Worcestershire Acute Hospitals NHS Trust

Smoking in Pregnancy

(Saving Babies Lives V3 Element 1 and CNST Element 6)

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

Introduction

Smoking in pregnancy is the single biggest modifiable risk factor for miscarriages, stillbirths, premature birth, and birth defects, causing heartbreak and irreparable damage to children and families.

The highest rates of smoking in pregnancy are in the poorest communities and in regions with the highest levels of deprivation. But the good news is that these are the regions where rates have fallen fastest, helping level up the health of the most deprived communities.

This guideline is for use by the following staff groups:

This guideline is relevant to all healthcare professionals involved in the care of pregnant women and birthing people in all maternity settings, including but not limited to, Midwives, Obstetricians, Early Pregnancy Unit (EPAU) staff, Neonatal nurses, Sonographers, Students, and MCA's/MSW's.

Lead Clinician(s)

Linda Haynes	Public Health Specialist Midwife Lead for Smoking Cessation
Approved by Maternity Governance on:	16th June 2023
Approved by Medicines Safety Committee on:	N/A
Review Date: This is the most current document and should be used until a revised version is in place	16th June 2026

Key amendments to this guideline

Date	Amendment	Approved by:
21st October 2022	New Guideline	Maternity Governance Meeting
21st April 2023	Unexplained high CO readings – page 7 and Appendix 3	Maternity Governance Meeting
16th June 2023	Amended to comply with Saving Babies Lives Care Bundle V3	Maternity Governance Meeting

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Purpose

The purpose of this guideline is to ensure compliance with National Policies, Guidelines and Strategies in relation to smoking, smoking cessation and Carbon Monoxide testing in pregnancy.

This guideline which provides a practical and quality assured approach to reducing the prevalence of smoking in pregnancy has been developed to support practitioners caring for pregnant smokers by providing a framework for care. The aim is to reduce smoking in pregnancy in line with national targets, utilising local and national guidance.

"The Government is set to publish a new Tobacco Control Plan which will set out measures for achieving its ambition to make England smoke free by 2030. In a recent report, (Delivering a Smoke free 2030: The All-Party Parliamentary Group on Smoking and Health recommendations for the Tobacco Control Plan 2021) MPs from the All-Party Parliamentary Group on Smoking and Health urged the Government to take bold action to deliver this ambition and made several recommendations to tackle maternal smoking. These include:

- *A new target to reduce smoking in pregnancy rates to 5% or less by 2025, on track to deliver a smoke free start for every child by 2030.*
- *Vouchers and stop smoking support for pregnant smokers to help them quit.*
- *Tougher rules to protect children and young people from becoming smokers, such as raising the age of sale for tobacco to 21.*
- *Targeted investment to provide quit support to smokers in communities where smoking does the most damage."*

This guideline aims to ensure:

- All pregnant women are screened for the presence of carbon monoxide at booking and at 36 weeks pregnant
- All pregnant smokers are referred to Stop Smoking Services on an opt-out basis.
- All pregnant smokers receive information and advice in an appropriate format
- All pregnant and postnatal women with exposure to second-hand smoke are made aware of the associated risks and supported in maintaining a smoke-free home

The guideline applies to those who smoke and who are:

- Planning a pregnancy
- Pregnant
- In the postnatal period

The Guideline acknowledges:

Worcestershire Acute Hospitals NHS Trust

Tobacco: preventing uptake, promoting quitting, and treating dependence
NICE guideline
Published: 30 November 2021- Updated January 2023
www.nice.org.uk/guidance/ng209

Saving Babies' Lives Version Three a care bundle for reducing perinatal mortality
NHS England June 2023

Background

Smoking in pregnancy remains a key public health concern because it poses significant health risks to the mother and baby. In addition to all the health risks associated with smoking for the general population, some risks to the mother are specific to pregnancy, including:

- Ectopic pregnancy, Miscarriage
- Placental abnormalities and premature rupture of membranes
- Stillbirth
- Preterm delivery
- Low birthweight
- Sudden infant death syndrome
- Pre-eclampsia
- Perinatal mortality – up to one third higher
- Pregnant women who smoke are also at increased risk of deep vein thrombosis (DVT)

Babies born to mothers who smoke are also twice as likely to die from Sudden Unexplained Death in Infancy.
Children of mothers who smoke are more likely to have behavioural problems, learning difficulties, reduced educational performance and are at increased risk of respiratory disease and other upper respiratory tract infections.
Second- hand smoke is also a significant cause of morbidity and mortality in babies and children (Royal College of Physicians, 2010).
Maternal smoking before and after birth is associated with the following childhood conditions:

- A three-fold increase in Sudden Unexpected Death in Infancy
- Asthma, and respiratory tract infections
- Middle ear infections, glue ear and hearing loss
- Attention Deficit Disorder and conduct disorders
- Increased risk of infant colic
- Increased risk of bacterial meningitis

Guidance to follow

Nice guidance NG209 recommends identifying women who smoke and referring them for stop smoking guidance and support using appropriate services.

