

# Final Report

Breastfeeding and Maternal Smoking,  
Breastfeeding and Substance Misuse:  
A Review of Programs/Interventions Nationwide

Commissioned by Middlesbrough and Redcar/Cleveland  
Local Authorities

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# Breastfeeding and Maternal Smoking, Breastfeeding and Substance Misuse: A Review of Programs/ Interventions Nationwide

## **Outcomes of Interest**

Two areas of maternal and child health were identified as important contributors to the health of the local populations of Middlesbrough and Redcar/Cleveland. These areas were maternal smoking (in pregnancy and the postpartum) and breastfeeding and maternal substance misuse (drugs and alcohol) and breastfeeding.

The goal of the consultancy was to identify programs or interventions from around the UK that have been designed to deal with these two issues, to evaluate outcomes of these programs and to follow up with key staff involved with programs/interventions regarding challenges and barriers that arose during program implementation and maintenance.

## **Methods**

An intensive search of internet resources was conducted on each of the topic areas. The aim of all searches was to identify programs and interventions carried out within the NHS/public health sectors. Academic trials or interventions that were carried out in partnership with NHS or public health were included in the findings, while those which were exclusively academic were excluded, since they did not arise from the NHS/public health sector.

Further documentary research was conducted to obtain outcome data for the identified interventions, where available. Finally, attempts were made to contact key members involved in the establishment of each program or intervention. This presented a challenge, as many of the programs for which information was available were no longer running or had experienced staffing changes. Staff members associated with many of the interventions did not reply to contacts regarding the programs. When staff members did respond, the information that they provided is included in the 'Voices' sections marked in green throughout the report.

## **Breastfeeding**

Breastfeeding is one of the most basic and most essential means of improving population health, starting with the immediate health of infants, continuing through long term health outcomes in adulthood.

Breastfed infants have lower rates of:

- Acute respiratory infections
- Gastro-intestinal infections
- Ear infections
- Sudden Infant Death Syndrome

Individuals who were breastfed may in later life also have lower rates of:

- Metabolic syndrome
- Type II diabetes
- Cardiovascular disease
- Obesity
- Asthma and other allergy-related diseases

Additional benefits of breastfeeding as compared to formula feeding include:

- Health benefits for breastfeeding women including:
  - Protection against ovarian and breast cancer in later life
  - Increased bone mineral density
  - More rapid return to pre-pregnancy weight
  - Stress-reducing hormones released when feeding
- Convenience of having infant food that is ready, at the correct temperature and does not require preparation
- Financial savings, particularly for lower income women

## **Breastfeeding Picture for the UK**

Breastfeeding rates in the UK have been increasing steadily. However, breastfeeding remains a practice that most mothers undertake for weeks rather than months.

In the most recent Infant Feeding Survey conducted in 2010, and published in 2012, the breastfeeding rate at birth across the UK was 81%, but by six weeks around 50% of women had completely ceased to breastfeed. Only 12% of women were exclusively breastfeeding at 4 months.

In the commissioning areas of Redcar/Cleveland and Middlesbrough, the rates of breastfeeding initiation are 52.7% and 46.4% respectively. These rates are roughly 30% lower than the UK nationwide initiation rate, as well as being lower than the initiation rate for the North East region. This lag behind national rates constitutes a major public health challenge.

## **Breastfeeding and Health Inequalities**

Breastfeeding is most common among mothers who are older, more educated, in managerial and professional occupations, and living in areas of least deprivation. Since breastfeeding offers many health benefits, improving breastfeeding rates among young mums, and women with less education, in routine/manual employment and living in more deprived areas is therefore a means to address health inequalities by improving health outcomes in the local population.

## **Maternal Smoking in Pregnancy**

Smoking during pregnancy is estimated to increase the risk of infant mortality by 40%. In the UK each year smoking in pregnancy is responsible for:

- as many as 5,000 miscarriages
- approximately 2,200 premature births
- 300 perinatal deaths

Smoking in pregnancy is also associated with important consequences for the future health of the child, in addition to the woman's own health. Immediate consequences include increased risk of:

- Miscarriage and stillbirth
- Complications during labour
- Premature birth, with the associated costs in care for the infant and emotional costs to the family
- Low birth weight
- Dramatically increased risk of death from Sudden Infant Death Syndrome (SIDS/cot death)

Longer term consequences of smoking in pregnancy include among other outcomes increased risk of:

- Type 2 diabetes
- Obesity
- High blood pressure
- Hyperactivity disorders
- Asthma and other respiratory problems
- Impaired fertility

Although rates are decreasing, smoking in pregnancy remains an important public health issue. Rates of smoking at first antenatal visit have fallen from approximately 1 in 3 (1995) to 1 in 5 (2011). Rates of smoking at time of delivery have fallen from approximately 1 in 6 (2006-7) to 1 in 8 (2013-4).

### **Health Inequalities from Smoking in Pregnancy**

Rates of smoking in pregnancy can be tied to inequalities in other areas of life. The rate of smoking in pregnancy varies markedly by age and social class. Women under 20 years of age are more than five times as likely to smoke as those over 30 years of age (45% compared with 9%).

Women in routine and manual occupation categories are four times as likely to smoke as those in professional or management categories (29% compared with 7%). As a result, young women in deprived areas are much more likely to smoke during pregnancy.

In the commissioning areas of Redcar/Cleveland and Middlesbrough, the rates of Smoking At Time of Delivery (SATOD) are approximately 1 in 4 (24.2% and 26.2%). These rates are higher than the England and regional values for SATOD and present a serious challenge for public health services.

### **Maternal Smoking in the Postpartum/Breastfeeding Period**

Postnatal smoking, whether continuous or resumed after the birth of an infant, also carries risks for the infant. Smoking postnatally is associated with increased risk of:

- Infant mortality, including increased risk of death from SIDS
- Acute lower respiratory illness
- Meningitis
- Acute and chronic ear infections
- Wheezing illness

## NICE Guidance

The National Institute for Health and Care Excellence (NICE) issued guidance entitled Quitting smoking in pregnancy and following childbirth in June 2010. This guidance has influenced many of the interventions that will be summarised below. For the complete guidance, including full details of all recommendations, please go to <http://www.nice.org.uk/guidance/pH26>.

