistency of practice; and individual's seeking and acting upon preconception care advice.

Improving preconception care in Lanarkshire requires action across professions and settings and a range of solutions were identified by focus group and survey participants. In terms of coverage, building on the Curriculum for Excellence, better communication and focused interventions with the target group, and capitalising on existing opportunities for preconception care were all identified as areas for improvement. Enhanced training and awareness sessions for professionals to improve knowledge and consistency of practice is essential, as is ensuring equitable service provision and targeting services to need. A number of solutions were identified to improve individual compliance with interventions, mostly centred around increasing awareness through a range of marketing methods and

using learning tools, teaching methods and 'incentives' which have demonstrated positive impact. Support for parents and the wider family should be provided so that they are enabled to support future parents in making informed decisions about health, relationships and parenting.

The situation analysis has yielded interesting results at a Lanarkshire level but has a number of limitations. Firstly, the evidence base relating to effective preconception care interventions is small and highlights the challenges associated with conducting research in this area. Collation of data has been challenging and in relation to some pregnancy and birth risk factors and outcomes, is not available at national or local level. The lack of data on FASD demonstrates the problem associated with diagnosis and therefore, its potential impact on future service provision. Finally, the number of participants in some focus groups was small. Recruitment for focus groups during busy periods was challenging and this will affect generalizability of results.

10. Recommendations

Coverage

- **The school curriculum needs to be reviewed in line with the forthcoming Pregnancy and Parenthood in Young People Strategy to ensure it is fit for purpose in order to meet young people's needs.** This is with a view to delivering a coherent programme which prepares young people with the knowledge and skills for future parenthood rather than simply prevention of pregnancy. Existing curricular resources can be built upon. Consideration needs to be given to young people who are disengaged from education.
- **NHS Lanarkshire and partners need to increase awareness of preconception care across all appropriate settings using a range of communication and marketing methods.** This would benefit from being part of a wider communication programme which highlights the role of the NHS in preventative healthcare.
- **The revised universal pathway for health visiting in Scotland needs to specifically include preconception care at around 12 months postnatal,** with supporting anticipatory guidance.
- **NHS Lanarkshire needs to explore all existing opportunities for preconception care across professions.** This includes:
 - Contraceptive reviews, removal of contraceptive implants, cervical smears and the mothers postnatal review (GPs and practice nurses)
 - Administration of HPV vaccines and other school-based activity (school nurses)
 - Sexual health and family planning services
 - Healthspots
 - Learning Hubs and activity agreements (youth workers)
 - Availability of preconception care in community pharmacies.
- **NHS Lanarkshire and partners need to explore available opportunities to promote key preconceptual health messages across settings** such as further education establishments and workplaces.

Provider compliance

- **NHS Lanarkshire needs to deliver training on preconception care to both health and non-health professionals** to raise awareness of key messages and promote consistency of practice. E-learning opportunities will be explored and the availability of supporting materials.
- **Health visitors require training and support in health behaviour change.** NHS Health Scotland has developed a Health Behaviour Change Competency Framework and associated e-learning materials.
- **NHS Lanarkshire needs to explore how mental wellbeing and identification and treatment of mental health problems in the preconception and interconception period can be better supported.**
- **NHS Lanarkshire needs to make available evidence-based postnatal weight management interventions for women** in preparation for subsequent pregnancies and to reduce rising levels of pregnancy and birth related complications.
- **NHS Lanarkshire needs to identify what is required to better prevent and diagnose risk of foetal alcohol spectrum disorder prior to conception.**

Individual compliance

- **The principles, tools and facilitators employed in FNP need to be adopted for use across health visiting practice.**
- **Targeted preconception care interventions for vulnerable groups of young people will be explored.** This may include focused sessions by youth workers and Home School Partnership and a 'health day' for young men and women.
- **The development and use of peer education in preconception care will be explored** in line with the evidence base.
- **Parent education materials for preconceptual health and parenting are required** to support positive family influences and role models.