At Initial contact or at Booking

The midwife should complete CO monitoring prior to enquiring about the women's smoking status and ask whether any other household member's smoke.

The three simple steps for the consultation are Ask, Advise, Act.

The midwife should explore the woman's knowledge around Carbon Monoxide (CO) and discuss the potential impact that raised levels have upon her health and the health of her unborn baby. Women should be advised that an increased CO reading is usually because of smoking but can be associated with car exhaust fumes and faulty gas appliances. The midwife should then introduce and perform the CO test.

The CO reading should be interpreted by the midwife based on the information that the woman has provided. Consideration should be made of the time of day when the test is taken and the length of time since the woman last smoked a cigarette. The results of the CO test must be documented on Badgernet.

If the CO reading is above 4 ppm and the woman discloses that she is a smoker the midwife should share her concerns with the woman, and the considerable risks to the pregnancy for both mother and baby with continued smoking. She should inform the woman that a referral will be made to the local Stop Smoking Service who will contact her within a few days following receipt of the referral. The midwife should emphasise the importance of the woman's engagement with them and explain how the Stop Smoking Service will be able to provide tailored support to quit and that a combination of Nicotine Replacement Therapies (NRT) and behavioural support is the best way to do so.
If the CO reading is above 4 ppm and the woman discloses that she is a non-smoker the midwife should discuss the impacts of second-hand smoke on the women and unborn baby's health. The midwife should offer a Stop Smoking Service referral for the partner/household member. Her reading may also indicate exposure to CO from other sources and the woman should be encouraged to investigate these as a matter of urgency.

- Referrals can be made at any stage of pregnancy
- Smoking should be discussed at every contact
- CO monitoring must be conducted at every contact for smokers
- Consider monitoring at every contact when someone in the household smokes
- Can be offered to all women whenever this feels appropriate
- All women must have a CO level recorded at 36 weeks

A brief intervention (such as brief advice) involves discussion, negotiation, or encouragement. This may include the referral for further help and support and can be carried out whenever the opportunity arises.

Referrals

All pregnant women who smoke or have quit in the previous two weeks at initial contact or at booking should be routinely referred to the Specialist Maternity Stop Smoking Support Service on an opt out basis through Badger net. A referral should always be made for audit and tracking purposes even if the woman states that she would prefer to quit herself or that she will seek out an alternative source of support. She can decline support from the service, and this can then be documented for evidence. Those with a CO reading of 4ppm or above who state that they do not smoke should be counselled regarding the reading. Refer to Unexplained High readings - **Appendix 4**

All smokers should be booked into a dating scan clinic that has a specialist midwife available to deliver Risk Prevention Intervention (RPI) the risk perception midwives are specially trained to deliver targeted intervention. They should check that the referral to the stop smoking service has been completed and check that this has occurred. If the woman declined support from the service when they contacted her this is a second opportunity to discuss concerns and complete a referral if it has not been done. Risk perception midwives are available at Kidderminster Hub, Antenatal clinic at The Alexandra Hospital and Antenatal clinic at Worcester Royal Hospital.

At initial contact the CO reading should be taken prior to asking about smoking, this should be explained as a routine test for all women. * a smoker is a pregnant woman with an elevated CO level (4ppm or above) and identifies themselves as a smoker (smoked within the last 14 days) or has a CO level less than 4ppm but identifies as a smoker (smoked within the last 14 days)

Referrals for partners, family members and other household members to the smoking cessation service can also be offered. The correct referral form should be selected from the BadgerNet menu. Referral pathway – **Appendix 1**

All women regardless of smoking status should be retested for CO at the 36-week appointment. This can be completed in any setting and should be recorded within the date range of 35 weeks and 36+6. 36-week. CO monitoring – **Appendix 2**