## Interventions to reduce rates of maternal smoking

### Because:

- a) motivation to quit smoking is higher during pregnancy than at other times in a woman's life and
- b) many postnatal women do not begin to engage with clubs, groups and support activities for several weeks after birth and
- c) the breastfeeding period for most women in the UK can be measured in weeks, rather than months,

in order **to decrease the rate of smoking among breastfeeding women**, smoking interventions should **target pregnant smokers** and assist them to quit during their pregnancy, **while maintaining support** and continuing to follow up with all participants **through the postpartum and breastfeeding periods**.

A variety of interventions for maternal smoking cessation were identified through the intensive internet search process. These interventions are summarised and presented below, grouped by common approaches or practices.

## A. 'Quit Club'-style Interventions

These interventions are based on the model of weight loss clubs such as Weight Watchers or Slimming World. They involve weekly support meetings that combine peer support with information/guidance on healthy eating, exercise and motivation provided by a 'leader.' The Me2Quit program, described below, was developed in response to research conducted with smoking women to identify the type of intervention they would prefer for smoking cessation. This program then served as the model for the Time4Me program that was trialled in Bradford.

### Me2Quit, Stoke on Trent

- **Target group:** women with children under 5 years of age, pregnant women, those thinking about becoming pregnant
- Social Marketing approach
- Conducted focus groups to identify what kind of stop smoking intervention would work best to engage pregnant smokers
- February 2008 rolled out a pilot project of stop smoking 'clubs' modelled on the lines of Weight Watchers meetings
- 90 minute sessions, with free childcare provided
- Info sessions combined with pampering sessions (learning health information and learning pampering techniques)
- General health and well-being information provided (e.g. nutrition, exercise), as well as stop smoking support
- Non-judgemental support
- Fairly 'light-touch' approach to providing health information on risks of smoking

**Results:** 60% quit rate overall; no specific data on pregnant participants in program, but pregnant smoking in the intervention areas declined from 32% in 2006-07 to 29% in 2007-08

### Time4Me, Bradford

- **Target group:** women with children under 5 years of age, pregnant women, those thinking about becoming pregnant
- 12 week series of support group meetings at 5 sites, starting January 2013, 10 participants at each site
- 2 hour sessions, with free childcare provided
- Info sessions combined with pampering sessions (learning health information and learning pampering techniques)
- General health and well-being information (nutrition, exercise) given as well as stop smoking support
- Non-judgemental support
- Fairly 'light-touch' approach to providing health information on risks of smoking
- Routine CO monitoring at each group every week
- Stop Smoking Specialists facilitate the groups
- Majority of each group consisted of hard to reach women
- Very well received by participants

**Results:** 48% quit rate overall (24/50 participants); of 10 pregnant participants, none quit by end of the program (4 non-quit, 6 lost to follow-up)

#### **Challenges with Quit-Club interventions**

- Very time-intensive for staff running programs
- Requires additional resources to run pamper session, provide child care spaces
- Limited evidence regarding pregnant women suggests service is not effective at encouraging this group to quit smoking

#### **Voices: Insight into Time4Me program, with Amanda Bailey of Bradford Stop Smoking Service**

- *Scheme was styled on the Stoke on Trent program (see summary above)*
- *The funding for the programme was a one-time tranche and came from the 'Every Baby Matters' scheme. Ms. Bailey was unsure about existing funding for the program*
- *Funds were used to purchase CO monitors for midwives, and to buy some hours per week to run the project for 6 months*
- *Concentrated on areas with the highest prevalence of pregnant smokers*
- *Children's centres were contacted in those areas and were offered a budget of £2,000 to run the club with the SSS*
  - *Most funds used up offering childcare places for older children so that mums could attend, remainder used for gifts and to pay for programs 'pampering' sessions*
- *Few barriers to setting groups up*
  - *Children's centres were keen to be involved and to supply staff members*
  - *Was perceived as time consuming but very enjoyable and a chance to show creativity*
- *This year (2014) pregnancy-lead set up some clubs but failed to recruit clients into the groups and no funding was available*
- *Outcome for women in the group was often cutting down number of cigarettes, rather than quitting*
- *Many women were lost to follow up*
  - *Prior to the classes starting many women booked onto the classes but not all attended. When 'chased up' they agreed to come to next session and didn't.*
  - *Even provision of transport (taxis) wasn't successful in increasing attendance.*



## B. Specialist Midwife-based Approaches

The central component of these interventions is referral of smokers to contact with a midwife specialised in smoking cessation during pregnancy. This approach was highlighted in Smoking Cessation Support in Pregnancy in Scotland (NHS Scotland 2008). By focussing on quitting during pregnancy, these programs increase the number of breastfeeding women who have already given up smoking. Midwives use one-to-one contact with each woman, starting in pregnancy and continuing through at least 3 months postpartum. In most of these interventions, nicotine replacement therapy (NRT) for the first 12 weeks post quit is part of the service and is used by most participants. By targeting pregnant mothers, the NRT administration will have been completed prior to birth, so that women who quit successfully will no longer have nicotine in their systems when beginning to breastfeed.

### Quit 4 Life, Fife

- **Target group:** pregnant smokers who wish to stop, with support continuing into the postnatal/breastfeeding period
- Referral from community midwife at booking visit to Smoking Cessation midwife
- In home visits, first 90 minutes followed by 30-45 minutes
  - Weekly visit for at least first 4 weeks, then visits every 2 weeks to 4 weeks
- Visits continue through the early postpartum (average is 3 months)
- Referrals and phone calls used to maintain contact
- CO monitoring initially at booking, and at 4 weeks post-quit
- Participants predominantly from deprived areas
- Pharmacotherapy (NRT) used by about 80%

**Results:** 396 referred; 102 set quit date (25%); 39 had stopped at 4 weeks post quit date (38%)

### CATCH, Vale of Leven

- **Target group:** pregnant smokers, who desire support. Many clients are from deprived areas
- Referral from community midwife at booking visit to Smoking cessation midwife (no CO monitoring at initial visit)
- In-home visits, 15-30 min visits weekly for 4 weeks then less frequently
- Visits continue for a few weeks to a few months
- Telephone contacts are a supplement
- Target population is all pregnant women,

**Results:** 159 referred; 102 set quit date (64%); 24 were not smoking at 4 weeks post-quit (24%)

### Bradford Stop Smoking Service

- **Target group:** pregnant smokers
- Referral from community midwife at booking visit to Specialist Smoking cessation midwife automatic for all smokers

