Sláintecare.

Sláintecare **"Smoke Free Start"**

Right Care. Right Place. Right Time.

AN EVALUATION

By HSE Tobacco Free Ireland Programme
2022

TFI Programme

Contents

In Summary

Background

For women who smoke, who are pregnant (or planning to become pregnant) and following childbirth, stopping smoking is the single most important thing they can do to protect their health and the health of their baby and families. Maternal smoking during pregnancy impairs normal foetal growth and development and is associated with low birth weight, foetal growth restriction, stillbirth, preterm birth, and some congenital anomalies *(Macfarlane, 2018)*. During pregnancy, there is a heightened awareness and motivation among women to change lifestyle and health behaviours for the benefit of their health and for the future health of their baby. It is always a good option to quit smoking at any stage of pregnancy, acknowledging that the best maternity outcomes can be assured where women quit pre-conception or early in pregnancy. However, it is important that women are supported to stop smoking at all stages during pregnancy, and in the postnatal period.

The HSE Tobacco Free Ireland Programme received Sláintecare Integration Funding to deliver *Smoke Free Start* - a dedicated stop smoking service for pregnant women onsite in two large maternity hospitals, namely Cork University Maternity Hospital and the National Maternity Hospital, Holles Street. A national steering group supported design and implementation of the initiative. This was chaired by the TFI Programme but included staff from the National Women and Infants Health Programme and senior management from both pilot sites.

This service is free to all pregnant women, who currently or recently smoked, and who want to quit smoking. The service is delivered by two Stop Smoking Midwives (CMM2), one at each site, who work collaboratively with pregnant women in developing and implementing a plan to quit smoking.

Service Activity in Year One

The service was initially established in the National Maternity Hospital (NMH) in July 2020 and in Cork University Maternity Hospital (CUMH) in September 2020. During the first twelve months of implementation, 691 referrals to the stop smoking services were received across both sites. Overall, 162 quit dates were set; over 70% of these women who quit were still quit when followed-up four weeks after their quit date (project target = 30%) and over 50% were still quit when followed-up 12-weeks after their quit date. At the time of write-up, over 100 babies were born to smoke-free mothers because of this initiative.

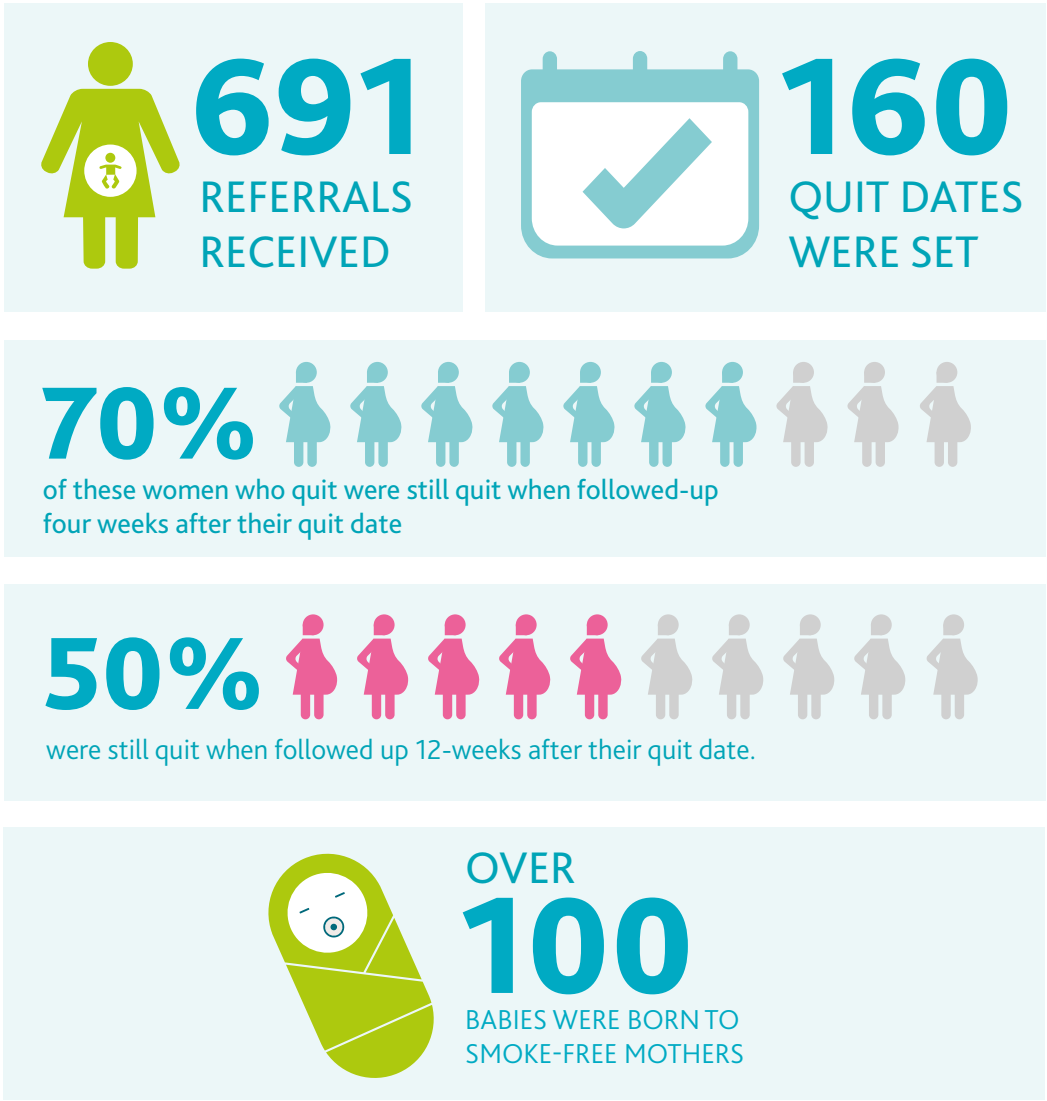
Evidence Based Stop Smoking Support

Quitting smoking is difficult for everybody, and unfortunately, it is no easier for women trying to quit during pregnancy. Many people try to quit using willpower alone, which is the least effective way. Getting the correct support, in terms of planning to quit and receiving behavioural support from a trained Stop Smoking Advisor can double a person's chances of quitting. Although, some of the pharmacological supports used to support people trying to quit are not licensed in pregnancy, nicotine replacement therapies are available, and can be used under medical supervision. Using a

combination of behavioural and pharmacological supports can improve a person's chances of quitting up to 4 times compared to quitting alone.

There are many benefits to quitting smoking; the main ones generally cited by quitters are physical benefits with improved health (which starts immediately), and financial benefits due to savings accumulated from not buying cigarettes. This initiative is unique in that many people experience benefits from the pregnant woman quitting; the woman herself will experience better health including a better pregnancy outcome, the unborn baby will experience benefits, some of which are life-long, and where there are younger children in the family home, they will also experience benefits of their home becoming a smoke-free home.

Providing support to pregnant women to stop smoking is a priority for the HSE Tobacco Free Ireland Programme (TFIP); this pilot initiative proved how successful dedicated initiatives like this could be. Together with our colleagues in the National Women and Infants Health Programme, we look forward over the coming years to implementing similar services across all 19 maternity units in Ireland (as per actions committed to in the National Maternity Strategy).



Smoking in Pregnancy – Myths & Facts

	Myth	Fact
	✗ The risk of harm from smoking in pregnancy is low and everyone knows women who smoked who didn't run into any problems with their pregnancy	✓ Smoking prevents babies from having the best start in life and remains a major cause of new-born deaths, early births and babies born with low birth weight.
	✗ Quitting doesn't change your odds because the damage is done from smoking	✓ Stopping smoking is preferable at the earliest opportunity but quitting at any stage in pregnancy - and staying stopped - improves the outcome for women and their babies.
	✗ Pregnant women who smoke don't want to be bothered by health professionals about their smoking	✓ Every woman wants the best possible outcome from her pregnancy; they expect their smoking to be raised with them by a healthcare professional and are surprised when it's not mentioned.
	✗ Asking a woman who is pregnant about their smoking is a waste of valuable health professional time	✓ A healthcare professional asking about smoking and offering advice and help increases the chance of someone quitting and staying quit for good.
	✗ Nothing works to help you quit and you're best to go cold turkey	✓ There are a wide range of safe and accessible supports that can be tailored to choose from and these increase the odds of quitting during pregnancy.

Source: National Stop Smoking Clinical Guidelines (Guideline No.28), 2022

Introduction

Smoking in Pregnancy

Smoking in pregnancy is one of the most important preventable factors associated with adverse pregnancy outcomes *(Macfarlane, 2018)*. There is currently no national system for the recording of maternal smoking prevalence in Ireland, and there are difficulties comparing rates internationally due to differing methodological issues. However, according to the *Growing Up in Ireland* Study, smoking in pregnancy has reduced from 28% of mothers of children born in 1997/1998 to 18% for mothers of children born in 2007/2008; a 35.7% relative decrease in smoking rates in that decade, *(Layte, 2014)*. More recently, the Coombe Women and Infants Hospital reported that between 2011 and 2015 the prevalence of maternal smoking decreased from 14% to 11%, a 21.4% relative reduction *(Reynolds, 2017a)*.

There are particular features to the challenge of smoking in pregnancy. Pregnant women who smoke in Ireland are generally young, experience socioeconomic deprivation, and often have other physical and mental health needs, including other risky health behaviours *(Reynolds, 2017a)*. Responding effectively to the needs of pregnant women who smoke requires that smoking is identified during antenatal care, however, similar to international studies, research in Ireland has shown that up to 40% of women who smoke may not be identified at the time of their antenatal appointment *(Reynolds, 2017a)*. Research and international experience show that the best outcomes for women and their babies can be achieved when smoking is identified early in the pregnancy and effective support is provided to stop smoking (*McArdle, 2018, Fitzpatrick, 2016, Cooper, 2017, Lieberman, 1994*).

Stop Smoking Care in Pregnancy in Ireland – A Care Gap

A national audit of smoking cessation services in Irish maternity units reported major gaps, weaknesses and variation in the provision of smoking cessation support across maternity units in Ireland (*Reynolds, 2017b*). The *National Maternity Strategy (2016–2026)* identified a need to develop and strengthen the pathway of care for women who smoke in pregnancy *(Department of Health, 2016).* In addition, an objective of *First 5: A Whole of Government Strategy for Babies, Young Children and their Families* is that parents, families and communities will be supported to engage in and promote positive health behaviours among babies and young children, starting from the pre-conception period, and the promotion and support of positive health behaviours among pregnant women is a strategic action *(Government of Ireland, 2019).* Furthermore, stop smoking advice and support is also identified as a requirement for services in *HIQA's National Standards for Safer Better Maternity Services*, specifically standard 1.4, 2.3 and 4.1 *(HIQA, 2016).*

Clinical Impacts of Smoking in Pregnancy

Smoking causes death and disability on a large scale and it is well documented that cigarette smoking has been causally linked to diseases of nearly every organ of the body, to diminished health status and to foetal harm (*US Department of Health & Human Services, 2014*). Smoking in pregnancy is one of the most important preventable causes of adverse pregnancy outcome including ectopic pregnancy, miscarriage and stillbirth *(Macfarlane, 2018).* In addition, maternal smoking during pregnancy impairs normal foetal growth and development and is associated with low birth weight, foetal growth restriction, stillbirth, preterm birth, and some congenital anomalies. Increasing evidence suggests it also has lifelong consequences for the child, with elevated risks of childhood obesity, neuro-behavioural and cognitive deficits, and impaired lung function, including wheezing and asthma, *(Macfarlane, 2018).*

Benefits of Stopping Smoking

Smoking cessation improves well-being, including higher quality of life and improved health status, reduces mortality and increases the lifespan (*US Department of Health & Human Services, 2020*). In addition, the evidence suggests that stopping smoking by pregnant women benefits their health and that of their foetuses and new-borns and quitting smoking early in pregnancy eliminates the adverse effects of smoking on foetal growth. Stopping smoking before or during early pregnancy reduces the risk for a small-for-gestational-age birth weight compared with continued smoking.

Supporting Policies in Ireland

Ireland has a strong track record in tobacco control, which is recognised internationally (*Joosens, 2020*). *Tobacco Free Ireland* is current government policy; it sets a bold target for Ireland to be tobacco-free (smoking prevalence <5%) by 2025 (Department of Health, 2013*). Tobacco Free Ireland* is also a key component of the government's current policy framework for public health, *Healthy Ireland* (Government of Ireland, 2013). The Health Service Executive (HSE) takes forward its responsibilities under *Tobacco Free Ireland* through the HSE *Tobacco Free Ireland* Programme (HSE TFIP).