CO testing should be offered at all other appointments to groups identified within NICE Guidance NG209:

If the pregnant person:

- Smokes
- Is quitting
- Used to smoke (gave up within the last two weeks at booking)
- Tested with 4ppm or above at the first antenatal appointment

Further CO testing should be considered if you have reason to believe the woman is smoking or has other household members who smoke Throughout pregnancy CO monitoring – **Appendix 3**

The Service

The Stop Smoking Service will provide all those referred with free, confidential, professional support in a variety of settings including one-to-one at home or within Trust facilities, virtual, or by telephone. The service is able to provide a range of Nicotine Replacement Therapies (NRT) which are safe to use in pregnancy, this is backed up by behavioural support with the advisor. The Trust service is supported by trained Stop Smoking Advisors who are available across the entire region.

Carbon Monoxide (CO) Monitors (Smokerlyzers)

CO monitoring should continue throughout pregnancy and readings documented in the maternity records at every community AN appointment, consultant appointment and any hospital admission.

All community midwives should have access to a smokerlyzer, they should also be available in all clinics, triage, DAU, the antenatal ward, postnatal ward and on delivery suite. Infection control measures should be undertaken when using.

Training on use of the Smokerlyzers is available to all staff and is updated regularly as part of the Saving Babies Lives training day, when interpreting and explaining the CO readings is covered.

The piCO$^{baby™}$ Smokerlyzer® is a breath carbon monoxide monitor, specifically designed for use with pregnant smokers. Intended for multi-patient use by healthcare professionals in smoking cessation programmes and research, the familiar traffic light system provides visual motivation to the mum-to-be to quit smoking whilst also providing the fetal reading both in ppm and %FCOHb.

Benefits to the user

- The monitor provides instant results shown in exact ppm, %COHb and %FCOHb, which makes recording and interpreting patient's results quick and easy.
- With added SteriTouch® antimicrobial additives to ensure optimum infection control.
- There is the familiar green, amber and red traffic light system, making CO levels instantly identifiable to patients.
- D-pieces are used in conjunction with the monitor to filter out 99.9% of airborne bacteria and single-use SteriBreath™ mouthpieces for excellent, low-cost infection control.

CO is a poisonous gas contained in cigarette smoke.

It affects the body's ability to transport oxygen around the body which reduces the oxygen available to the baby. CO crosses the placenta and enters the bloodstream of

the baby: it increases the risk of miscarriage and slows the baby's growth and development.

What you might say:

"Carbon Monoxide is a poisonous gas and is very harmful to your baby. It is present in exhaust fumes, faulty gas appliances and cigarette smoke. It passes via your bloodstream to your baby and deprives your baby of oxygen and nutrients. It also slows the baby's growth and development. Fortunately, CO levels return to normal very quickly once someone stops smoking, which means your baby will benefit almost immediately."

"It is normal practice to refer all pregnant women who smoke to our stop smoking service, a specialist midwife or stop smoking advisor will contact you to offer support"

"As part of routine antenatal checks, we measure the CO level in your bloodstream. It's a simple breath test and we can give you the results immediately. This machine will measure the amount of carbon monoxide in your lungs in parts per million."

Unexplained High CO readings

For anyone blowing a high reading who does not smoke follow flowchart Appendix 4.
Check your monitor first by blowing into it yourself or changing the batteries. If possible, try another monitor!
Discuss the reading to see if it can be explained by external factors such as traffic emissions or public transport. If CO reading above 4 but below 10ppm arrange to repeat the CO test in a few days or a week's time. For CO readings of 10 and above take blood for Carboxyhaemoglobin testing (see directions in Unexplained High CO reading - **Appendix 4)**
Any unexplained reading above 15ppm should be followed up immediately – consider sending to A&E or Triage for testing as this could indicate Carbon Monoxide poisoning.