- Weekly visits first 2 weeks, then at 4 weeks for CO monitoring
- Most seen for 12 weeks, with support possible for up to 1 year
- Text messaging, phone calls and in-person contacts
- Pharmacotherapy (NRT) used by 90%
- CO validated 4 week quit

**Results:** 36% were not smoking at 4 weeks post-quit (numbers not given)

#### **Herefordshire Stop Smoking Service**

- **Target group:** pregnant smokers
- Referral to smoking cessation midwife, through community midwife at booking appointment, drop-in clinic, GP visit, pharmacist and self-referral
- Mostly 'opt-in'—referrals not automatic, but offered as a possibility
- Home visits arranged by phone or letter
- Weekly visits for 6 weeks, fortnightly visits from 6 to 12 weeks
- Contact is maintained for up to 1 year, including through the breastfeeding period
- CO validated 4 week quit

**Results:** 121 set quit date; 34 were not smoking at 4 weeks post-quit (28%)

#### **Breathe, Glasgow/Clyde**

- **Target group:** pregnant smokers, with special efforts made with teen mothers and substance misusers
  - CO monitoring of all pregnant women to determine/confirm smoking status done at first contact.
- 'Link' midwives in place to support women
- Pharmacotherapy (NRT) used by 85% of women. Available for up to 12 weeks
- Behavioural support available for partners/others as well
- First contact is a phone call made on the basis of identification from CO.
- Followed by a 30-60 minute session. This is done on an opt-out basis.
- Women then received weekly phone calls lasting 10-20 minutes. They could also receive text messages for support.
- CO check done at 4 weeks post-quit date

**Results:** 1982 cases were referred; 306 set a quit date; 113 were not smoking at 4 weeks post-quit date (37%)

### **C. Incentives Approaches**

Programs designed as part of research studies have trialed the use of 'incentives' to aid in behaviour change among pregnant smokers, continuing into the postnatal/breastfeeding period. Women are provided with various amounts of vouchers, as part of their Stop Smoking effort. Vouchers are provided in line with continued (validated) abstinence from tobacco use.

**Give it up for Baby**, Dundee and Tayside; also introduced in Perth and Angus in 2007

- **Target group:** All pregnant smokers in Dundee, with support continuing through the first 3 months of the postnatal/breastfeeding period
- Financial incentives available up to 3 months postpartum (12.50 in ASDA vouchers)
- Referral to program by community midwives, but run by cooperating pharmacies in the SSS program
- Cessation advice given in 15-20 session, then 5-10 minute contacts
- CO monitoring at initial contact and each week during NRT
- Pharmacotherapy (NRT) used by all women (backbone of intervention). Available for up to 12 weeks
- Social support available through Healthy Living Initiative, including providing advice on healthy infant feeding and parentcraft
- CO reading required 4 weekly visits to qualify for incentives

**Results:** Overall 54% were not smoking at 4 weeks post-quit date; 32% were not smoking at 12 weeks post-quit; **17% were not smoking at 3 months postpartum.**

- Dundee: 65 set quit date; 27 were not smoking at 4 weeks post-quit (41%); 11 were not SATOD (17%)
- Tayside: 213 set quit date; 83 were not smoking at 4 weeks post-quit (39%); 42 were not SATOD (20%)

**Cessation in Pregnancy Incentives Trial (CPIT)**, Glasgow

There were two components to the study, an RCT and a cohort study and a public opinion study

- Randomised Control Trial comparing usual care (behavioural counselling and NRT provision) to usual care plus high street shopping vouchers
  - £50 voucher for setting quit date; £50 voucher if still quit at 4 weeks post quit date; £100 voucher if still quit at 12 weeks post quit date; £200 voucher if still quit at 34 to 38 weeks of pregnancy (all smoking statuses validated biochemically)

**Results:** RCT Quit rate at the end of pregnancy (34-38 weeks) were 22% in the intervention arm, versus 9% in the usual care arm; Cohort study found 8% of cohort were validated quitters at end of pregnancy, **4% were validated quitters at 3 months postpartum.**

**Challenges with incentives models**

- Research has found evidence of clients 'gaming' incentives systems or 'cheating' to obtain incentives while continuing to smoke
- Public support for providing incentives to participants for making positive health changes is limited
- Funding would have to be found in order to provide incentives

## D. Research Interventions

Several other new programs were put in place through partnerships between NHS and public health and university academic researchers, in order to evaluate their effectiveness at decreasing maternal smoking rates. These were generally Randomised Control Trials, offering one group of participants 'usual care' in terms of smoking cessation support, and the other the 'treatment' or intervention being tested in addition to this usual care.

### London Exercise And Pregnant smokers (LEAP), London

- **Target group:** sedentary pregnant smokers
- Randomised Control Trial comparing usual care to usual care plus physical activity sessions and counselling
- Supervised activity sessions one or two days per week
- Physical activity counselling
- Designed to help intervention group think of physical activity as a self-control mechanism

**Results:** Physical activity provided no effect on smoking cessation beyond usual care. While increased physical activity for sedentary women in pregnancy is itself beneficial, it is not an effective intervention for increasing smoking cessation rates

### MumsQuit (online)

- **Target group:** pregnant smokers wanting to quit
- Randomised Control Trial comparing an information-only website with an interactive, structured and personalised quit plan
  - Incorporates behaviour change techniques
  - Provides up to 4 weeks pre-quit support and up to 4 weeks post-quit support
  - Sends e-mails to remind clients of new materials available
- Pilot used to develop iQuit (see below)

**Results:** Women in the intervention group were nearly 1.5 times more likely to not be smoking at 4 weeks post quit, based on self-report, not validated biochemically.

### West Midlands Stop Smoking Service, Dudley and South Birmingham

- Introduction of 'opt-out' pathway for Stop Smoking Services (automatic referral to SSS instead of 'opt-in', asking whether person would like a referral to SSS)
  - If woman *does* opt-out of referral, no further action is taken
- Referral by midwife to SSS following booking appointment for self-reported smokers, CO validated smokers and recent quitters
- Midwives were trained to diplomatically discuss maternal smoking cessation and to set up referrals to SSS

**Results:** 3712 referred to SSS, 258 successfully contacted by SSS, 129 engaged with SSS (50%); 80 set a quit date (62%); 51 were not smoking at 4 weeks post-quit (64%).