In addition, the *National Maternity Strategy 2016-2026 - Creating a Better Future Together* (*DOH, 2016*) recognises pregnancy as a unique opportunity to focus on health & wellbeing and maternity services can offer the appropriate information and supports to enable women to make changes in behaviour, including smoking cessation. Furthermore, *First 5 – A Whole-of-Government Strategy for Babies, Young Children & their Families 2019-2028* (*DCYA, 2018*) supports positive health behaviours, starting from the pre-conception period, including smoking. Stop smoking advice and support is also identified as a requirement for services in *HIQA's National Standards for Safer Better Maternity Services*, specifically standard 1.4, 2.3 and 4.1. (*HIQA, 2016*). The standard addresses care provided both to the pregnant woman and to her partner.

National Stop Smoking Clinical Guidelines in Ireland

On the 19th January 2022 the Department of Health launched new National Clinical Guidelines to Help People Stop Smoking, which were approved by the Minister for Health following recommendation by the National Clinical Effectiveness Committee. For the first time in Ireland, these new National Clinical Guidelines describe what people who smoke using health services can expect as good clinical care to help them stop smoking.

A comprehensive public consultation was conducted to ensure challenge and quality assurance of the draft guidelines; external expert peer review was also sought from two international leaders in the area of stop smoking care. The guidelines were then subject to quality review by the National Clinical Effectiveness Committee before recommendation to the Minister for Health for endorsement. This process ensures that healthcare professionals and members of the public can have confidence that the recommendations set out are safe, effective and clinically sound.

These new guidelines describe an improved model of stop smoking care for women who are pregnant, which reflects the best available current evidence, models already in place internationally, and implemented in some maternity services in Ireland.

The model has the following evidence-based components:

1. Routinely provide women who are pregnant with information about stop smoking care and invite them to take a carbon monoxide breath test at the first antenatal visit in conjunction with a discussion about smoking to better identify care needs;
2. Advise women who are pregnant who smoke to stop and that the best way to stop smoking is by using support, which will be routinely arranged where care needs are identified;

3. Act by arranging or providing behavioural support either alone or in combination with a stop smoking medicine, which can include an informed decision to use NRT following discussion of risks and benefits;
4. In addition, all healthcare professionals should provide women while pregnant and post-partum with information about the risks of second-hand smoke (SHS) exposure to pregnant women and babies, and how to reduce SHS in the home.

The guidelines underline that the chances of someone who smokes stopping successfully is maximised when healthcare professionals provide safe, good quality stop smoking care, which includes recommended behavioural and pharmacological support options.

The guidelines include a 3 year implementation plan and a full budget impact assessment, which plans and costs the implementation of dedicated stop smoking services in all 19 maternity units in Ireland within five years of publication.

Initial Proposal for Smoke Free Start (SIF 223)

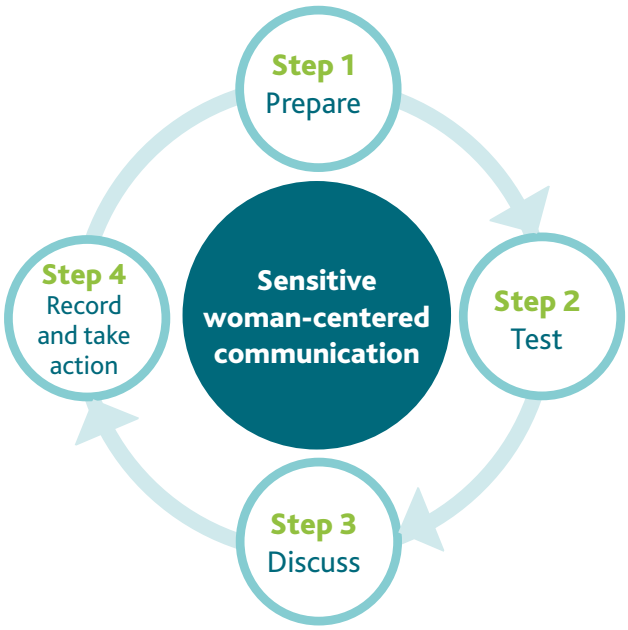
The HSE Tobacco Free Ireland Programme (TFIP) submitted an application to the Sláintecare Integration Fund (SIF) in April 2019 with a proposal to establish dedicated midwifery led stop smoking services in five large maternity hospitals. A business case outlined the clinical impacts of smoking in pregnancy, the benefits to mother and baby of stopping smoking, and the proposed project deliverables were outlined which included;

1. Recruitment and appointment of dedicated smoking cessation midwives (Clinical Midwife Manager 2/Clinical Midwife Specialist) at each of the proposed project sites,
2. Training of clinical staff in online Making Every Contact Count (MECC) online modules and at least 20% trained in the skills (face to face) module,
3. Onsite smoking cessation clinics established in maternity hospitals and associated domino services,
4. Routine identification for tobacco use for all women (through the introduction of routine breath carbon monoxide testing at booking in visit), routine delivery of brief intervention and opt-out referral and subsequent provision of standard treatment programme for all pregnant women who smoke tobacco products through dedicated smoking cessation services,
5. The project aimed to achieve quit rates at one month of 30% (This quit rate is based on the expected outcome from services of this kind in the UK and from existing services in Ireland).

One of the key items contained in this proposal was the introduction of a new clinical test for all pregnant women – Breath Carbon Monoxide (BCO) Testing (which has been recommended in NCEC approved National Stop Smoking Clinical Guidelines). This clinical test has been shown to significantly increase the rate of referral to smoking cessation services as pregnant women who may not have previously disclosed their smoking status are offered treatment. This triggers a brief intervention by their midwife and an automatic referral to an opt-out stop smoking service. BCO testing is also useful as a motivational tool for a patient who is making a quit attempt as they can see their BCO reading

decrease shortly after they stop smoking. The test takes just a couple of minutes to do and results are available immediately. The steps involved are detailed below.

4 Steps



Step 1: Prepare
- Prepare equipment like the breath monitor.
- Introduce the test and explain the test to the woman.

Step 2: Test
- Complete the test.

Step 3: Discuss
- Discuss the test results in a sensitive and non-judgemental manner.
- Enquire about smoking status.

Step 4: Record and take action
- Record CO test result and smoking status.
- Take action depending on CO test result.
- Encourage partners and other household members to contact stop smoking services.

A project implementation plan was outlined with a project implementation team identified within. Following submission of this proposal, funding (a total of € 139,194) was granted to establish stop smoking services at **two** maternity hospitals. Cork University Maternity Hospital and The National Maternity Hospital were chosen as the project sites (following consideration and deliberation with the HSE National Women and Infants Health Programme). These sites were chosen principally due to the large number of births at these hospital per annum. Both hospitals are also using the Maternal and Newborn Clinical Management System (MN-CMS) which is planned for integration with the QuitManager patient management system (patient management system for Stop Smoking Services).

Establishing Smoke Free Start

A national steering committee was established and comprised of members of the HSE TFIP and National Women and Infants Health Programme (NWIHP) teams respectively (see Appendix 1). Following engagement and subsequent meetings with hospital management, Cork University Maternity Hospital and The National Maternity Hospital were selected as the project sites. The following table identifies some of the key inputs & activities required to establish the services at both sites.

Inputs & Activities to establishing Smoke Free Start at both sites

Recruitment of Stop Smoking Midwives

- 1 post in CUMH and 1 post in NMH.

Training of Stop Smoking Midwives

- Specialist training & certification as Stop Smoking Midwives in conjunction with the National Centre for Smoking Cessation & Training (NCSCT) in the UK.
- Training in use of QuitManager (patient management system for stop smoking services).

Local Implementation Groups

- Representation from local midwifery management, outpatient services, the Tobacco Free Ireland Programme, local communications and pharmacy departments.

Establishment of Local Referral Pathways

- Clinics were set up at each hospital and also across some satellite (community) and domino services.

Training of midwifery staff (OPD departments) and antenatal care in Making Every Contact Count

- Significant uptake of the MECC eLearning behaviour change modules at both project sites;

- 194 staff completed MECC eLearning at NMH (120 midwives, 43 nurses, 29 clinical midwife/nurse managers, 1 advanced midwife practitioner).
- 47 midwifery staff completed MECC eLearning at CUMH (45 staff midwives, 1 CMM2, 1 AMP).
- 100% of antenatal midwifery staff completed MECC eLearning at both project sites.

Promotional Materials & Leaflets developed

- Pull up banners with service contact details were designed for areas with patient traffic.
- Posters were designed and displayed in various areas throughout the hospitals.
- Business cards were provided to the midwives with relevant contact details.
- Leaflets containing information on BCO testing designed and NALA approved for both patients and clinical staff (Appendices 2 and 3).

Smoking Cessation Standard Treatment Programme

When patients engage with the Stop Smoking Midwife and make a decision to take up the offer of behavioural support and set a quit date, they have entered what we refer to as the *Smoking Cessation Standard Treatment Programme* (HSE, 2013).

The *Smoking Cessation Standard Treatment Programme* was developed by the UK-based National Centre for Smoking Cessation Training (NCSCT) who identified the competences (knowledge and skills) necessary to deliver evidence-based behaviour change techniques to smokers. It provides Stop Smoking Advisors with the resources to build client capacity for behaviour change in smoking cessation. All new Stop Smoking Advisors, who deliver stop smoking services on behalf of the HSE, receive this training, delivered through a combination of online and face-to-face training.

In facilitating the *Standard Treatment Programme*, the advisor adopts a client-centred approach using the core skills of motivational interviewing. This approach enables them to support the tobacco user through the process of quitting by increasing confidence and motivation to quit and by developing personal coping skills to sustain the quit attempt over time.

The *Standard Treatment Programme* outlined here consists of a minimum of six sessions, including a pre-quit assessment and weekly sessions until four weeks after the Quit Date.

- **Session 1**: Pre-quit Assessment (one or two weeks prior to Quit Date)
- **Session 2**: Quit Date
- **Session 3**: 1 week post Quit Date
- **Session 4**: 2 weeks post Quit Date
- **Session 5**: 3 weeks post Quit Date
- **Session 6**: 4 weeks post Quit Date (four week follow-up appointment)

There is also a 12-week post quit-date follow up and a 52-week post quit-date follow up.

COVID- 19 Impacts

COVID-19 had a significant impact on the project in that the TFIP office staff were redeployed for a period. The participating sites also experienced a significant delay in the appointment of the successful candidates to their respective posts. In addition, this project was formally paused following communication from Sláintecare in March 2020 and did not resume until July 2020. This resulted in a loss of momentum, which was difficult to re-establish.

The unique change in clinical practice (which has been recommended in NCEC approved National Stop Smoking Clinical Guidelines) for this project is the introduction of routine breath carbon monoxide (BCO) testing at booking-in visits for all women. Despite the production of guidance in consultation with the Health Protection Surveillance Centre, the climate with COVID-19 resulted in the pausing of routine BCO testing for this project due to local infection control concerns (clinic space was small, not well ventilated and BCO testing was deemed to be too high risk following a number of local infection control risk assessments). This potentially had a significant impact on the number of referrals and subsequent conversions to successful quit attempts.

The project was unable to complete face-to-face *Making Every Contact Count* training for midwifery staff in the first year, which has also potentially negatively affected referrals.

During the lifetime of the project, it was envisaged that integration between the Maternal and Newborn Clinical Management System (MN-CMS) and the QuitManager system would be operational. However, this project was delayed due to COVID-19 and the HSE cyber-attack in May 2021 further compounded the challenges in both service delivery and data capture. The CMM2s employed on this project for a period after the HSE cyber attack had to update records within both patient management systems, reducing clinic time and increasing administrative duties.

The nature of engagement and consultation between the Stop Smoking Midwives and women attending their services was also impacted as face-to-face clinics were suspended. This resulted in a shift to phone consultations and online (via Attend Anywhere and TPRO, for which the TFI Programme provided guidance). Anecdotal evidence suggested that women were happy to use these platforms as it negated the need to return to the hospital for appointments and made it easier for them to engage in the service without the need to arrange childcare for older children for example.