11. References

1	Scottish Government. <i>The Early Years Framework</i> . Edinburgh, Scottish Government, 2008.
2	Beeston C, McCartney G, Ford J, Wimbush E, Beck S, MacDonald W, and Fraser A. <i>Health Inequalities Policy Review for the Scottish Ministerial Task Force on Health Inequalities</i> . Edinburgh: NHS Health Scotland, 2014.
3	The Children and Young People (Scotland) Act 2014. http://www.legislation.gov.uk/asp/2014/8/contents/enacted (accessed 25 September 2015).
4	Posner SF, Johnson K, Parker C, Atrash H, Biermann J. The National Summit on Preconception Care: A Summary of Concepts and Recommendations. <i>Matern Child Health J.</i> 2006; 10:S197-S205.
5	Children in Scotland. <i>The Earliest Intervention: Improving birth outcomes and lowering costs through preconception health and health care</i> . http://www.childreninscotland.org.uk/docs/Prevention-PreconceptionCiSSupplementaryEvidence11-10.pdf (accessed 25 September 2015).
6	National Institute for Health and Care Excellence (NICE). Preconception – Advice and Management. http://cks.nice.org.uk/pre-conception-advice-and-management (accessed 25 September 2015).
7	Pencheon D, Guest C, Melzer D, Gray JA. <i>Oxford Handbook of Public Health Practice (Second Edition)</i> . Oxford: Oxford University Press, 2006.
8	Korenbrot CC, Steinberg A, Bender C, Newberry S. Preconception Care: A Systematic Review. <i>Matern Child Health J.</i> 2002; 6:75-88.
9	Temel S, van Voorst SF, Jack BW, Denktas S, Steegers EAP. Evidence-Based Preconceptional Lifestyle Interventions. <i>Epidemiol Rev.</i> 2014; 36:19-30.
10	US Preventive Services Task Force. <i>Folic Acid for the Prevention of Neural Tube Defects: US Preventive Services Task Force Recommendation Statement</i> . AHRQ Publication No. 09-05132-EF-2, May 2009.
11	Whitworth M, Dowswell T. Routine pre-pregnancy health promotion for improving pregnancy outcomes. <i>Cochrane Database of Systematic Reviews</i> . 2009; Issue 4: Art. No. CD007536.
12	NHS Health Scotland: <i>Scottish Perspective on NICE Public Health Guidance 11: Improving the nutrition of pregnant and breastfeeding mothers and children in low-income households</i> . Edinburgh: NHS Health Scotland, 2009.
13	National Institute for Health and Care Excellence (NICE). <i>Public Health Guidance 27: Weight management before, during and after pregnancy</i> . London: NICE, 2010.
14	Amorim Adegboye AR, Linne YM. Diet or exercise, or both, for weight reduction in women after childbirth. <i>Cochrane Database of Systematic Reviews</i> 2013, Issue 7. Art. No.: CD005627. DOI: 10.1002/14651858.CD005627.pub3.
15	US Preventive Services Task Force. <i>Screening for and Management of Obesity in Adults: US Preventive Services Task Force Recommendation Statement</i> . AHRQ Publication No. 11-05159-EF-2, June 2012.
16	US Preventive Services Task Force. <i>Counseling and Interventions to Prevent Tobacco Use and Tobacco-Caused Disease in Adults and Pregnant Women: Reaffirmation Recommendation Statement</i> . AHRQ Publication No. 09-05131-EF-1, April 2009.
17	US Preventive Services Task Force. <i>Screening and Behavioral Counseling Interventions in Primary Care to Reduce Alcohol Misuse: Recommendation Statement</i> . AHRQ Publication No. 12-05171-EF-3.
18	Stade BC, Bailey C, Dzendoletas D, Sgro M, Dowswell T, Bennett D. Psychological and/or educational interventions for reducing alcohol consumption in pregnant women and women planning pregnancy. <i>Cochrane Database of Systematic Reviews</i> 2009, Issue 2. Art. No.: CD004228. DOI: 10.1002/14651858.CD004228.pub2.