Showed an increase in number of referrals, but no increase in number of women quitting when comparing 2010/11 to 2009/10, despite increased referrals.

### **Voices: Insight into West Midlands SSS Program with Lucy Hackshaw**

- *Measured the impact of introducing an 'opt-out' pathway rather than 'opt-in' to increase quit rates*
  - *To get engagement of women smokers with SSS in place*
  - *To change health behaviours of hard-core smokers*
  - *To introduce routine CO monitoring of all pregnant women*
  
- *Research staff trained the midwifery staff to do the referrals, did not train the SSS staff who were already highly trained to support pregnant smokers*
  - *Identified what SSS could offer first and Dudley and Birmingham had good pregnancy cessation allocation—may depend what the specific Trust has allocated funds for*
  - *Most SSS have dedicated pregnancy advisor, so can rely on that training*
  - *Took the pressure off the midwives, since they didn't have to 'do' the intervention, just had to make sure woman was referred*
  
- *Chose to refer to SSS rather than carry out midwife-led 'risk perception'-style intervention because it is difficult to identify woman as a smoker ahead of the first meeting,*
  - *As a result, difficult to put in place an appointment for the same day and scheduling for a future date would result in a ~2 week delay in contact*
  
- *Midwives were not opposed to the program but*
  - *felt that time was really an issue (making time to talk about smoking)*
    - *Additional work for them to do*
    - *Smoking taking up time that they would spend on other things*
  - *felt it was challenging to approach the subject of smoking, refer to harms and risks without alienating the client*
    - *There's a lot of guilt associated with smoking in pregnancy)*
    - *Most clients were from deprived areas, with many competing demands in their lives, especially during pregnancy*
  
- *Success of the program comes down to individual health workers*
  - *Midwives who believed in the intervention (convinced of the benefits to stopping smoking in pregnancy) were much more effective at encouraging women not to 'opt-out' of the referral*
  - *Midwives who were less convinced (some were smokers themselves) had less robust referral rates.*
  - *If perception is that some other issue (e.g. obesity) is more important, midwives will not devote their time to convincing women to use SSS*
  - *Smoking in pregnancy intervention really requires a 'Champion'— someone who feels that smoking is an issue worth spending time on.*

- *Dr. Hackshaw felt the intervention was successful despite no increase in number of quitters, because intention was to start to engage hard to reach population*
  - *Pregnant smokers who have not already determined to contact SSS when they find out about the pregnancy are already a more marginal group in terms of their health behaviour*
  - *Research suggests that once a smoker has made contact with SSS they are more likely to successfully quit in the future, even if they don't actually quit the first time that they engage.*
- *Unfortunately, 'opt-out' pathway was not made permanent*
  - *Funds were available only for 18 months (for CO monitors and for training), through the academic research study. Therefore, no on-going support for the initiative*
  - *SSS were very supportive, but unclear whether midwives are still actively referring on an opt-out basis*

### **E. 'Risk perception' interventions**

Two related programs provide an intensive session for pregnant smokers aimed at improving their perception of the risks to the infant of smoking in pregnancy. The original program involved training midwives to deliver the intensive intervention. The expanded program adds such training to automatic referral training for midwives and Stop Smoking Service staff.

#### **Rotherham Trust**

Rotherham SSS initiated a new standard of practice aimed at decreasing the number of women smoking in pregnancy and smoking at time of delivery. In a similar context to Redcar/Cleveland and Middlesbrough, there was success with the introduction of intensive counselling with regard to the risks of smoking in pregnancy.

- **Target group:** hard-to-reach pregnant women
- Prior to the new approach, the SATOD rate and infant mortality rate were both high
- New approach built on focus group data collected following an unsuccessful attempt to lower rates of smoking by making the SSS contact 'opt-out' rather than 'opt-in' (7 follow up appointments)
- Referral from booking appointment to intensive face to face visit with specialist smoking cessation midwife at antenatal clinic
- Involved specialist midwife contact for each smoking patient in addition to standard SSS contacts/appointments.

**Results:** 43.9% set quit date in 2010, up from 33.7% 2008; 49% were not smoking at 4 weeks post-quit in 2010, up from 37% in 2008. **SATOD decreased from 27.3% in 2008 to 19.2% in 2012.** Infant Mortality Rate fell from 6.17 in 08/09 to 4.8 in 2010-2012

### Challenges with Risk Perception model

- Used focus group to shape the intervention, on that basis built up a very prescriptive service, almost 'harsh' in its approach to risks
  - fairly authoritarian/prescriptive with regard to behaviour and stark in terms of provision of risk information to patients;
  - no real option to decline the intervention/contact
  - short term contact with women
- However, the program:
  - Points to the need to consult at a *local* level to determine what will be helpful for the groups in question.
  - Points to the benefit of consultation of the patient group *before* introduction of an intervention
  - Showed improvement of quit rates, SATOD and infant mortality rate in the area (these benefits have been maintained since)

### ***Voices: Insight into Rotherham Program with Lisa Fendall, now a nationwide trainer in Risk Perception approach, with Baby Clear***

*Background: Rotherham already had an 'opt-out' referral system in place, hadn't had any impact on SATOD rates; were already using CO monitors.*

- *Focus groups were conducted with pregnant smokers asking about barriers to successfully quitting smoking during pregnancy*
  - *Mums said they needed to 'just hear the bad bits'—to get straight, truthful information about the risks to the baby of smoking in pregnancy*
  - *There were many misunderstandings about these risks, what protection the baby had, and despite the conversation being difficult, the mums valued hearing the truth*
- *The approach means that women are automatically referred to a smoking cessation midwife, who is an expert in pregnancy and can provide reliable information*
  - *Women are told that they have an appointment, not asked whether they want one*
  - *Smoking in pregnancy is treated with the same seriousness as, for example, preeclampsia or gestational diabetes, i.e. midwife would not let a client with those risk factors leave without outlining the potential health consequences, why would they let smoking pass without doing the same?*
- *Follow up after the initial contact*
  - *Have midwife who is trained in the intervention speak to pregnant woman at the first contact (as described above)*

- *Follow up with smoking specialist visit to the home (because many women will not come back in to meet appointments)*
- *Bringing service right to woman's home improves engagement with program*
- *Midwives were the biggest barrier*
  - *Concerned about damaging the relationships with pregnant clients by bringing up questions of smoking in pregnancy (causing guilt)*
  - *Opposed the use of CO monitors*
  - *One-to-one approach with intensive 'risk perception' intervention was too time consuming (must talk about so many things in a short time)*
  - *Dedicated space is required to hold intensive conversations*
  - *After putting model in place, they see value of the approach*
- *Now included as 'bolt-on' component of Baby Clear training, to re-engage those women who opt-out of automatic referral and refuse to engage with SSS (see below)*

**Baby Clear** (FRESH North East-NE regional, including South Tees)

Baby Clear is a training program designed for stop smoking specialists and midwives, to implement a program that meets all Key Recommendations laid out by the NICE guidance. This program includes training to carry out a risk perception component with pregnant smokers, modelled on the program developed in Rotherham.