Aims & Objectives of this Evaluation

This evaluation has two main aims to inform future implementation of maternity-specific stop smoking services:

1. To describe the overall activity of this new stop smoking service for the 13-month evaluation period.
2. To describe the experiences of those service users who engaged with the services and the experiences of those staff who delivered the services.

The specific objectives of the evaluation are to:

1. Describe a demographic profile & smoking history profile of clients engaging with the service.
2. Describe the engagement of these groups of clients with the stop smoking services.
3. Measure the treatment outcomes following engagement with the stop smoking services.
4. Learn from the experiences of service users and service providers to inform future implementation of similar services.

Methodology used in this Evaluation

This is a mixed methods evaluation, where both quantitative and qualitative data were used; the quantitative data provided service activity & outcome data from the QuitManager Patient Management System and the qualitative data provided insight to the experiences of pregnant women who used the services and the health professionals who provided the services. This report has amalgamated both methods for the results section.

Quantitative Evaluation

All data for this part of the evaluation were sourced from QuitManager; the national patient management system for the stop smoking services in the HSE. It is a web-based application that stores information about clients' stop smoking support and treatment. This data is collected by the Stop Smoking Advisor and is used to both provide and assure quality care. It is stored on a secure, central computer system which the HSE manages and controls. It is stored in line with HSE information Security Policies which are aligned to industry good practice. QuitManager also facilitates the Stop Smoking Advisor with its callbacks function and calendar function, which enable efficient and timely delivery of Stop Smoking Services.

The Data Analyst extracted data relevant to this evaluation, using the following selection criteria:

- Advisor = CMM CUMH OR CMM NMH
- Date Range: Episodes of care created between 01/07/2020 & 31/08/2021
- Referral Type: Maternity Referral

A data extract was downloaded using the Data Export Builder function within QuitManager. The data were downloaded in CSV File. The file was password-protected and saved in MS Excel format to the Tobacco Free Ireland Shared drive. Data analysis was conducted using JMP statistical software.

Qualitative Evaluation

In order to provide some context to the quantitative data and to understand the experiences of both the women receiving care and the midwives providing the service, a qualitative research project was undertaken in collaboration with SIF 202 (*Supporting Pregnant Women to Quit and Stay Quit*, a similar project in the South East). This research set out to:

- Conduct retrospective qualitative research with service users to assess their experience of the programme, perceived benefits and opportunities for service improvement.
- Conduct retrospective qualitative research with service providers who supported the delivery of the intervention to assess the effectiveness of interventions and any perceived barriers or facilitators to the programme.

A Research Advisory Group (RAG) was established combining members of both SIF 202 and 223 steering committees (see Appendix 4). An independent researcher was identified via a procurement process and contracted to conduct and analyse the semi-structured interviews and subsequently supply the HSE with a research report (for both SIF 202 and 223).

Interview schedules, participant information leaflets and consent forms were developed by the research team and subsequently agreed by the RAG (these are available on request from HSE TFI programme). The semi-structured interview schedules were designed to capture individual level indicators including participant experience of referral to and participation in the programme as well as perceived benefits and opportunities for service improvement and programme expansion.

Participant sampling to determine eligibility for participation was carried out by project midwives and supported by the TFIP team; this was deemed most appropriate so that no women were contacted inappropriately. In order to ensure that women at all stages of care were included for selection, the following selection criteria were applied;

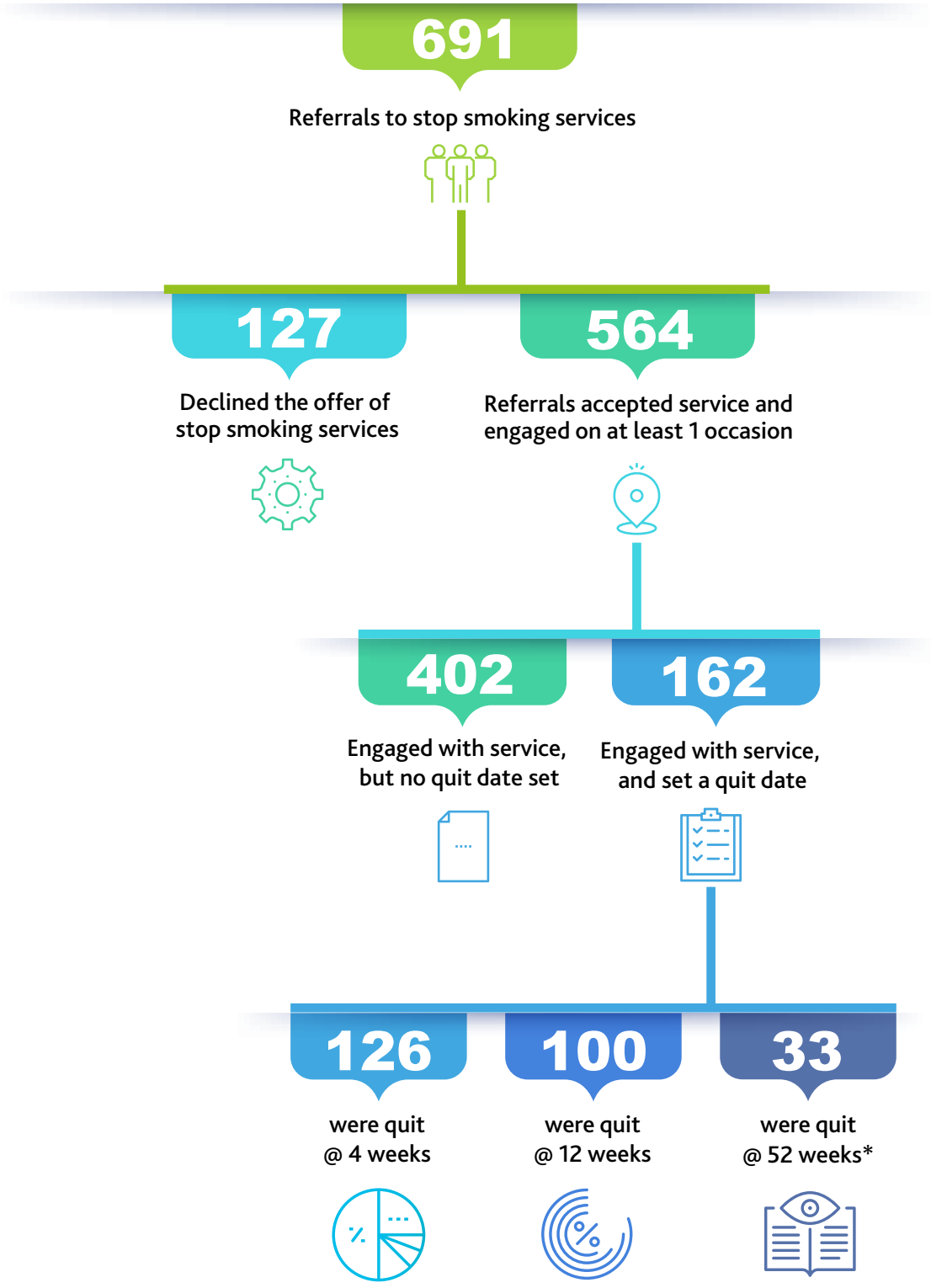
- Women who have had at least one pre quit consultation in the last 2 weeks
- Women who have set a quit date in the last 4 weeks
- Women who have recently had a 4 week quit consult
- Women who have recently had a 12 week quit consult
- Women who were quit at delivery

Invitations to participate in the research were issued by the project midwives at CUMH and NMH along with relevant information about the study. The midwives acted as gatekeepers, as they had previous relationships with potential study candidates and were aware of pregnancy outcomes and other personal circumstances, therefore reducing the risk of any inappropriate contact that may cause unnecessary distress. In order to maximise participation, One4All vouchers were offered to participants. Consent forms were completed and returned to the TFIP office. The researcher conducted semi-structured interviews with 7 women who had used the Stop Smoking Service at either CUMH or NMH, the Stop Smoking Midwife at CUMH and the Stop Smoking Midwife at NMH.

All interviews were anonymised for the transcription and subsequent analysis process. All due consideration was given to ethical issues arising at every stage of the research process. However, the main ethical issues addressed in this research were: informed consent; confidentiality and anonymity; record keeping including data protection and security.

Infographic

Summary of Project Engagement



**Data incomplete as 52-week follow-up not completed with all participants at time of data analysis.*

Results

1. Referrals to the Service

a) Number of Referrals received by the service:

In total, 691 new referrals were created on QuitManager between 1st July 2020 and 31st August 2021; 464 of these were to the CUMH stop smoking service, and 227 of these were to the NMH stop smoking service. NMH has approximately 8,000 births annually, so this would suggest a smoking prevalence of 2.8%. CUMH also has approximately 8,000 births annually, but this service was operational for 10 of those 12 months, so based on this number of referrals, this would suggest a smoking prevalence of approximately 7%. Both estimates of smoking prevalence are likely to be an under-estimate, given both services were initially established during the COVID-19 pandemic and associated restrictions. In addition, the rollout of breath carbon monoxide testing was not established at the time of booking-in appointments, due to infection control concerns during the pandemic.

Figure 1 details the number of referrals received, by service, per month. The highest number of referrals received to the CUMH service was received in November 2020 (n=72), with on average, 36 referrals received per month. The highest number of referrals to the NMH service was received in March 2021 (n=33), with on average 17 referrals received per month.

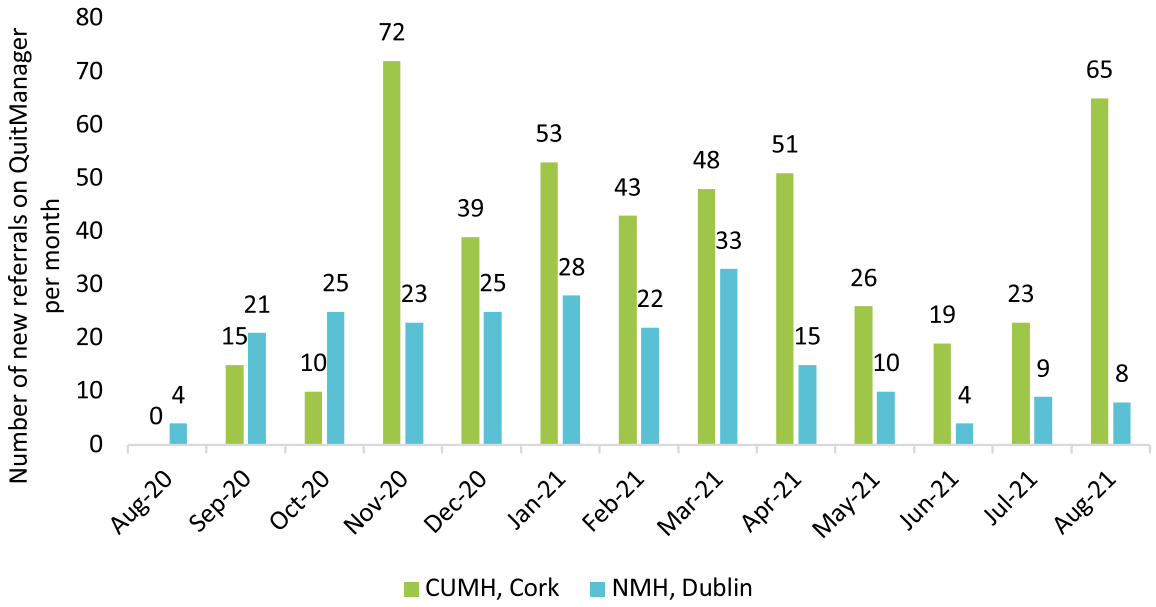


Figure 1: Number of Referrals captured on QuitManager by service, August 2020 to August 2021

Qualitative feedback on referral to the stop smoking services:

The majority of women were referred to the service at their first antenatal appointment. All of the women were happy to be referred as they wanted to try to quit smoking. The manner in which healthcare professionals such as midwives, sonographers, GPs and nurses approached referral to the service in a non-judgmental way was highlighted by the women as being very important to them. Being reminded of the service at antenatal visits by different healthcare professionals was also considered to work well.

"She (midwife) asked me if I was a smoker and then she told me about the programme…I wanted the help. She was lovely and she didn't make me feel bad about smoking, none of them do."

"It was at my 12 week scan I heard about it and she handed me a little card with Stop Smoking Midwife's name on it and when I went in another nurse gave me the card when they go through 'do you smoke, do you drink?'. Then when I went for my scan they referred me on to the programme."