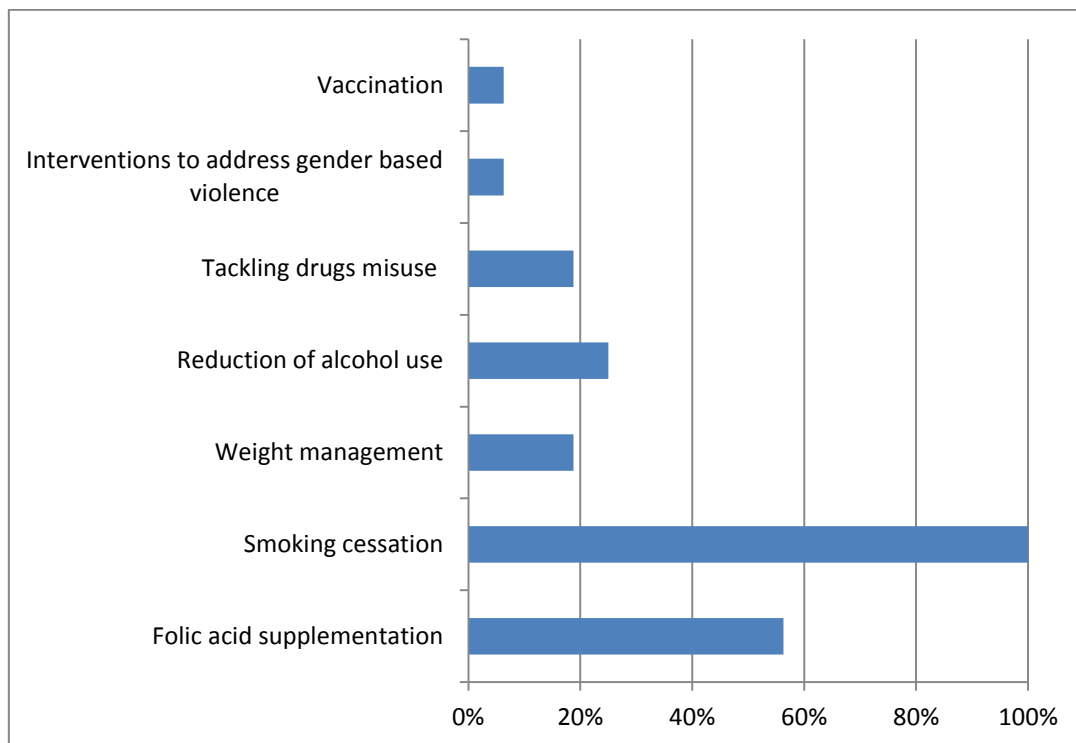
19	US Preventive Services Task Force. <i>Screening for Illicit Drug Use: US Preventive Services Task Force Recommendation Statement</i> . January 2008.
20	Moyer VA on behalf of the US Preventive Services Task Force. Screening for Intimate Partner Violence and Abuse of Elderly and Vulnerable Adults: US Preventive Services Task Force Recommendation Statement. <i>Ann Intern Med</i> 2013; 158: 478-486.
21	National Institute for Health and Care Excellence (NICE). <i>Clinical guideline 192. Antenatal and postnatal mental health: clinical management and service guidance</i> . London: NICE, 2014.
22	NHS Lanarkshire. <i>NHS Lanarkshire Public Health 2013/14: The Annual Report of the Director of Public Health</i> . NHS Lanarkshire, 2014.
23	Chang HH, Larson J, Blencowe H, Spong CY, Howson CP, Cairns-Smith S, et al. Preventing preterm births: analysis of trends and potential reductions with interventions in 39 countries with very high human development index. <i>Lancet</i> 2013; 381:223-34.
24	Holloway I, Wheeler S. <i>Qualitative Research in Nursing and Healthcare</i> (Third Edition). Oxford: Wiley-Blackwell, 2010.

12. Appendix 1 - community pharmacy survey

Twenty-eight out of 143 pharmacists responded to the survey (a response rate of 20%). Of respondents, 22 (78.6%) were pharmacists and 4 (14.3%) were pharmacy contractors. Two respondents chose the 'other' category for current designation. The highest number of respondents were from Cambuslang/Rutherglen (n=6) and Hamilton/Larkhall (n=5). There were no respondents from Motherwell locality. Not all 28 respondents answered every question.

When asked if they currently deliver preconception care, the majority of pharmacists (54.2%) said yes; 29.2% to women planning pregnancy only and 25% to all women of childbearing age. Nine respondents (37.5%) said they did not deliver preconception care and two (8.3%) said they did not know. Figure 6 shows the type of preconception care interventions delivered; smoking cessation and folic acid supplementation being most common.