- **Target group:** midwives and Stop Smoking Service staff
  - Trained midwives to introduce systematic CO monitoring for all pregnant women at first booking appointment, standardise referral process to SSS for pregnant smokers
  - Trained SSS staff (Stop Smoking advisors and administrative teams)
- Introduced intensive MW contact for 'opted-out' pregnant smokers, at time of dating scan—designed to influence their 'risk perception' about smoking in pregnancy
  - Smaller number of midwives trained to do dating scan risk perception' intervention

**Results:** Large increase in number of quit dates set after women engage with SSS in County Durham & Darlington (+23%) but large decrease in South Tees (-17%)

- County Durham example: 257 referred, 241 attended appointment, 66 set quit date (27%), 37 quit at 4 weeks post-quit (56%)—14% of all referred women were quit at 4 weeks post-quit

**Voices: Insight into Baby Clear program, with Martyn Willmore of Fresh North East**

- *Fresh NE has rolled out Baby Clear program in 12 North East areas, including South Tees.*



- *Built on the NICE guidance, as well as an academic survey that was conducted with 1300 midwives to identify reasons whether all knew how to intervene with pregnant smokers, why not all midwives would do so and why they might not do so with certain clients.*
- *Highlighted that midwives need a) a standardised pathway for referrals for smoking cessation and b) training to intervene with 'hard to reach' clients who did not stop smoking when they discovered their pregnancy*
- *Baby Clear trains midwives in the opt-out approach to referrals*
  - *provides CO monitors, referral pads and referral pathways for pregnant smokers to Stop Smoking Services.*
  - *Trains certain midwives, who will be present when women attend for their 12 weeks scan, in a harder hitting 'risk perception' intervention for those pregnant smokers who have refused engagement with SSS.*
  - *Program came online in March/April 2013*
- *Barriers: challenges getting staff members to value and attend training*
  - *However, South Tees area is fully participating*
- *Links with local authorities are very good, but Clinical Commissioning Groups (CCGs) may be less aware of FRESH, as they do not directly provide funding to the Baby Clear program*
- *Outcome data*
  - *SATOD data are going down, but there is a time lag between implementation of the program and obtaining outcome data*
  - *In the North East there has been an uptick in engagement with SSS across the 12 regions where the program has been implemented*
    - *Unclear why number of quit dates set in South Tees actually fell following introduction of the intervention*
  - *Program evaluation currently being undertaken by Newcastle University through FUSE—results expected in 2015*

## **Health economic assessment**

Commissioned by NICE, the York Health Economics Consortium produced a complete report on the cost effectiveness of various interventions for smoking cessation for pregnant women. It is based on data drawn from international studies and is available at

<http://www.nice.org.uk/nicemedia/live/13023/49421/49421.pdf>

## Recommendations

In order to best support smoking abstinence during breastfeeding, the optimal approach is to undertake smoking cessation support with women during pregnancy. This is based on three factors: the increased motivation available for cessation during pregnancy, the common practice for postnatal women to stay mostly at home during the early weeks after birth and the short duration of breastfeeding among UK women. Interventions which target women for smoking cessation while they are pregnant also maximise the health benefits of quitting for both the woman and her child. Several recommendations follow, below.

### Baby Clear

- The Baby Clear program is already underway in the South Tees region
  - The program is evidence based, and incorporates the highly successful 'risk perception' intervention first developed in Rotherham.
  - This intervention lowered SATOD and infant mortality rates in a context similar to Middlesbrough and Redcar/Cleveland.
  - It has addressed important health inequalities and improved maternal and infant health outcomes.
- While this intervention is shorter-term (risk perception takes place at 12 week scan, in order to encourage engagement with SSS), the outcomes found in Rotherham indicate that more women quit and remain abstinent through to time of delivery than without the intervention
  - If this is the case, more of these women will also be abstinent during the breastfeeding/postnatal period
- We recommend that the Middlesbrough and Redcar/Cleveland public health sectors continue to engage with the Baby Clear program (Fresh NE) for smoking cessation in pregnancy
  - The program is currently being evaluated by Fuse, through Newcastle and Teesside Universities; evaluation data available in 2015 will provide an excellent means to assess the impact of the program

### Accurate collection of outcome data

- It is essential that outcome measures are accurately collected for any program that is instituted.
- Outcome measures should be comparable with those collected by other programs and entities.
- It is preferable to collect more than the minimum data on outcomes
  - We recommend collecting data on smoking at 4 weeks post-quit date (the metric used within the NHS) in addition to smoking at time of delivery (the metric used within Public Health services).

- With respect to the promotion of smoking abstinence in breastfeeding women, it would also be optimal to collect data on postpartum smoking, at 4 and 12 weeks postpartum, during the postnatal period when breastfeeding is most likely to still be occurring.

## **UK National Smoking Cessation Conference**

- We recommend that the local authorities prioritise sending delegates to attend the UK National Smoking Cessation Conference. <http://www.uknsc.org/>
  - This once per year event brings together professionals and academics working in the field of tobacco control
  - Allows for cross-fertilisation and networking between individuals involved in smoking cessation efforts.
  - Information about relevant programs from across the country is presented during this meeting and may not be easily available elsewhere

## 2. Maternal Substance Misuse and Breastfeeding

Substance misuse is defined as the regular use of substances and/or alcohol, to the extent that developing physical dependence and/or causing harm to their health or that of their infant. Substance misuse can include the use of alcohol, illicit drugs and misuse of prescribed medication.

The prevalence of the use of illicit drugs during pregnancy is difficult to estimate accurately, but the use of drugs such as cannabis, amphetamines, heroin and cocaine is thought to be fairly widespread, especially in urban areas. Approximately 60% of women are estimated to continue to consume alcohol during pregnancy.