One of the women contacted the stop smoking service herself as she had heard about it through a friend and wanted to quit smoking. Another woman quit smoking herself when she found out she was pregnant and subsequently sought the support of the service to help her stay quit.

"A friend of mine got help in CUMH to stop smoking so I contacted the Stop Smoking Midwife."

"I didn't even set a quit date. I did a pregnancy test and then just quit. I finished the pack of cigarettes. It was after that I was finding it hard."

While all of the women were open to participating in the programme, some of them were doubtful that it would be effective in helping them to quit.

"I was quite sceptical about it… and that chatting about stopping smoking would work."

Some women who had already heard about the programme and knew other women who had quit smoking because of it felt confident it would help them quit.

"I knew it would work eventually. My sister had a baby last year and now she is off them. She kept saying it and my friend who told me about the programme said 'I know you will stop eventually' and that was good to hear from people that you would stop eventually."

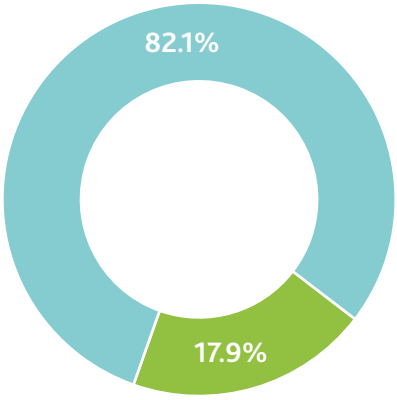
Qualitative feedback from Stop Smoking Midwives on breath carbon monoxide testing not been implemented during year 1 of project implementation due to COVID-19 restrictions.

Overall, the stop smoking midwives felt not having the resource of carbon monoxide testing had resulted in less women being identified as smokers. They spoke about some women not disclosing they are smokers, being referred to the service later in pregnancy and not having a tangible tool which can often motivate pregnant women to stop smoking.

"Someone who is smoking one cigarette a day might think they have quit. It would be great to have the carbon monoxide testing as a motivational tool in the future with women. It is like going to Weight Watchers and going on the scales. It's a tangible thing to be shown to women and it is motivational for the women."

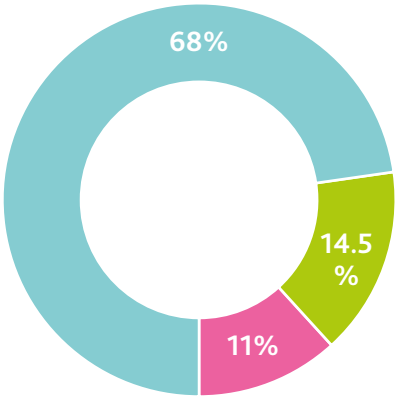
"Not having the carbon monoxide testing made a difference but I'm not sure how significant it is. I am getting a few women referred at the end of the pregnancy. We have always had mandatory testing so most women will disclose it and there is only a small amount who won't disclose."

b) Numbers who accepted service and engaged on at least 1 occasion:



Over 80% (82.1%, n=567) of these referrals accepted the offer of support and engaged with the service on at least one occasion; referral uptake rate for CUMH service was 85.1% and for the NMH service was 75.8%. As some people were referred to the service more than once, there were 540 women supported by the stop smoking services in these 567 quit attempts.

- Referrals accepted
- Referrals not accepted



Of those who did not engage with the service (n=124), the main reasons were:

1. Client did not attend/Reply to call X 3 – 68% (n=84)
2. Client declined the service – opts for self-care – 14.5% (n=18)
3. Client declined the service – not ready to quit – 11% (n=14)

Qualitative feedback on why clients may not have accepted the offer of stop smoking services:

The Stop Smoking Midwives felt that COVID-19 had an impact in terms of opt-out referrals as initial antenatal appointments were over the phone instead of face-to-face, and while some women might have felt more comfortable disclosing information about smoking over the phone, others may have benefitted from face-to-face appointments. The midwives felt that COVID-19 also had an impact on women in terms of increased stress levels, which may also have affected them stopping smoking.

"Some women resisted the opt-out referral…COVID did have an impact on stress levels and definitely had an impact on women in terms of stopping smoking. The lack of face to face (service) could have an impact too but people could have felt anonymous and disclose things over the phone…I think face to face is important for the first meeting and the follow up could be on the phone and then come back at four weeks and have the carbon monoxide test quit appointment.."

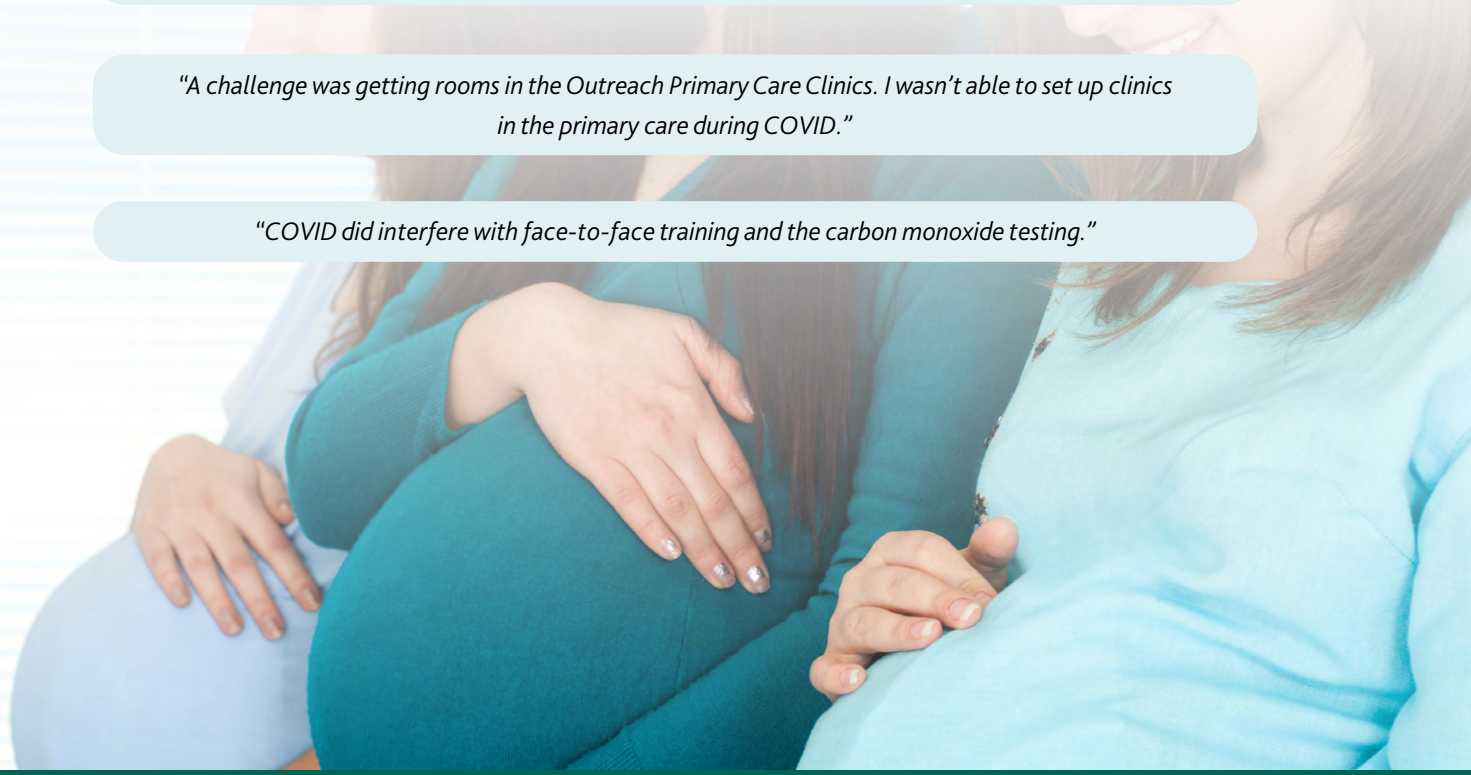
For those attending the service, there were some benefits to receiving a phone service, such as negating the need for childcare for other children and not having to travel to appointments for those who had difficulties accessing transport.

COVID-19 had a negative impact on the availability of rooms in the hospital and Primary Care Outreach Clinics, training in hospitals, face-to-face consultations and carbon monoxide testing. The cyber-attack affected the administration of the service.

"COVID-19 definitely impacted on getting the service established. It was difficult to get a room in the hospital. I do not have a room. I have a hot desk in the hospital and I have only one clinic a week in the hospital."

"A challenge was getting rooms in the Outreach Primary Care Clinics. I wasn't able to set up clinics in the primary care during COVID."

"COVID did interfere with face-to-face training and the carbon monoxide testing."



Qualitative feedback on perceived barriers to accessing the Stop Smoking Service

The Stop Smoking Midwives identified a number of barriers to engaging with the service for pregnant women. These included women not wanting to stop smoking, women feeling they can stop smoking on their own, women's perceptions of smoking in pregnancy, lack of education about the impact of smoking in pregnancy, stress, mental health issues, addiction issues and domestic violence issues.

"A lot of them (women) will not engage if they feel they can do it themselves. Some don't want to quit if they have had other babies and they say the baby is fine now so it's their perceptions."

"The women who don't want to engage felt judged and didn't want to engage and there was a lack of education or they didn't want to change. It's like any other behavioural change, you have to want to change. Some women opted for self-help and felt they would be fine by themselves even when they were informed by the evidence-base."

The midwives articulated that there exists a fear of judgement around smoking in pregnancy for women. Often pregnant women do not disclose they are smoking to midwives or their own family members due to stigma and fear of judgement.

"There is still definitely a fear of judgement. Sometimes up to 40% of pregnant women don't disclose they are smoking because of stigma and judgement. Sometimes they are secret smokers so it's important we have a self-referral system."

In addition, some of the women interviewed indicated that in the past, they had experienced negative interactions with other healthcare professionals regarding smoking in pregnancy, which they found to be upsetting and off-putting in terms of engaging with stop smoking services.

"I have doctors say to me in a pretty mean way, 'you had a miscarriage and it (smoking) can cause miscarriage,' and you don't want to be hearing that. You want a cheerleader and someone telling you can do it."

2. Demographic Profile of Clients who engaged with Stop Smoking Services

a) Age

The average (median) age of maternity clients was 30.6 years (range: 17 to 45 years); there was a similar age-profile at both services.

b) Area of residence *(Data available for 93.0% of clients)*

Table 1 details the county of residence of the clients by client-group, with clients attending the CUMH service from five different counties, and clients attending the NMH service from nine different counties. The highest numbers overall, were from counties Cork (n=336) and Dublin (n=85).

Table 1: County of residence of clients attending stop smoking services

County of Residence	CUMH	NMH
Carlow	0	1
Cork	336	0
Dublin	0	85
Kerry	8	0
Kildare	0	7
Limerick	2	0
Longford	0	1
Mayo	0	1
Meath	0	7
Tipperary	5	0
Waterford	6	0
Westmeath	0	1
Wexford	0	4
Wicklow	0	38
Total	**357**	**145**

c) Occupation status *(Data available for 67.6% of clients)*

Where occupation status was known, almost two-thirds of the clients were in current employment with approximately one-fifth engaged in home duties. See Figure 2.