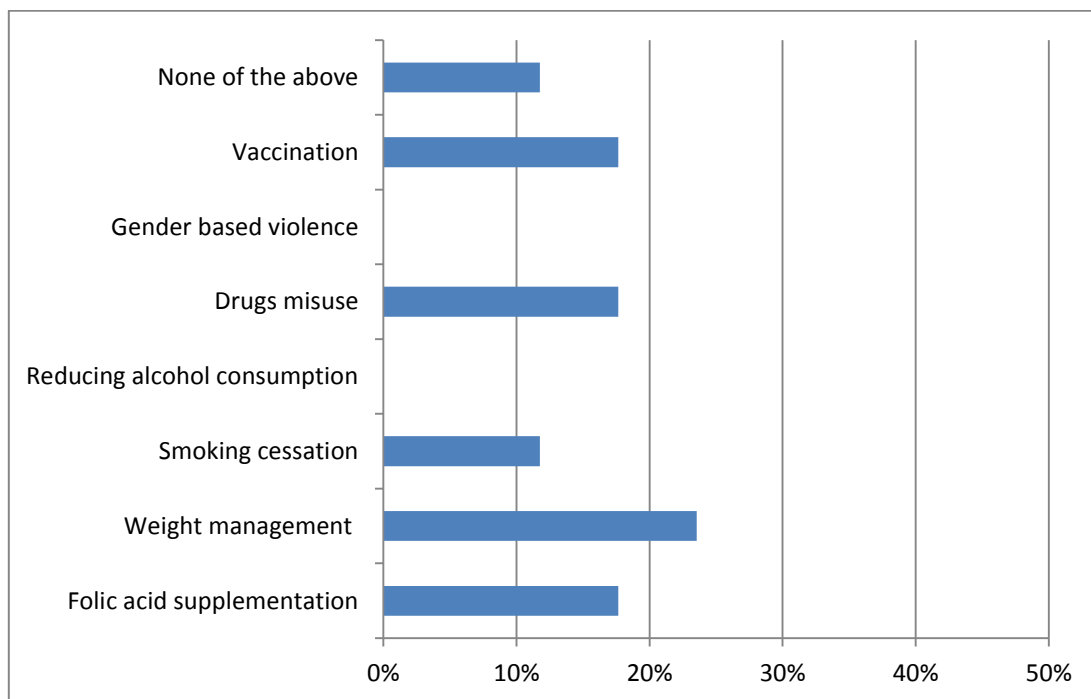
Figure 6: Current delivery of preconception care



Most pharmacists (63.6%) felt that they did have the opportunity to engage with women prior to pregnancy and 36.4% said they did not. When asked if women actively seek advice on preconception care from a pharmacist, exactly half of respondents said yes and the remaining half said no. Examples of the type of advice sought tended to relate to vitamin supplementation and safe use of medication in pregnancy.

In relation to provider compliance, eight respondents (38.1%) stated that they delivered preconception care in line with evidence based guidelines. Six respondents (28.6%) said they did not deliver preconception care in line with evidence based guidelines and seven (33.3%) said they did not deliver preconception care at all. Survey respondents were asked if they would like more information on supporting women with preconception care; Figure 7 presents the results. Four respondents (25.5%) wanted more information on supporting women with weight management. No information was specifically requested on reducing alcohol consumption and gender based violence, although two respondents asked for information on all topics.

Figure 7: More information for supporting women



Pharmacists were asked what the main challenges were to delivering preconception care. Seventeen respondents (81%) felt that women did not know that they could access preconception care at a pharmacy and 15 respondents (71.4%) said women did not ask for advice. Other common challenges highlighted were: women do not actively plan pregnancy (28.6%); women already know how to prepare for pregnancy (23.8%); and do not know what advice to give (19%).

When asked what preconception care interventions should be the focus of improvement in community pharmacies, respondents cited smoking cessation and folic acid supplementation as most important, followed by reducing alcohol consumption, tackling drug misuse and weight management. Gender based violence and vaccination were ranked the least important areas for improvement.