Women who have substance misuse problems are at greater risk of complications in pregnancy. Maternal substance misuse is also associated with short- and long-term health risks for the infant after birth, in addition to the health risks to the mother.

Common pregnancy complications associated with opiate and alcohol misuse include:

- premature birth (opiates)
- low birth weight (opiates)
- miscarriage (alcohol)
- stillbirth (alcohol)

Common poor health outcomes for infants associated with opiate and alcohol misuse include:

- higher incidence of sudden infant death syndrome (SIDS or cot death) (opiates)
- neonatal withdrawal (opiates)
- fetal alcohol syndrome, which is itself associated with:
  - Hyperactive behavior
  - Attention deficits
  - Poor memory and learning disabilities
  - Speech and language delays
  - Intellectual disability or low IQ
  - Poor reasoning and judgment skills

Women with maternal substance misuse issues are likely to have multiple and complex needs since these issues are strongly associated with vulnerability and social exclusion. Women who misuse substances often begin standard antenatal care late, meaning that they miss out on its proven benefits. In

addition, when they do seek care they may conceal their substance misuse when speaking with health care providers, meaning that they cannot be referred for further specialised support.

In the commissioning area of Middlesbrough, the rate of substance misuse in the general population is 26.3/1000 population, equal to the highest rate in England. In Redcar/Cleveland, the rate is 12.1/1000 population, higher than both the regional and England values. While the rate of substance misuse among the pregnant population is not accurately known, extrapolating from the overall rate suggests that substance misuse among pregnant women is likely to be a serious public health issue, particularly in Middlesbrough.

### **Breastfeeding and Substance Misuse**

An important recent study (Dryden et al 2009) outlines findings related to breastfeeding among women prescribed methadone as a substitute for illicit drug use.

- Group of 450 pregnant women
- Nearly half the infants required medication to treat neonatal abstinence syndrome (NAS) or baby withdrawals
- The likelihood of needing treatment was higher among infants of women who had continued to take other drugs as well as the methadone
- Infants whose mothers breastfed beyond the first three days of life were significantly *less* likely to need treatment for NAS.

The researchers believe that the infant's symptoms of withdrawal are lessened by the combination of

1. the soothing effect of breastfeeding on infants who are agitated;
2. the positive benefits of breast milk, and
3. the trace amounts of the drugs taken by the mother that pass to the infant through breast milk.

As a result of these findings, Unicef Baby Friendly Initiative and other institutions recommend that all substance misusing women should be encouraged to breastfeed their babies. An extended postnatal stay in the maternity unit after the birth provides the opportunity for health care professionals to detect NAS and to provide support to help mothers properly establish breastfeeding prior to discharge.

## **NICE Guidance on Pregnancy and complex social factors**

The National Institute for Health and Care Excellence (NICE) commissioned a report entitled Pregnancy and complex social factors: A model for service provision for pregnant women with complex social factors, which was prepared by the National Collaborating Centre for Women's and Children's Health (NCCWCH). This report identifies the central issues in supporting women who misuse substances during pregnancy. By providing support to women who misuse substances during pregnancy, health workers create a healthier postnatal environment, in which mothers make the healthy choice to breastfeed. As outlined above, this improves neonatal outcomes for drug-affected infants.

One of the key issues that leads women who misuse substances to poor pregnancy and neonatal outcomes is that they do not access and remain in contact with antenatal services. These women frequently have multiple and complex social needs above and beyond their misuse of substances. In many cases, they are vulnerable and socially excluded.

The NICE report outlines recommendations for the care of pregnant women who misuse substances. Because these recommendations are centrally important to the design of the interventions described hereafter, they are included in full, below.

### **Section 1.2 Pregnant women who misuse substances (alcohol and/or drugs) — NICE Guidance on Pregnancy and Complex Social Factors**

Pregnant women who misuse substances may be anxious about the attitudes of healthcare staff and the potential role of social services. They may also be overwhelmed by the involvement of multiple agencies. These women need supportive and coordinated care during pregnancy.

1.2.1 Work with social care professionals to overcome barriers to care for women who misuse substances. Particular attention should be paid to:

- integrating care from different services
- ensuring that the attitudes of staff do not prevent women from using services
- addressing women's fears about the involvement of children's services and potential removal of their child, by providing information tailored to their needs
- addressing women's feelings of guilt about their misuse of substances and the potential effects on their baby.

## **Service organisation**

1.2.2 Healthcare commissioners and those responsible for providing local antenatal services should work with local agencies, including social care and third-sector agencies that provide substance misuse services, to coordinate antenatal care by, for example:

- jointly developing care plans across agencies
- including information about opiate replacement therapy in care plans
- co-locating services
- offering women information about the services provided by other agencies.

1.2.3 Consider ways of ensuring that, for each woman who misuses substances:

- progress is tracked through the relevant agencies involved in her care
- notes from the different agencies involved in her care are combined into a single document
- there is a coordinated care plan.

1.2.4 Offer the woman a named midwife or doctor who has specialised knowledge of, and experience in, the care of women who misuse substances, and provide a direct-line telephone number for the named midwife or doctor.

## **Training for healthcare staff**

1.2.5 Healthcare professionals should be given training on the social and psychological needs of women who misuse substances.

1.2.6 Healthcare staff and non-clinical staff such as receptionists should be given training on how to communicate sensitively with women who misuse substances.

## **Information and support for women**

1.2.7 The first time a woman who misuses substances discloses that she is pregnant, offer her referral to an appropriate substance misuse programme.

1.2.8 Use a variety of methods, for example text messages, to remind women of upcoming and missed appointments.

1.2.9 The named midwife or doctor should tell the woman about relevant additional services (such as drug and alcohol misuse support services) and encourage her to use them according to her individual needs.

1.2.10 Offer the woman information about the potential effects of substance misuse on her unborn baby, and what to expect when the baby is born, for example what medical care the baby may need, where he or she will be cared for and any potential involvement of social services.

1.2.11 Offer information about help with transportation to appointments if needed to support the woman's attendance.

## Interventions to support women who misuse substances in pregnancy

Far fewer programs were identified that support women who misuse substances during pregnancy and the postnatal period than to encourage maternal smoking cessation. All substance misuse interventions that were identified, including those mentioned in Descriptions of services for pregnant women with complex social factors (NICE CG 110), are summarised and presented below.