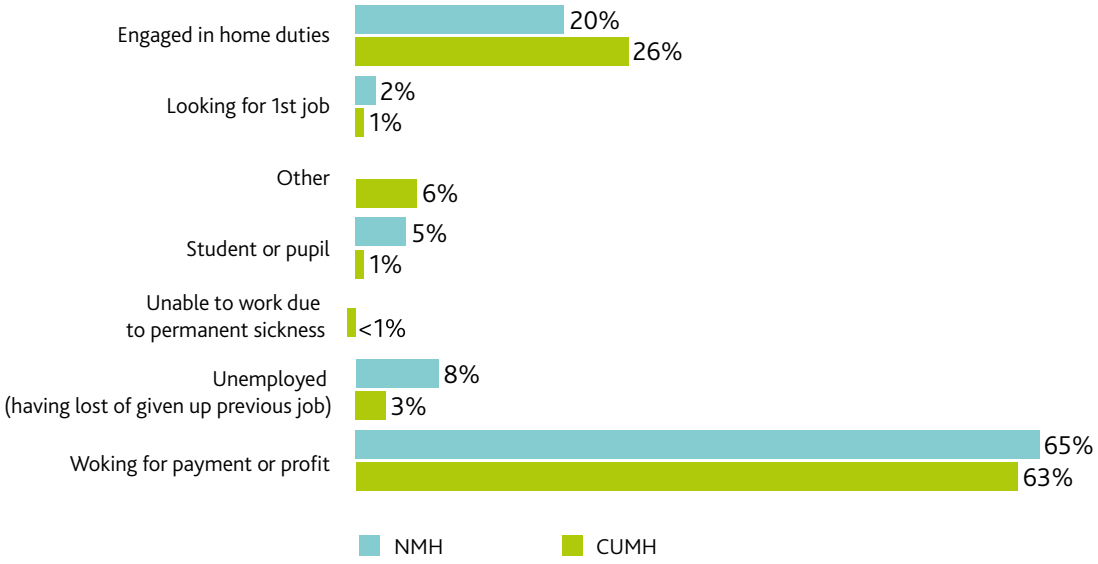


Figure 2: Occupation status of clients by service location

d) Ethnicity *(Data available for 80% of clients)*

Where ethnicity was recorded, three-quarters (77.6%) of clients were described as 'White Irish', 15.2% were 'White, of other backgrounds', and 6% were Irish Travellers. The remaining 1% were from other ethnic backgrounds.

e) Highest Level of Education *(Data available for 53.7% of clients)*

Figure 3 details the highest level of education reported, with almost 60% of clients having completed at least a secondary level education, while an additional 40% had completed third-level education. Results per location are detailed in Figure 3.

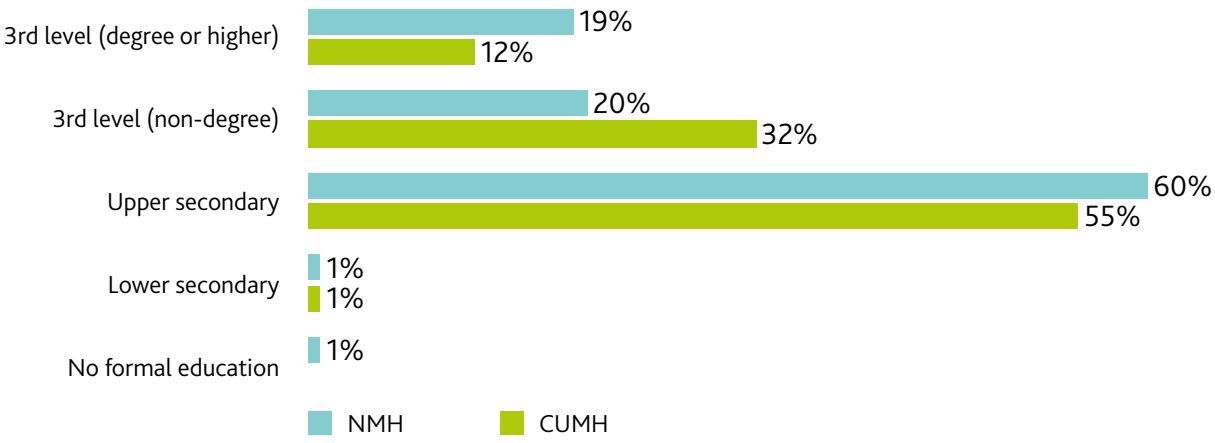


Figure 3: Highest level of education completed by clients by service location

f) Medical Card Status *(Data available for 63% of clients)*

Overall, 36% of clients were medical cardholders; however, a higher proportion of clients at CUMH were medical cardholders compared to at NMH (43% versus 28%).

g) Pregnancy status *(Data available for 100% of clients)*

The vast majority (96.5%) of clients were pregnant at their time of engagement with the services.

3. Smoking History Profile

a) Years Smoked *(Data available for 58% of clients)*

Figure 5 details the numbers of years that clients reported having smoked for, when they registered for stop smoking support; a little over half (54%) of maternity clients in CUMH reported to have smoked for more than ten years, compared to almost three-quarters (74%) of clients attending NMH stop smoking service. *Note that smoking history was only available for 58% of clients.*

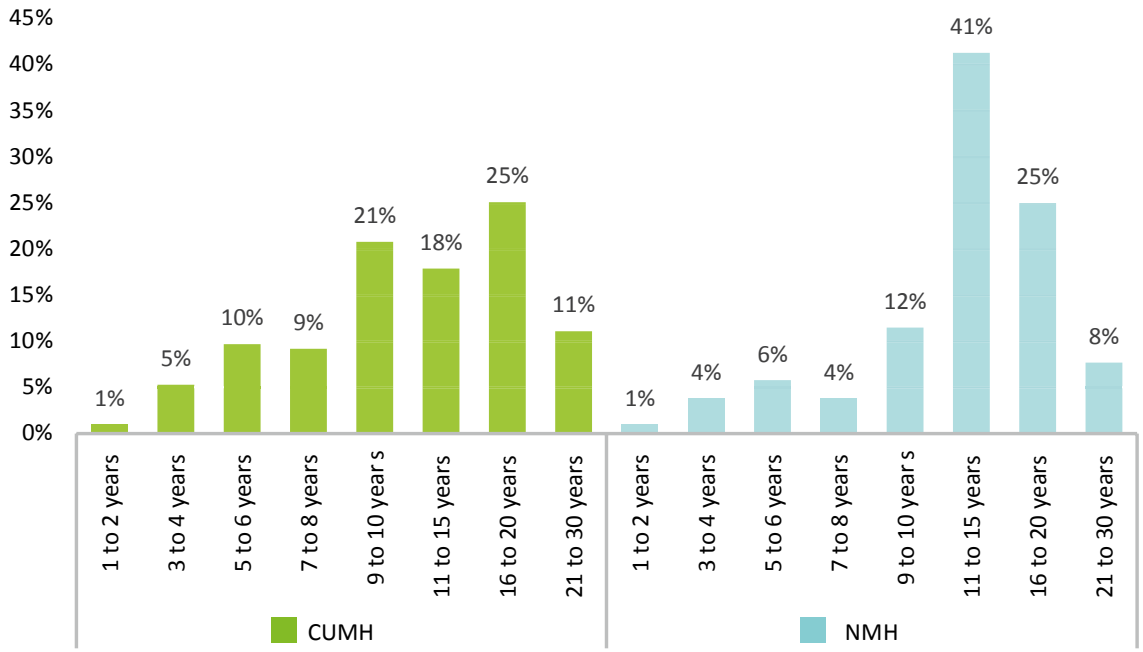


Figure 5: Number of years a client has smoked by service location

b) Lives with Other Smokers *(Data available for 58.1% of clients)* **& Lives with Children** *(Data available for 59.8% of clients)*

Figure 6 details the proportion of respondents who reported living with other smokers, and the proportion who reporting living with children; over half of clients, in both groups, reported living with other smokers and/or other children.

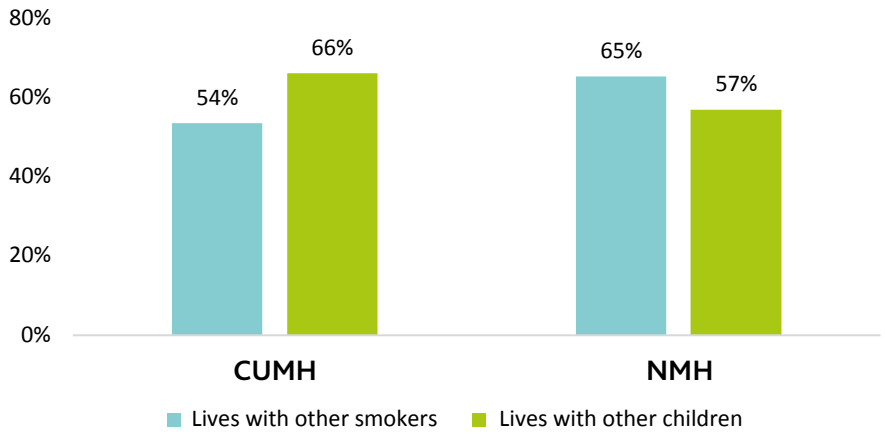


Figure 6: Proportion of clients living with other smokers, and proportion living with children

Qualitative feedback on background to clients' smoking as described by themselves

Many of the women started using tobacco as teenagers (or younger). Some of the women spoke about their parents and family members also smoking when they were growing up which normalised smoking for them. One woman felt she started smoking as a teenager because of peer pressure.

"I was actually 11 when I started and I gave up on the 20th of January this year so I was smoking for 20 years and it was ridiculous. My whole family smoked so it was just normal in my house and when we were kids in the car and all. My cousins, used to light the cigarettes off the toaster and bring it back in to their parents and that is how I started. Years ago it wasn't dangerous and bad for you, it was normal."

Most of the women described themselves as heavy smokers before they stopped smoking. Some of the women were smoking between 20 and 30 cigarettes a day. However, other women had cut down the number of cigarettes they were smoking and were smoking less when they engaged with the service.

"Before I stopped I went through 20 a day."

"I was a terrible smoker and smoked since I was 13… so 17 years. When I was a teenager it was grand and then in college it was heavier and in the last few years I am smoking 27 or 28 a day."

The women identified many triggers for smoking including stress, associating smoking with eating, drinking alcohol, driving in the car, going for a walk etc.

"Triggers were everything, celebrations, anger, sadness, after a meal, after tea, going for a walk, going in the car."

"Everything was a trigger like in the morning with coffee, or after dinner was my favourite."

Some of the women spoke about triggers for smoking since having their babies. This included the stress of having a newborn baby, sleep deprivation and challenges related to breastfeeding. The women talked about the importance of getting additional supports from the Stop Smoking Midwives after having their babies in terms of being triggered to start smoking again.

"The breastfeeding didn't work and it as really stressful and I wasn't prepared. The last time I had a baby it really triggered me that I was not able for the breastfeeding and I was wondering why I could not do it and everyone else could. It was triggering for me to start smoking again."

All of the women interviewed said they had tried to quit smoking in the past but had been unsuccessful. One woman had previously engaged in the HSE National QUIT Programme and some had tried nicotine replacement therapies. Some of the women talked about quitting for a period but then starting back smoking due to stress, different incidents, not having the right mind-set etc.

"I had tried to quit every few weeks and I would put my patches on. I used the HSE Quit smoking thing before which is similar and it was really helpful but knowing I wasn't smoking into only one set of lungs and I don't mind inflicting it on my own."

"I was smoking for 15 years or more. I started quite early unfortunately and I regret that time and it is very hard, I tried many, many times to give up and it is a tough one but you have to be really, really and your mind has to be set the right way."

A number of the women said they had tried to quit smoking during previous pregnancies. However, most of the women were attempting to quit on their own without any supports. One woman quit for a few months of her pregnancy but started smoking again after the birth of her child. Other women cut down the number of cigarettes they were smoking in pregnancy but did not manage to quit completely. One woman felt she was too young and 'a bit selfish' to quit smoking in a previous pregnancy. However, she felt more mature and ready to quit smoking in relation to her subsequent pregnancy.

"When I was pregnant with (my previous baby) I tried to give up myself and it didn't work. I was smoking only one a day and I was smoking through the pregnancy and I did not opt into any of the support provided by the hospital at the time. Before the pregnancy, I would have smoked 3 a day. Then I opted into the programme with the Smoke Free Midwife and I am still off them."

"I tried to quit in the other pregnancy but I was doing it myself and I was cutting down and then I just quit and I was off the cigarettes for a few months but then when I had my baby when all the feeding didn't work out I felt so stressed I had to, I didn't have to do, but it helped relieved the stress for me. I couldn't find anything else to make me feel better."

4. Engagement with Stop Smoking Services Profile

This section details the 567 episodes of care (quit attempts) initiated during the evaluation period; 395 (69.7%) episodes were delivered by the stop smoking service in CUMH, and 172 (30.3%) were delivered by the stop smoking service in NMH, during the evaluation period.

a) Standard Treatment Programme

Table 2 details the proportion of quit attempts on QuitManager, which were described as standard treatment programme or non-standard treatment programme per service site. In CUMH, 67% of quit attempts during that time were described as standard treatment programme with 33% non-standard treatment programme. In NMH, 49% of quit attempts were standard treatment programme with 51% non-standard treatment programme.