Training

It is important that all healthcare advisors feel confident in the advice that they give to all service users. Training on giving very brief advice should be completed and can be accessed online through the National Centre for Smoking Cessation And Training (NCSCT)

https://elearning.ncsct.co.uk/vba_pregnancy-launch

Useful information can also be found online:

https://www.ncsct.co.uk/usr/pub/NCSCT%20maternity%20care%20briefing.pdf

Nicotine-containing e-cigarettes

If a woman reports electronic cigarette (e-cigarette) use only she should be recorded as exclusively vaping in the drop down. If she is smoking cigarettes in combination with e-cigarettes, then she is recorded as a smoker. CO monitoring must still take place in line with this policy.
Nicotine-containing e-cigarettes are vaping devices filled with nicotine-containing e-liquid. They are designed for users to inhale nicotine through a vapour rather than smoke. They work by heating and vaporising a solution that typically contains nicotine,

propylene glycol or vegetable glycerine, and flavourings. Unlike traditional cigarettes, electronic cigarettes/vapes do not burn tobacco and do not produce tar or carbon monoxide. They are 'vaped' rather than smoked and although the vapour has been found to contain some toxicants also found in cigarette smoke, these are at much lower levels, or at level not associated with serious health risks. Most importantly, electronic cigarettes do not contain carbon monoxide, which is particularly harmful to developing babies.

Electronic cigarettes are not completely risk free, however based on the current evidence they carry a fraction of the risk of smoking. If using an electronic cigarette helps pregnant women to stay smoke free, it is thought to be safer for her and her baby than continuing to smoke.

Electronic cigarettes are still fairly new. There is limited evidence on whether there are any effects of longer-term use. There is a lack of evidence about any risks to unborn babies from exposure to vapour. Pregnant women are advised to access support to stop smoking from a stop smoking service or other trained professional as this has been shown to be effective in helping smokers quit. Nicotine replacement therapy (NRT) products which are licensed as medicines appropriate for use in pregnancy and are free when supplied by the service can be used alongside vaping to assist with becoming smoke free. The safest and most effective way to quit is to access stop services who will provide a combination of stop smoking medication or other intervention and behavioural support.

Nicotine Replacement Therapy (NRT)

A range of products are available as support, patches, gum, mouth spray or inhalator, these are given over a period of 12 weeks alongside behavioural support and therapy. Once they remain smoke free the strength of nicotine is reduced over that period.

Saving Babies Lives Care Bundle Version three

Interventions
1. 1.1 CO testing offered to all pregnant women at the antenatal booking and 36-week antenatal appointment. 2. 1.2 CO testing offered at all other antenatal appointments to groups identified within NICE Guidance NG209. 3. 1.3 Whenever CO testing is offered, it should be followed up by an enquiry about smoking status with the CO result and smoking status recorded. 4. 1.4 Instigate an opt-out referral for all women who have an elevated CO level (4ppm or above), who identify themselves as smokers or have quit in the last 2 weeks for treatment by a trained tobacco dependence treatment adviser (TDA) within an in-house tobacco dependence treatment service. 5. 1.5 Nicotine replacement therapy (NRT) should be offered to all smokers and provision ensured as soon as possible. 6. 1.6 The tobacco dependence treatment includes behavioural support and NRT, initially 4 weekly sessions following the setting of the quit date then regularly (as required, however as a minimum monthly) throughout pregnancy to support the woman to remain smokefree. 7. 1.7 Feedback is provided to the pregnant woman's named maternity health care professional regarding the treatment plan and progress with their quit attempt (including relapse). Where

a woman does not book or attend appointments there should be immediate notification back to the named maternity health care professional.

8. 1.8 Any staff member using a CO monitor, should have appropriate training on its use and discussion of the result.
9. 1.9 All staff providing maternity care to pregnant women should receive training in the delivery of Very Brief Advice (VBA) about smoking, making an opt-out referral and the processes within their maternity pathway (e.g., referral, feedback, data collection).
10. 1.10 Individuals delivering tobacco dependence treatment interventions should be fully trained to NCSCT standards

Stretch Ambition:

1. 95% of women where CO measurement and smoking status is recorded at their booking appointment.
2. 95% of women where CO measurement and smoking status is recorded at their 36- week appointment.
3. 95% of smokers have an opt-out referral at booking for treatment by a Tobacco Dependence Advisor) TDA within an in-house service.
4. 85% of all women referred for tobacco dependence treatment engage with the programme (have at least one session and receive a treatment plan).
5. 60% of those referred for tobacco dependence treatment set a quit date.
6. 60% of those setting a quit date successfully quit at 4 weeks.
7. At least 85% of quitters should be CO verified.