### Vulnerable in Pregnancy (VIP) program, Kirkcaldy, Fife

- **Staffed by:** clinical manager (1 day/wk); 1.8 FTE dedicated midwife positions
- **Referrals by:** addictions nurse (about 50%), community midwives, GPs, health visitors
  - Serves 100-110 women per year, continuing to increase year on year
- Midwife (health team) or social worker may be given 'lead' on case
- Initial visit with follow up visits every 2 or 4 weeks through pregnancy (depending on stability of drug use), with drug service appointments between visits; all visits are done in-home
- Pre-birth planning meeting takes place at 22 weeks gestation
- Standard in-patient period of 5 days after birth
  - midwife has daily contact while client is on maternity ward (co-located)
  - Infants room-in with mother, not automatically sent to the neonatal unit (NNU) (only if medically indicated)
  - Breastfeeding is strongly encouraged and breastfeeding support is provided
- Midwife may remain in contact up to 3 months postpartum or even longer in unusual cases
  - Midwife provides weekly visits once client is at home
- **Contacts occur:** at home, as a way to avoid missed appointments (very common among the clients) and as a way to evaluate the situation in the home
- **Links to:** addiction services, social work, criminal justice system, mental health services, liaises with midwives working in the women's prison
- Connects with Barnardo's, SureStart, parenting and cookery classes, literacy
  - Goal to normalise their experience of pregnancy, reintegrate with community, support good parenting in the postpartum period (including breastfeeding)
- Outcomes: Of 108 pregnancies in 2013, only 8 infants required treatment for neonatal abstinence syndrome (NAS)
  - 60-65% breastfeeding uptake rate (which minimises NAS symptoms in infant)

### **Voices: Insight into VIP program, with Joyce Leggate of Fife NHS**

- *Program came into being after explosion of heroin in the Fife area in the mid 1990s*
  - *Initially women whose partners were IV drug users, then women who were themselves using*
  - *Tightly associated with poverty and deprivation, along with loss of industry in area*



- *Participants have very complex needs; many are not able to keep care of their child*
- *Has been funded since 2003, but funding has come from many different sources; there is not a lot of commitment to giving the program solid funding/support*
  - *Current funding is through local council health and well-being alliance, but that funding will end March 2105*
  - *Lack of long-term, guaranteed funding undermines stability of the program*
- *Joyce Leggate has been the prime mover for the program. She is going through phased-retirement. While there has been Succession planning to train additional midwives the incoming clinical manager will not have dedicated time for the service.*
- *Barriers: on-going attitude to the service means that whenever funding cuts are discussed the program is on the cutting block*
  - *BUT cost effectiveness is high: savings from preventing one infant having to stay in the NNU for 4 weeks would pay for a midwife position*

#### **Manchester Specialist Midwifery Service (MSMS), Manchester**

- **Staffed by:** a consultant midwife and 5 midwives who are specialists in different areas (drug use, sexual health, HIV)
- **Referrals by:** drug and alcohol services, maternity services, GPs, mental health services, gynaecological and termination of pregnancy services, voluntary agencies, such as Lifeline, needle exchange services, Manchester Action on Street Health (MASH-a sex workers project), prisons, Homeless Families, police, probation services, domestic abuse agencies, friends/family members, self-referral
- Initial 1-hour home visit; follow up visits-between 1 and 10 depending on need (4-5 on average)
- Midwife supports clients throughout pregnancy (from time of booking) and for approximately 3 months postpartum
- **Contacts occur:** in drug/alcohol treatment service areas, antenatal care clinics, and maternity wards
- Midwife maintains contact through texts, also texts reminders of appointments etc; clients can also text midwives directly for support/information/to alter appointments
- **Links to:** Embedded in Public Health services. Inputs to 3 maternity hospitals, 4 drug service centres, a sexual health project, local in-patient detoxification unit and local women's prison
- A retrospective study of the MSMS program found that following its introduction of the drug liaison midwife and altered methadone prescribing regimen, the number of women booking into antenatal care during the first trimester increased

### **PrePare, Edinburgh**

Program for women using substances or alcohol, through antenatal period through 3-6 months postpartum

- **Staffed by:** 2 addiction nurses, a health visitor, a midwife, 3 nursery officers, a manager with social work background
- **Referrals by:** community midwives (50%), all agencies, self-referral
- Based on non-judgemental approach, encourages openness and honesty, advocates client choice and active role in decision making.
- **Contacts occur:** Where needed; take place in GP's office, home, children's centres
- Drop-in sessions once/week for 2 hours
- Primarily designed to support 40-50 women per year, specifically the less stable 'chaotic' drug users in the region
  - User profile: illicit drug or alcohol use; over 16; confirmed pregnancy; not engaging with mainstream services
- Parentcraft sessions (including infant feeding) are provided but the most 'chaotic' women do not attend these
- More frequent antenatal appointments than standard care (every 2 weeks); longer appointments than standard care (~1 hour)
- Goal is to stabilise drug use, in line with harm reduction principle
- Engage women through text messages, phone calls, home visits
  - Staff give out their mobile numbers and can be reached 8am-6pm

### **Jessop Wing, Sheffield**

Program for women using substances or alcohol, with the goal of promoting engagement with mainstream care at maternity and drug treatment services. Intention to identify drug and alcohol use early in pregnancy and coordinate care through the antenatal and postpartum periods

- **Staffed by:** 3 midwives (2.6 WTE) with advanced addiction training and nursing training
- One team member is the care coordinator for each client during antenatal care and through 3 to 6 months postpartum.
  - Clients can access care team up to 1 year postpartum
- Clients are not referred to consultant obstetric care except for medical indications (not just standard referral due to drug use)
- **Referrals by:** maternity services, any professional, relatives/friends, self-referral
- Includes women with social, recreational or historical drug use-> can reveal previously hidden dependency/hazardous drug use
- Standard care: minimum of 3 visits (not for antenatal care): Visit 1 early pregnancy; Visit 2 28-32 weeks; Visit 3 36 weeks.
  - Breastfeeding for treatment of NAS is discussed during Visit 2
- Specialist midwives take over care for chaotic women who are not stable/engaging with mainstream services; increased contact (drugs keyworking and antenatal care by specialist midwives). Very rare, not encouraged.
- **Contact occurs:** through letters, calls, texts, home visits, through Outreach services (prostitution, housing)

- Formal links with all agencies to promote ‘seamless service’ (joined-up service); offers an integrated care pathway of care
- **Links with:** community midwives, health visitors, GPs, family planning services, probation, police, prisons, social workers, Sheffield Working Women’s Liaison Opportunity Project, voluntary drug agencies, housing, genitourinary medicine, obstetric team, ward staff, other relevant professionals.