Table 2: Breakdown of quit attempts as standard or non-standard treatment programme, by location

Programme of Treatment	CUMH	NMH	Total
Standard Treatment Programme	265	85	350
Non-Standard Treatment Programme	130	87	217
Total	395	172	567

The high proportion of care been documented as non-standard was surprising; some follow-up discussion with the stop smoking midwives took place, and there were some misunderstandings as to when an episode of care should be marked as standard/non-standard treatment programme on QuitManager. In conclusion, the proportion of episodes documented as non-standard treatment programme here is likely to be an over-estimate (for both sites).

b) Status of Episodes and Reasons for Episodes of care been closed

At the time of data extract, 83% (n=469) of episodes were 'closed & complete' and 17% (n=98) remained 'open & in-progress'. The following table (**Table 3**) details the status of episodes of care at time of data extract by location.

Table 3: Status of episodes of care at time of data extract by service location

Status of Episode of care	CUMH	NMH	Total
Closed & complete	333 (84%)	136 (79%)	469 (83%)
Open & In-progress	62 (16%)	36 (21%)	98 (17%)
Total	395	172	567

Figure 7 details the main reasons why episodes were marked complete and closed, per service location. Overall, the main reasons were that the client had declined the service after some engagement with the Stop Smoking Advisor, as they were not ready to quit or they opted for self-care (53%). Other reasons were that the client had been lost to follow-up or had not attended/replied (35.4%) to an arranged appointment with their Stop Smoking Advisor.

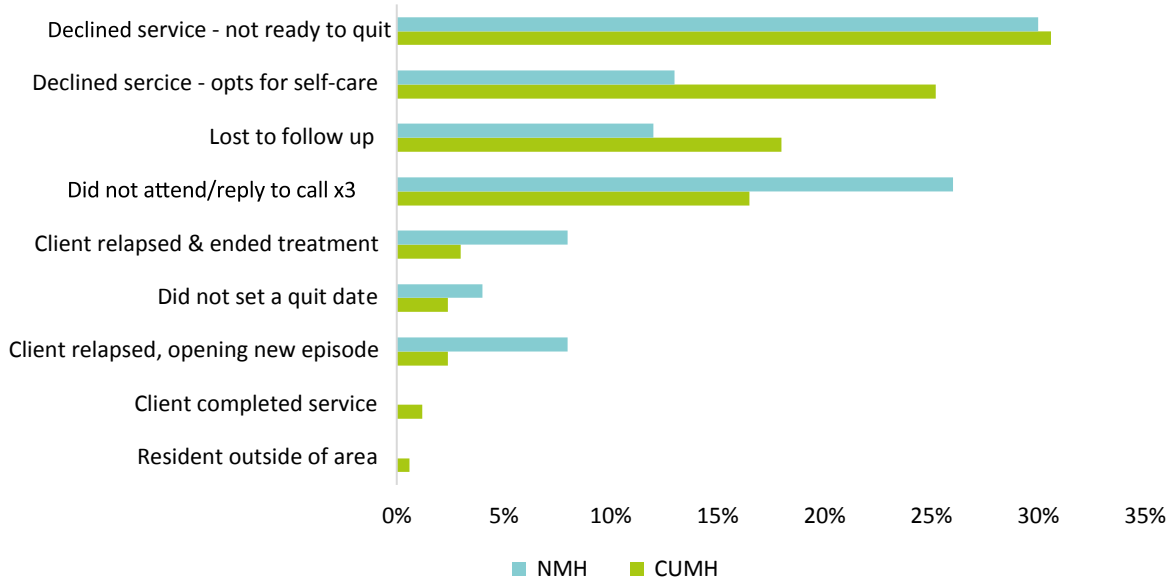
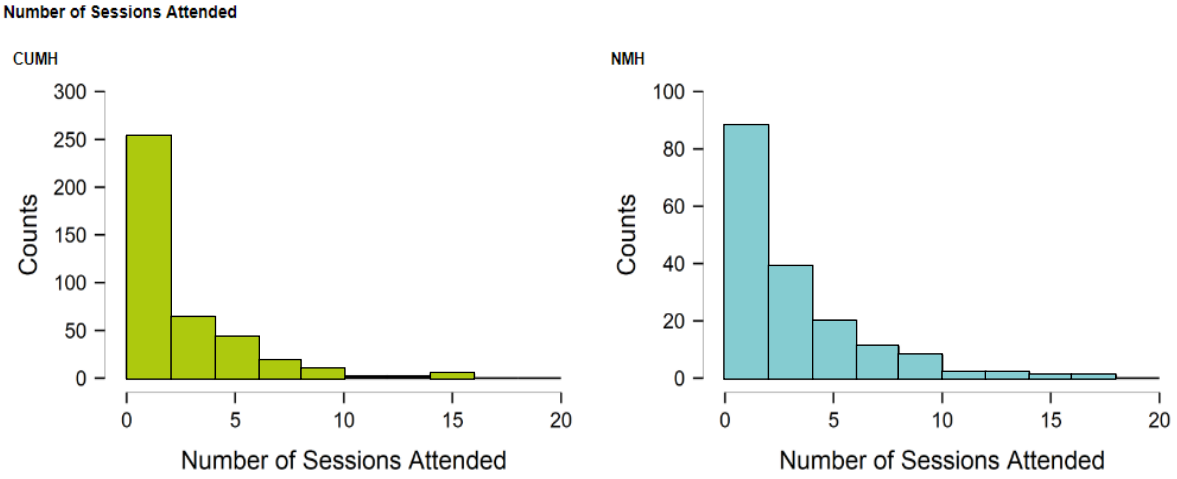


Figure 7: Reasons documented as to why episodes of care were marked as closed on QuitManager

c) Number of sessions attended/client

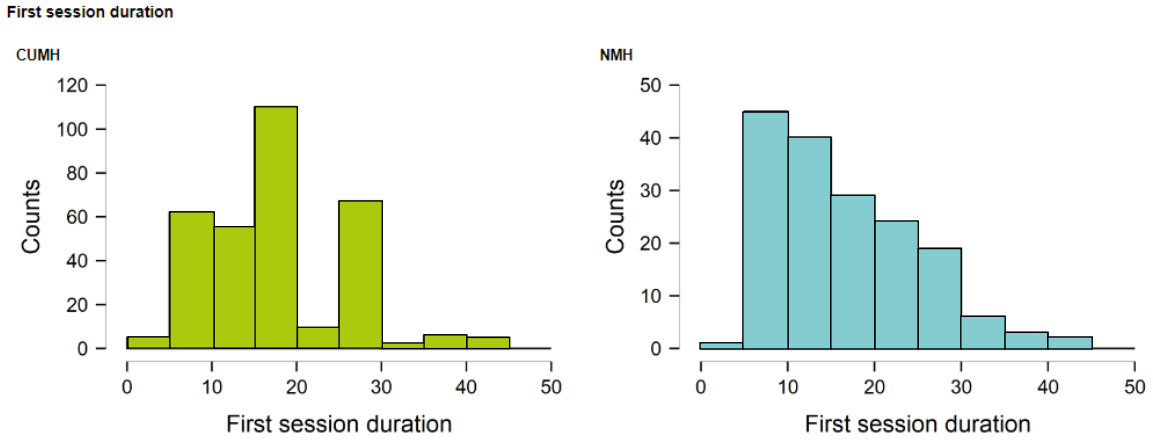
The average (median) number of sessions attended per episode of care was 2 (range: 1 to 18), see figure below. Per site, for CUMH, the average (median) number of sessions was 2 (range: 1 to 16), while for NMH, the average (median) number of sessions was 2 (range: 1 to 18).

Looking at the profile of the number of sessions attended, 44% of episodes consisted of one session only, with 60% of episodes consisting of two sessions or less. Therefore, a large number of maternity episodes of care were closed after one/two sessions only.



d) Duration of 1st session

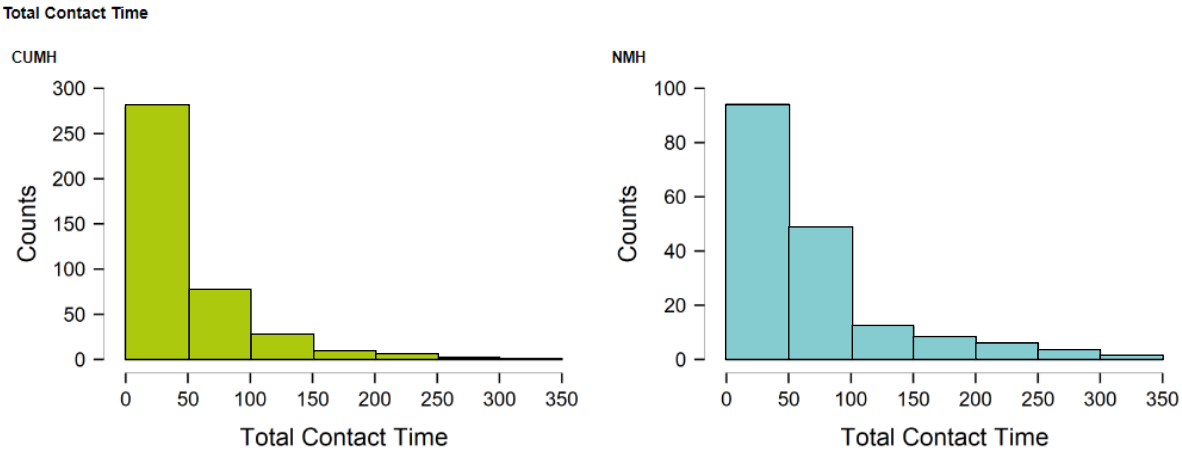
The average (median) duration of the 1st session per episode of care was 20.0 minutes (range: 2 to 45 minutes). As outlined below, the average (median) duration of the 1st session per episode of care for CUMH was 20.0 minutes (range: 2 to 45 minutes), while the average (median) duration of the 1st session per episode of care for NMH was 25.0 minutes (range: 5 to 45 minutes).



e) Total Contact Time (Median, Max)

The average (median) total contact time between the Stop Smoking Advisor and the client, per episode of care was 30 minutes (range: 2 to 330 minutes), as outlined below. The profile of total contact times by service location is displayed below.

However, when those who attended one or two sessions only are excluded, the average (median) total contact time increases to 80 minutes (range: 21 to 330 minutes).



f) Recommended use of Nicotine Replacement Therapy (NRT)

The recommended use of NRT among the maternity-related episodes of care was low; just 33 (6%) of these episodes of care involved the recommended use of NRT.

Qualitative feedback on engagement with the HSE stop smoking services during pregnancy

Overall, clients felt the information given by the Stop Smoking Midwives as part of the programme worked very well. This included information on the impact of smoking in pregnancy, the impact of smoking on breastfeeding, planning information, information on quitting, information on cravings and information packs (QUIT kits tailored for maternity settings).

"The first or the second meeting we talked about the relevance of not smoking in pregnancy and the effects of smoking on pregnancy and breastfeeding and facts regarding smoking in general and that is the stuff I like hearing."

"If there was any question I had she (Stop Smoking Midwife) would answer it and she sent me out an information pack so it was very helpful."

"She (Stop Smoking Midwife) sent me an email at the start to introduce me to different things and a plan and things I could do. She gave me all the information I needed and she was always asking me can I give you any other information and give that personal approach."

All of the women spoke very positively about their interactions with the Stop Smoking Midwives. They described the midwives as 'non-judgmental', 'understanding', 'helpful', 'supportive', 'kind', 'warm', 'calm', 'brilliant', 'fantastic', 'amazing' and 'lovely'. The women found the intensive ongoing support of the programme worked very well. They felt that talking to the Stop Smoking Midwife on an ongoing basis supported them, reassured them, guided them, made them accountable to someone and reinforced the message of stopping smoking. One woman described a Stop Smoking Midwife as 'a constant positive' in her life when she was trying to stop smoking. Many of the women felt they would not have stopped smoking without the support of the Stop Smoking Midwives.

"She (Stop Smoking Midwife) is brilliant and there is no judgmental and it's nice to have someone to talk to and keep you accountable every week and reinforce what good you are doing for the pregnancy. I know for love nor money I wouldn't have done it otherwise."

"She (Stop Smoking Midwife) would give you a couple of different options of if you didn't have to go cold turkey you had different options like the patch and why it was or wasn't beneficial. I found her very helpful."

"I am six weeks today off them (cigarettes). It's a lot easier and I don't think it would have done it without the Stop Smoking Midwife's help. Being accountable is very hard to do when it just you. You have someone telling you well done every week."

One woman praised the professionalism of the Stop Smoking Midwives who continued to provide support to pregnant women and deliver the service despite the pressures of the COVID-19 pandemic.