Process Indicators	Outcome indicators
1a. Percentage of women where there is a recorded of: 1.a.i. CO measurement at booking appointment 1.a.ii. CO measurement at 36-week appointment 1.a.iii. Smoking status** at booking appointment 1.a.iv. Smoking status** at 36-week appointment 1b. Percentage of smokers* that have an opt-out referral at booking to an in-house tobacco dependence treatment service. 1c. Percentage of smokers* that are referred for tobacco dependence treatment who set a quit date.	1d. Percentage of smokers* at antenatal booking who are identified as CO verified non-smokers at 36 weeks. 1e. Percentage of smokers* that set a quit date and are identified as CO verified non-smokers at 4 weeks.
* a “smoker” is a pregnant woman with an elevated CO level (4ppm or above) and identifies themselves as a smoker (smoked within the last 14 days) or has a CO level less than 4ppm but identifies as a smoker (smoked within the last 14 days). ** Smoking status relates to the outcome of the CO test (>4ppm) and the enquiry about smoking habits.	

Other Resources

Saving Babies Lives Care Bundle – Version two (2019)
https://www.england.nhs.uk/wp-content/uploads/2019/07/saving-babies-lives-carebundle-version-two-v5.pdf

NICE guideline [NG209]
Tobacco: preventing uptake, promoting quitting and treating dependence (2021)
https://www.nice.org.uk/guidance/ng209

Carbon monoxide screening: Advice for health care professionals
(Smoking in Pregnancy Challenge Group) https://smokefreeaction.org.uk/smokefree-nhs/smoking-in-pregnancy-challengegroup/smoking-in-pregnancy-challenge-group-resources/carbon-monoxidescreening/

NCSCT Briefing on electronic cigarettes
https://www.ncsct.co.uk/publication_electronic_cigarette_briefing.php

Use of electronic cigarettes in pregnancy: a guide for midwives and other health care professionals
(Smoking in Pregnancy Challenge Group) https://smokefreeaction.org.uk/smokefree-nhs/smoking-in-pregnancy-challengegroup/smoking-in-pregnancy-challenge-group-resources/e-cigarettes-in-pregnancy/

References

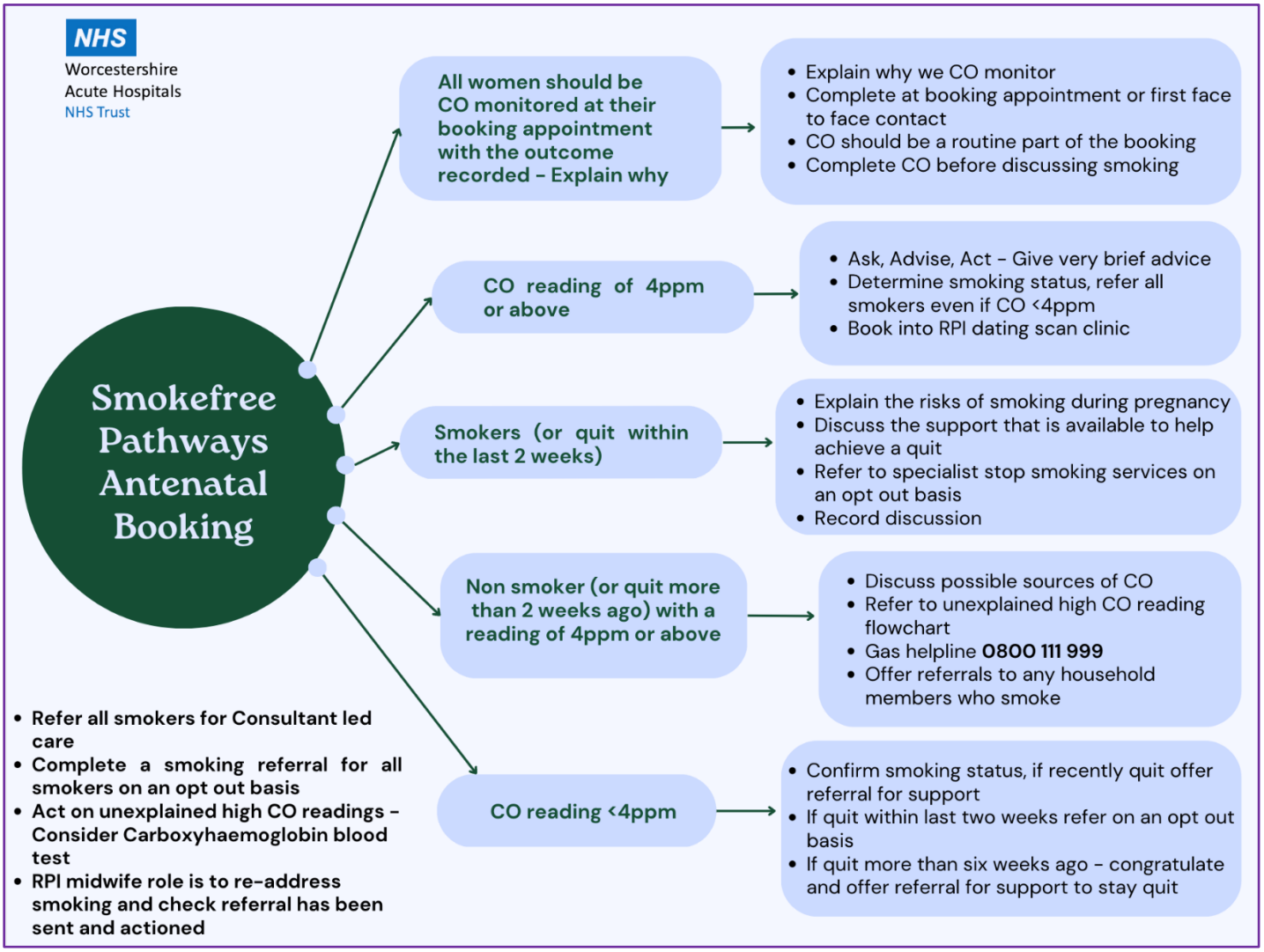
Towards a smoke-free generation: a tobacco control plan for England.
Department of Health and Social Care. 2017