#### **King’s College Hospital, London**

- **Staffed by:** a full time midwife, Woodvine addiction service (nurse and doctor at the hospital antenatal clinic—goal to normalise antenatal care)
- Midwife meets with women, fewer appointments as they are difficult to engage and miss many appointments
- At 36 weeks there is a one-to-one 2-hour appointment focused on Parentcraft
- **Referrals by:** community midwives, GPs, drug agencies, social workers, prisons
  - 70-75 women per year
- **Contact occurs:** through calls to home, contact with drug worker or social worker
- **Links with:** the drug team, housing, prisons, probation service, services for sex workers, domestic violence refuges, the drug team, neonatologists, and social workers; Information about the service provided to healthcare professionals that include contact details.

#### **The Women’s Alcohol and Drug Service (WANDS), Nottinghamshire**

- **Staffed by:** midwife, obstetrician, drug treatment worker, sexual health worker
- **Referrals by:** community midwives, GPs, drug treatment, probation services, arrest referrals, and self-referral
  - 60-70 women each year
- Liaison midwife follows up on missed appointments; extra home visits can be offered if the woman finds it very difficult to attend
- **Contact occurs:** at clinics, GPs office, home, children’s centres, probation offices etc.
- **Links with:** various agencies, based on the particular woman’s involvement.
  - Coordinates with other services involved with the care of a particular woman. Examples of other services: drug and alcohol treatment services, criminal justice service (probation) and social services.

### **Health economic assessment**

The following Health Economic assessment summarises the *Health Economics Considerations* section of the NICE Guidance Report [Pregnancy and complex social factors: A model for service provision for pregnant women with complex social factors.](#)

This assessment is based on the assumption that antenatal care has been proven beneficial and specifically that booking early in pregnancy (during the first trimester) will improve maternal and infant health outcomes for all

women. Programs designed to support pregnant women who are misusing substances or alcohol will therefore increase maternal and infant health outcomes if they increase the number of these women who access antenatal care during the first trimester.

The health economic assessment assumes that a specialist service would provide additional support for women with substance misuse issues, rather than simply providing standard antenatal care. Based on the NHS cost effectiveness guideline of £20,000 spent per Quality Adjusted Life Year (QALY):

- A specialist service costing £25,000 (1 PT MW, over and above resources spent on standard antenatal care) would be cost effective if it booked 4 additional women/year during the first trimester of their pregnancy
- A specialist service costing £150,000 (1 FT MW, 1 PT addiction nurse and nursery officer, 1 PT manager and 1 PT administrator) would be cost effective if it booked 20 additional women/year during the first trimester of their pregnancy
- A specialist service costing £250,000 (2 FT MW for drugs and alcohol, 1 FT MW for mental health, 1 FT MW for sexual health; 1 PT consultant MW to manage the service; 1 PT administrator) would be cost effective if it booked 33 additional women/year during the first trimester of their pregnancy
- A targeted service that provided only standard antenatal care but was directed specifically at substance misusing women could also be cost effective, if it was successful at increasing the number of women booked in during the first trimester of pregnancy. The number of additional women needed to book depends on the cost of the service provided (how many additional staff positions are required).

The report concludes that spending additional time to coordinate care plans, to reconnect with those who have missed appointments, and to make sure that women receive antenatal care will be cost-effective if these services increase the number of women who book early and follow through with antenatal care throughout their pregnancy. Where there is a larger population of substance misusers, further services and dedicated midwives are likely to be cost-effective.

## **Recommendations**

### **Cost-effectiveness**

- As outlined in the health economic assessment, programs to intervene with women who are misusing substances during pregnancy will be cost-effective as long as a

balance is struck between the complexity of the service provided (staffing levels) and the population at need (number of additional women to access care)

- Large-scale substance misuse interventions will be more cost effective in Middlesbrough, where there is a high rate of substance misuse in the general population, which can be extrapolated to a high rate among pregnant women.

## **Interventions**

- Multiple care models exist, from simple (one part time midwife) to complex (5 midwives with various specialities, plus a midwife coordinator). It is essential to:
  - Choose a model with a level of complexity that can be managed with the level of resources available
  - Choose a model that will be sustainable over the long term
  - Commit fully to establishing the program, by providing longer-term funding guarantees

## **'Champions'**

- Build on a staff member who is ready to 'champion' a particular program, but don't allow the program to become overly dependent on that individual
  - Ensure that succession plans are in place so that the departure of one staff member does not disrupt an entire program
  - Ensure that key knowledge that has been gained by your 'champion' is recorded and passed on at regular intervals to incoming program staff, to maintain institutional memory

## **Coordinated care leads to improved outcomes**

- Women who misuse substances in pregnancy are best served through coordinated care, including colocation of services for
  - antenatal care
  - addiction
  - social work
  - criminal justice.
- By providing services in the same place, and coordinating care—including the scheduling of appointments—the likelihood of attendance increases
  - women receive maximum benefit from the services they contact
  - Neonatal health outcomes, like premature and low weight births are improved.
- If colocation is not an option, providing a single case 'lead' to coordinate care is optimal
  - specialist or drug liaison midwife
  - a drug treatment worker

- social worker
- other contact who has established close contact with the client
- In order to succeed in improving maternal and infant health outcomes, care should be:
  - accessible
  - planned in consultation with the client
  - non-judgemental
  - honest and provide accurate information
  - confidential

### **Most vulnerable**

The most vulnerable, most 'chaotic' women are the least likely to have taken part in research from which interventions have been developed. For this reason, interventions may or may not be successful with this group. They are also the least likely to have existing contact with any support or treatment services, complicating outreach and engagement.

Staff who are likely to have contact with these women in any service (including outside of health services) should take the opportunity to discuss pregnancy options during any contact with vulnerable women. They should also undertake 'opportunistic referral' of pregnant women with substance abuse issues to specialised midwifery programs (once they are available).

Those staff who have regular contact with clients should be trained in sensitive communication with substance misusing women. In addition, all health care professionals should receive training to increase their understanding of the social and emotional needs of this group.

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