> *"I just want to say a huge thank you to the Stop Smoking Midwife, she is amazing. I would like her to know that she was great through all this time and was so supportive and was amazing. I'd say there was a lot going on and a lot of pressure but you would never know that because she was so calm and chilled. Not once you felt something was going on like COVID."*

Some of the women felt advice about smoking cessation aids such as nicotine replacement therapy worked well to help them stop smoking.

> *"I am on the inhaler and you can only get it through the GP. He had never prescribed it to a pregnant woman so he gave me the patches but I had severe headaches with them… but the Stop Smoking Midwife explained the patch is on for 12 hours and the inhaler worked better. So it has been my saving grace because I had some tough days without the cigarettes and it was the physical hand motion because I have been smoking for a long time."*

5. Outcome Measures

a) Engagement with the Standard Treatment Programme

The following chart details the engagement levels of these episodes (n=350) of care through the standard treatment programme; that is those who set a quit date, completed a 4-week follow-up, completed a 12-week follow-up, and completed a 52-week follow-up, where applicable at the time of data extract. This data is as reported on the date of data extract, and additional engagements may have occurred since that time.

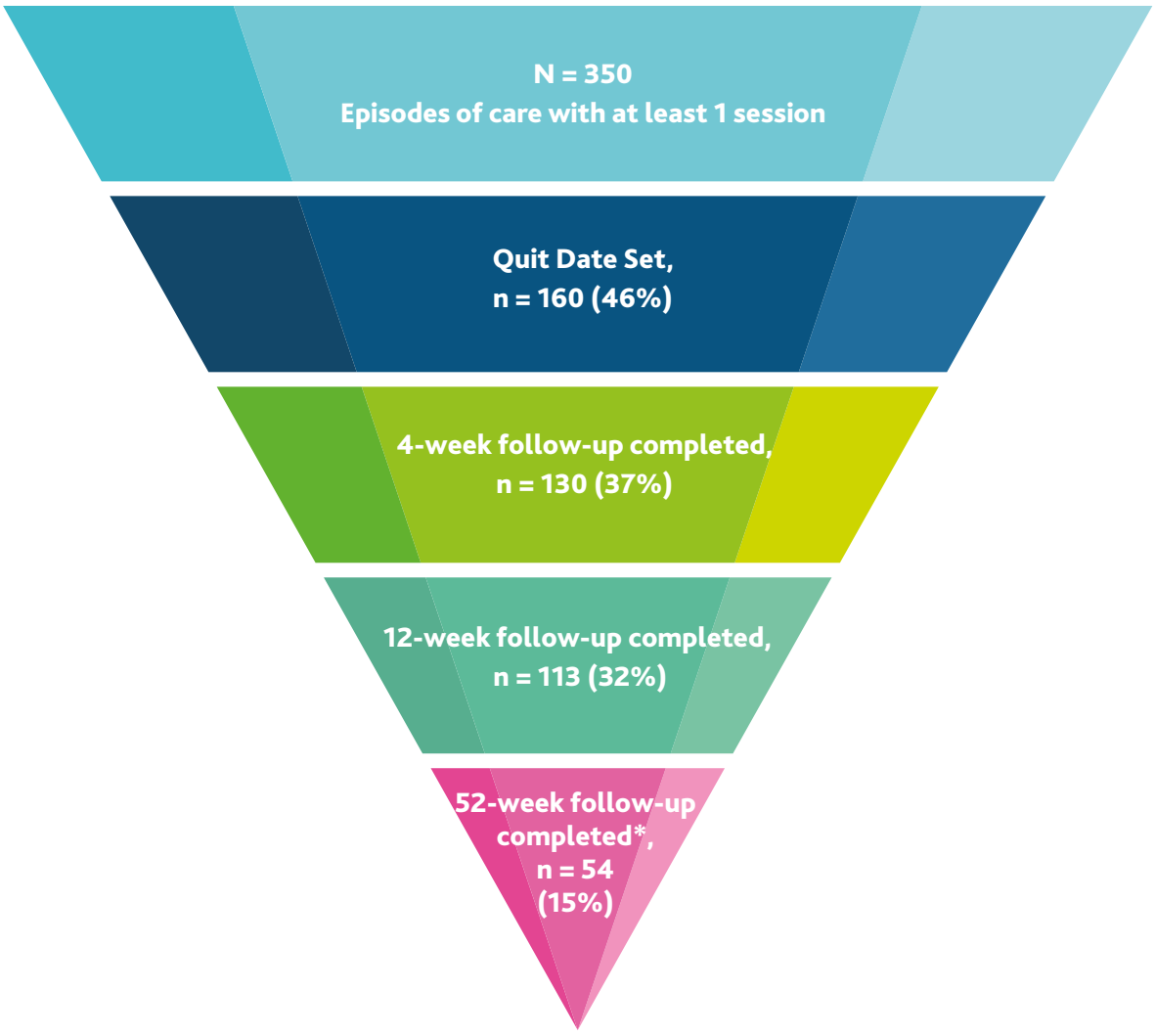
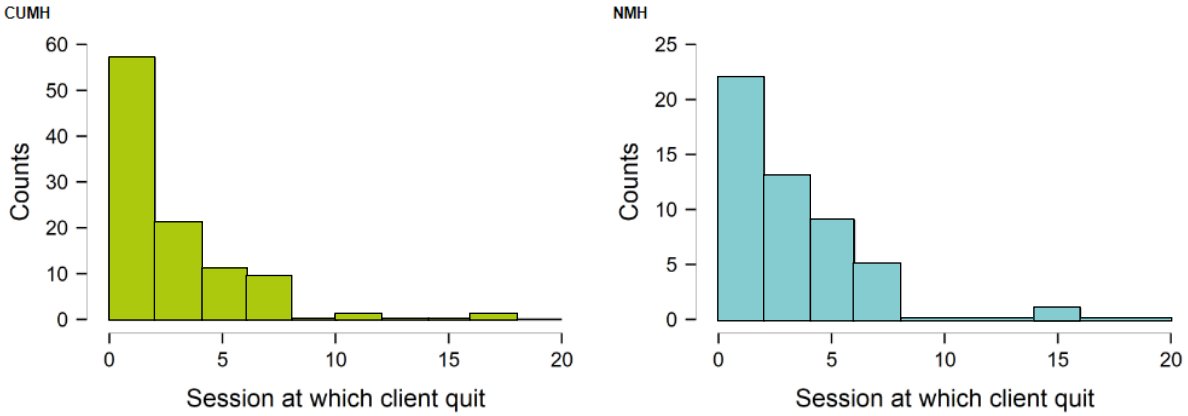


Figure 8: Engagement levels through Standard Treatment Programme (n=350)

As detailed, almost half (46%) of episodes of care set a quit date and for this group who set a quit date (n=160), engagement levels with the stop smoking services remained high at 4-weeks and 12-week follow-up. A 52-week follow-up had been completed for 15% of the episodes of care at the time of data extract, but that data is provisional data, and will not be completed until end-2022*.

b) Episodes of care with a Quit Date & the session at which they set their Quit Date

As stated above, 160 of the 296 episodes of care who entered the standard treatment programme, set a Quit Date. The figure below details when this quit date was set, by service location. Overall, the median (average) session at which the quit date was set was the 3rd session, with a minimum of 1st session, and a maximum of 17th session.



Qualitative feedback on setting a quit date

The women all felt setting a quit date worked very well as part of the service. They felt the non-judgmental and non-pressurised approach of the Stop Smoking Midwives to setting a quit date was very effective. Women who had more than one quit date praised the midwives for the ongoing support, reassurance, patience and understanding in terms of their quit journey.

"Six years ago I stopped for three months. I was using the nicotine inhaler. I had never tried cold turkey before. What I did this time was the Stop Smoking Midwife set a quit date and I had a few slip ups in the first few weeks and she was helping from one day to the next day."

"My first date was in March and I couldn't do it and I wasn't afraid to tell her (Stop Smoking Midwife) and I was able to be honest with her and she wasn't upset with me and I knew it wouldn't be like that with her. She was really encouraging and she said well just set another day and she reminded me why we are doing it and why I wanted to quit."

"I think it took me two weeks, two conversations with the Stop Smoking Midwife to come up with a quit date. The first few conversations with her I got quite emotional and she was brilliant. She just went through everything with me and told me it was OK and to pick your own quit date and she took it very much day by day rather than looking at the end. You count down the days and you do a week first and then another week. She was fantastic as in there was no pressure from her just reassurance and guidance. From simple things like being organised and once you have the quit date and the cravings and have food prepared to nibble on which was very helpful."

c) Quit Status at Follow-up

Figure 9 details quit rates at 4-weeks post quit date follow-up, 12-weeks post quit date follow-up and 52-weeks post quit date follow-up, for those who engaged with the standard treatment programme. A quit rate is the proportion of those who set a quit date, that are still quit after a given number of weeks post their quit date. As detailed, 4-weeks quit rates were in excess of 75%, and 12-week quit rates were in excess of 60%; these rates both exceed the national 4-week quit rate target, which is set at 45%. Finally, 52-week follow-up data was provisional at the time of data extract.

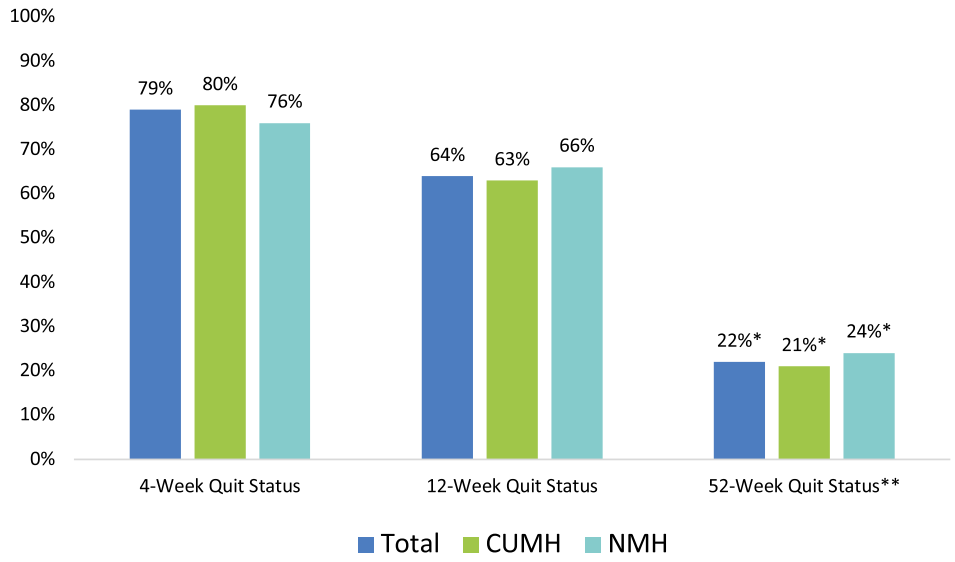
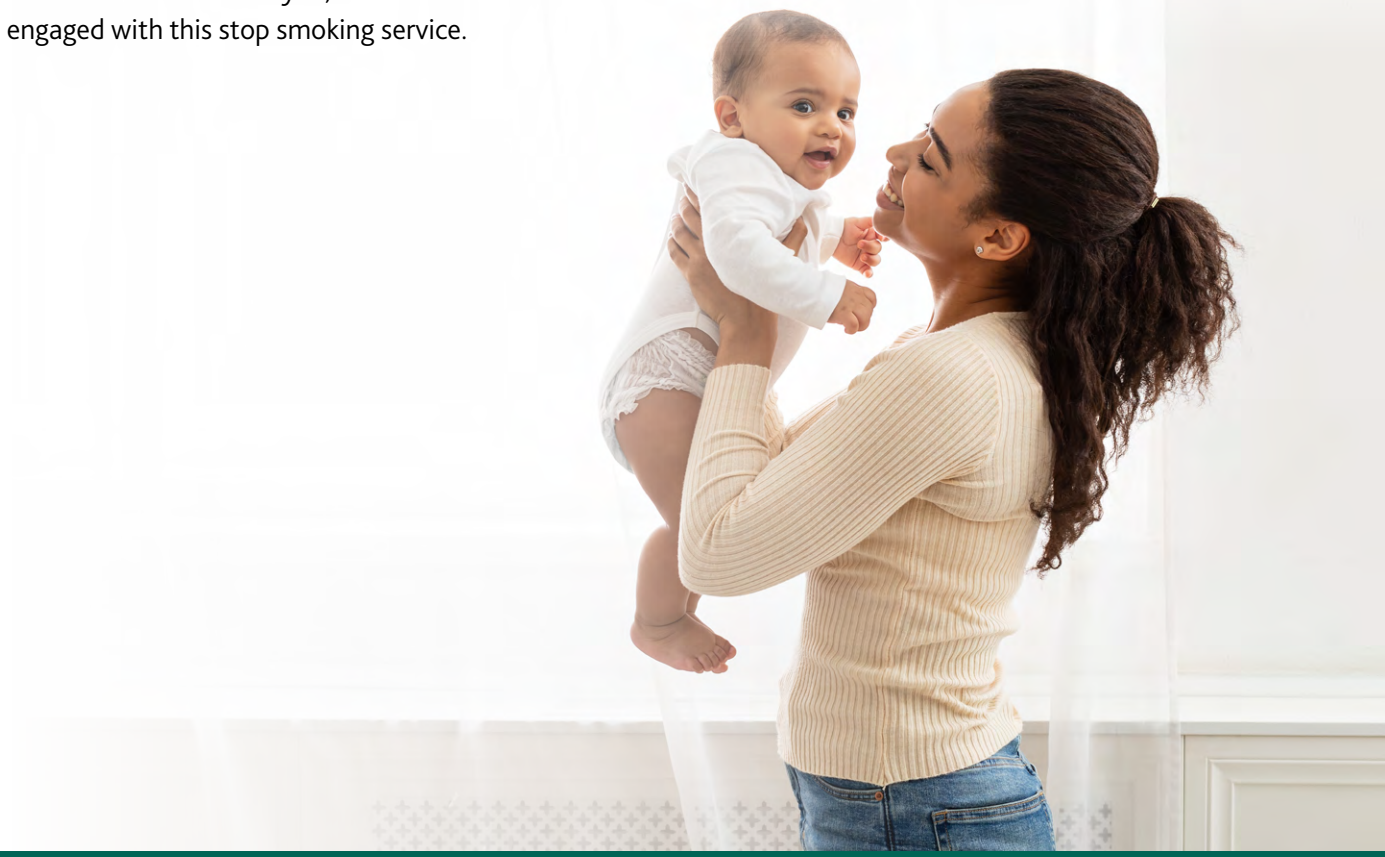