Delivering a Smoke-free 2030: The All-Party Parliamentary Group on Smoking and Health recommendations for the Tobacco Control Plan 2021
APPG on Smoking and Health. June 2021

Tobacco: preventing uptake, promoting quitting, and treating dependence
NICE guideline [NG209] Published: 30 November 2021 Last updated: 04 August 2022

Saving Babies' Lives Version Two 'A care bundle for reducing perinatal mortality'
NHS England March 2019

Appendix 1

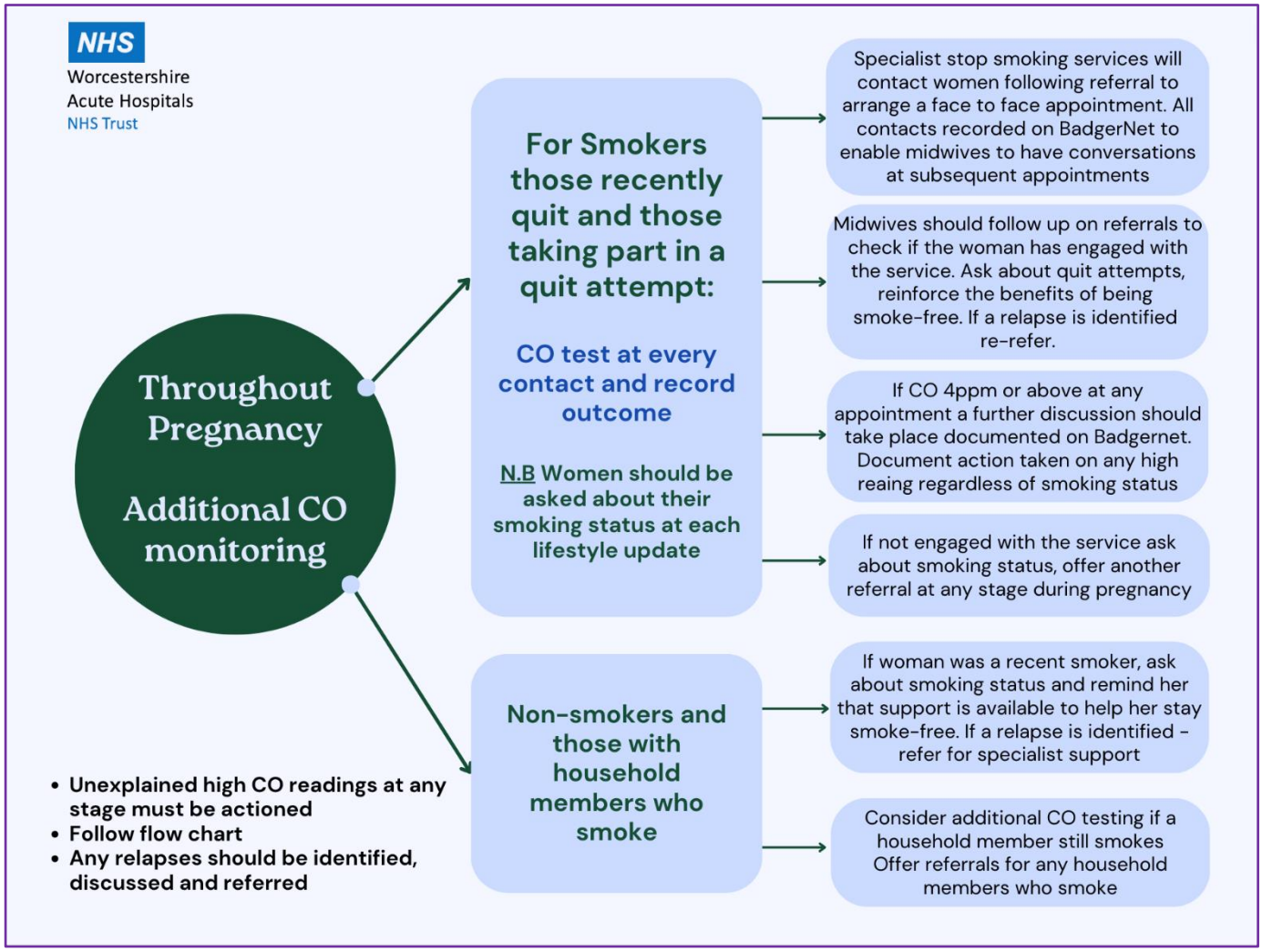


- All staff providing maternity care to pregnant women should complete training in the delivery of very brief advice (VBA), making an opt-out referral and the processes within the pathway

- Consider inequalities that may influence engagement such as language barriers and deprivation.

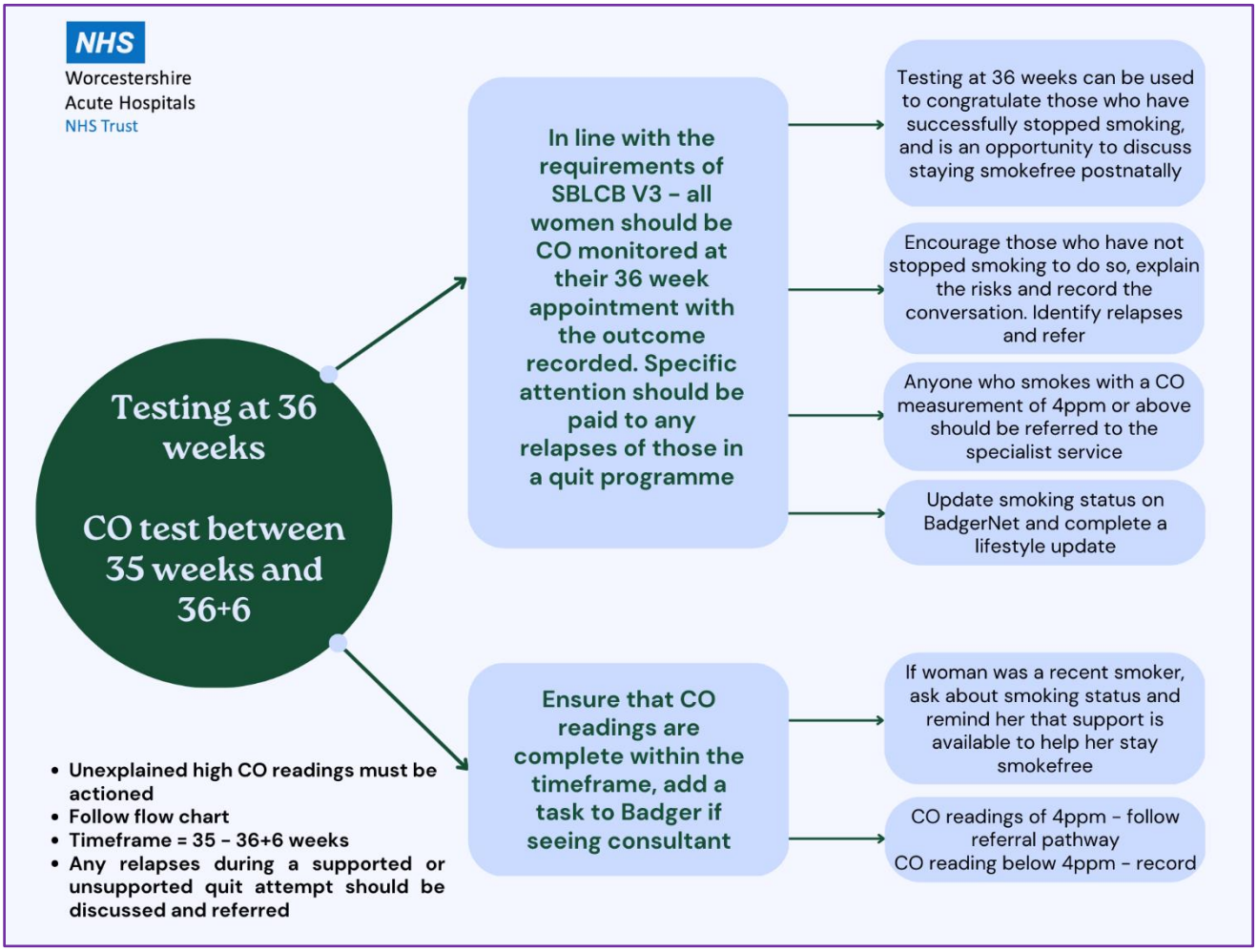
- Maintain contact with Stop smoking team and update with any relevant information

Appendix 2



- CO testing should be offered at all other appointments to groups identified within NICE Guidance NG209
- Smoking status should be updated regularly throughout the pregnancy
- Enquire if woman has engaged with SIP services, discussions should take place if not engaged and discuss barriers to engagement.

Appendix 3



- Smoking status must be documented and updated at 36-week appointment
- Relapses should be discussed and documented, offer further referral for new quit date and further support

Appendix 4

To take a blood sample to check for Carbon monoxide:
Take blood sample as soon as possible after high reading in a green top Lithium Heparin bottle.
In Ice make a new request – Biochemistry – search - Carboxyhaemoglobin

NHS
Worcestershire
Acute Hospitals
NHS Trust

HIGH CO READINGS

ANY READING >4PPM SHOULD BE INVESTIGATED IF
UNEXPLAINED CONSIDER CARBOXYHAEMOGLOBIN

CARBON MONOXIDE READING

- **SMOKER** — Follow pathway
  - **REFER TO SIP** — Opt out basis all smokers
  - **HIGH RISK** — Consultant led care
- **NON SMOKER** — Question levels
  - **>15PPM** — Should be seen in A&E or Triage
  - **10PPM OR BELOW** — Arrange to repeat in 1/52 or sooner
- **RECENTLY QUIT** — Vaping only
  - **QUESTION LEVELS** — If raised ask and document
  - **OFFER REFERRAL** — For support if wished
  - **>10PPM** — Take Blood
  - **DOCUMENT**

Administration of supplemental 100% oxygen is the standard treatment for acute CO poisoning. Oxygen hastens dissociation of CO from haemoglobin and enhances tissue oxygenation. Hyperbaric oxygen accelerates CO elimination

Page/ Section of Key Document	Key control:	Checks to be carried out to confirm compliance with the Policy:	How often the check will be carried out:	Responsible for carrying out the check:	Results of check reported to: *(Responsible for also ensuring actions are developed to address any areas of non-compliance)*	Frequency of reporting:
	WHAT?	**HOW?**	**WHEN?**	**WHO?**	**WHERE?**	**WHEN?**
	Achievement of the interventions and outcomes within Saving Babies Lives V3	Spot checks Audits Regular reviews	Monthly and Quarterly audits in line with SBLCB v3	Element Lead Public Health Midwives	Public Health LMNS	Minimum of 4 times per year
	CO monitoring at booking	Audits	Quarterly	PHM	Governance, PHE, LMNS	Quarterly
	Referral to SIP service	Liaise with PHE/Audits	Quarterly	PHM	PHE	Quarterly
	CO at 36 weeks	Audits	Quarterly	PHM	Governance, PHE, LMNS	Quarterly

WAHT-TP-094

Contribution List

This key document has been circulated to the following individuals for consultation.

Designation
Consultant Obstetricians
Divisional Director of Midwifery
Junior Doctors
Maternity Ward Managers
Community Team Leaders
Maternity Governance team
Maternity Training team
Maternity Matrons

This key document has been circulated to the chair(s) of the following committee's / groups for comments.

Committee
Maternity Governance Meeting
Maternity Guidelines Forum