Figure 9: Quit Rates at 4-weeks, 12-weeks & 52-weeks by service location

d) Smoke-Free Babies

At the time of data analysis, in excess of 100 smoke-free babies had been born to mothers who engaged with this stop smoking service.



Qualitative feedback on ongoing support provided to clients from the Stop Smoking Midwives

All of the women felt the ongoing support from the Stop Smoking Midwives was very effective. The women generally met the midwives on a weekly basis at the beginning of the programme and then less often as they quit. The women felt having the Stop Smoking Midwives checking in on them on a regular basis worked very well to keep them 'on track'. One participant spoke about the Stop Smoking Midwife supporting her in terms of visiting her in hospital when her baby was born, which she really appreciated as it was during COVID-19 restrictions when visitors were not allowed.

"I think the fact that I had the Stop Smoking Midwife ringing me all the time I nearly felt guilty I would be letting her down and I had someone checking in on me it kept me on track and she kept me on the right track."

"It was good to have someone else to talk to about it. She was very good and was saying, 'you are doing very well this week', and what week it was. I remember being moody and quitting and you forget the negative part."

"She (Stop Smoking Midwife) came up to see me in the hospital and you felt you really got to know her. I was delighted because I see the poster and she said you might let me know when you have your baby and I would be delighted to come up. The day after I was only looking at one of the posters on the wall and I was thinking of her and then low and behold she popped in."

All of the women interviewed spoke about developing very positive relationships with the Stop Smoking Midwives. Many of the women said they enjoyed talking to the midwives on a regular basis and 'having a laugh' with them. One woman described talking to the Stop Smoking Midwife as being like 'talking to a friend'. The women said they felt comfortable opening up to the Stop Smoking Midwives about personal issues, as they did not feel judged by them.

"I can't imagine what she (Stop Smoking Midwife) looks like but I am really fond of her. She comes across as a nice, warm, kind person with a nice calming voice, she is never bored of listening to you and we had a laugh, which was important. It was talking to a friend that you have never met before."

"It was very personal and it felt like she wasn't a stranger and she really cares for you I don't know how she does it, she is brilliant. I rather miss ringing her. It is great because I always know she is there but now I have a year check up with her. She told me if I feel under pressure I can ring her and she does not mind. It's good to know someone is there for you still."

"It didn't take long to build up a relationship with her. The second or third week I said, I can spill my guts to her, there is not going to be any judgement from her, and there was not. You are vulnerable and your hormones are all over the place and if you are first time mum and a smoker it's difficult."

Qualitative feedback on clients' experiences of quitting smoking and perceived effectiveness of the Service

The women had different experiences in terms of quitting smoking. Some women found stopping smoking very difficult whereas some found it easier. All of the women agreed that the Stop Smoking Midwives and the programme played an important role in them quitting smoking. Having the support of the service available to them on an ongoing basis was reassuring and beneficial in terms of them stopping smoking.

"Everything is going well. I quit on April 19 so from the start I was talking about it with the Stop Smoking Midwife so I have been smoke free since then. It's been a hard journey but I found it really, I found her so supportive and so, so good…I wanted to do it but she gave me this extra motivation."

"I gave up at 20 weeks so it was a good eight weeks. I would rather give birth than give up smoking again. I was crying dying for a smoke. Then that feeling passed."

"I'm not finding it hard to be honest. People think it is going to be like heroin and they are reading things online like you are going to have nausea and headaches but I had no withdrawals from it. The first three days were the worst, the Stop Smoking Midwife was very helpful, and I knew I could contact her any time I wanted if I was in dire straits and she would be there. It still crosses my mind."

Similarly, some women found quitting smoking during the COVID-19 pandemic difficult and some found it easier.

"It was probably a bit harder quitting with COVID. If I were working, it would have been easier with my mind being off it. COVID or no COVID I was ready to do it but I was at home all the time and I smoked less in work."

"It was definitely more difficult. I fluctuated in my smoking since the pandemic started last year. I bought boxes of 26 and I went through them in a day and a bit. I think the pandemic stressed me out because I was still paying all the bills for work and I wasn't working so the pandemic didn't help me to lessen my smoking, it increased it."

"I don't think COVID affected it but it was just hell. I did not sleep. I got eight hours sleep in the space of ten days. My body was tired but I couldn't sleep and I honestly cried for three days"

All of the women agreed they gained the confidence to quit and stay quit through the support of the programme. Many of the women spoke about previous quit attempts that had not been successful and how the support of the service had helped them quit this time.

"I do think it was very effective I don't think it would be off them now still without the programme."

"The Stop Smoking Midwife was amazing; to be honest I don't think I would be able to do it without her. She was great; she was so supportive, even her voice was so calming she would say 'it's ok'. I told many of my friends that it really works. She was really supportive and it felt that she was really there for me and was interested in me and wanted me to succeed not that she has to say it and she was there for me anytime."

The key impacts of the programme identified through the interviews were health benefits, fitness and well-being benefits for the women as well as the health benefits for their babies. One woman talked about the service "changing my life for the better".

"To have this (service) and the Stop Smoking Midwife on a weekly basis has changed my life for the better in the sense I am off them and I was struggling at the start. Every cigarette I was saying I should not be doing it but it was hard not to. I had gone from 20 a day to 5 a day so I had dropped way down. If it wasn't for the Stop Smoking Midwife I wouldn't have stopped completely."

"Health wise, I am not wheezing and my chest is clear and I can smell everything which is great. I would have chest problems quite often. I should have never smoked because when I was younger I had TB and my lungs went through so much. Even in a short period of time from April I can see the difference in my health, the funny cough is gone and it is great."

"I did see the changes like my blood pressure was high and now it's down. The blood cells are better and my feet are not swollen anymore. We would go for walks because we do not drive and now I am nearly keeping up with my partner."

Qualitative feedback on Stop Smoking Midwives experience of establishing SmokeFree Start

The Stop Smoking Services described in this evaluation are new services and were established specifically as part of the *Smoke Free Start* project, as described in the initial application for funding to the Sláintecare Integration Fund. Both hospital sites welcomed the initiative. The Stop Smoking Midwives employed by the project identified multiple roles for themselves to include service delivery, education and training, promotion and advertising and administration. The qualitative evaluation identified additional support and training needs in these areas. There were also other challenges highlighted related to the setting up of the new service including the COVID-19 pandemic and the HSE cyber-attack.

The Stop Smoking Midwives identified roles in staff education and training in their hospitals. The midwives agreed the training of other healthcare professional such as doctors, consultants, midwives and nurses was very important in terms of advocating for the service, promoting the service and creating referral pathways for the service. However, they identified challenges related to training including the large volume of training, the impact of COVID-19 moving training online and the challenges associated with developing and delivering online training, e.g. IT skills.

> *"We took on the role of teaching and training in the hospital. There was a large volume of training of nurses, doctors, consultants to be advocates for the service."*

The midwives felt the administrative workload associated with the role was very time consuming, challenging and not an efficient use of their time. They suggested there should be more training for Stop Smoking Midwives on administration e.g. how to use the Quit Manager System and setting appointments, as well as additional administrative support to deliver the service.

> *"Because it's a pilot programme we had to take on the admin role and it has impacted in terms of bringing it up to standard. It was definitely a larger role. All the services in the hospital have admin and I feel that is a massive gap in the role. I was on sick leave and I had to contact all the women to reschedule the appointments. We need proper admin support; it took a day in the week to do admin that someone in admin would be quicker at."*

As part of their role, the Stop Smoking Midwives also helped promote and advertise the service. This included speaking at conferences, giving interviews to media such as radio and newspapers. While promotion and advertisement of the service was considered very important, no formal training was provided to the midwives in this area.

> *"We spoke at two conferences, one was a health promotion conference. I was asked to talk to a radio show. I have no media training and I found the newspaper article most challenging…I was nervous doing it but I was very glad I did it because it is so important to promote it and a lot of women don't know about it. I had a lady contact me as a result of seeing the newspaper article."*

Possible areas for continuing professional development were identified and included training on how to engage with pregnant women who have substance misuse issues, extra support for the QuitManager System, training on how to deliver training online, IT and digital skills.

> *"You have to be very careful with these women; they are very vulnerable and hormonal. They can feel very guilty. I estimate 50% are attending the perinatal mental health clinic so they are very vulnerable to the development of antenatal depression so I have engaged with the perinatal mental health services. Some women lose their babies late. That's why I felt I could do with more training in addiction support."*

The midwives identified a number of challenges related to the establishment of a new service in their maternity hospital. COVID-19 and the cyber-attack in May 2021 were two key challenges identified by the respondents. COVID-19 impacted on the availability of rooms in the hospital and Primary Care Outreach Clinics, training in hospitals, face-to-face consultations and the implementation of breath carbon monoxide testing. The cyber-attack also impacted the administration of the service and recording of patient data.

Discussion

Smoking in pregnancy is one of the most important preventable factors associated with adverse pregnancy outcomes, (Macfarlane, 2018). There is currently no national system for the recording of maternal smoking in Ireland and there are difficulties comparing rates internationally due to differing methodological issues. Research in Ireland has shown that up to 40% of women who smoke may not be identified at the time of their antenatal appointment (Reynolds, 2017); therefore estimates of smoking prevalence in pregnancy are likely to be under-estimated. International evidence reports that the best outcomes for women and their babies can be achieved when smoking is identified early in the pregnancy and effective support is provided to stop smoking (McArdle, 2018, Fitzpatrick, 2016, Cooper, 2017, Lieberman, 1994).

During the first year of this new project, 691 referrals were received. Given that the estimated births for CUMH and NMH during this period was approximately 14,500 (CSO, 2018), this would suggest a smoking prevalence of almost 5%; this is most likely an under-estimate of the true smoking prevalence of smoking in pregnancy in these areas. However, given the challenges that COVID-19 brought to maternity services including the fact that the planned use of breath carbon monoxide testing as part of the booking appointment for pregnant women had to be paused, this rate of referral to the service is quite an achievement for year one. The good news is that as of July 2022, breath carbon monoxide testing is now included at booking appointments for all women attending CUMH, and we hope it will also be implemented in NMH soon.

The data in this report suggests that 78% of referrals engaged with the service on at least one occasion. However, approximately 1-in-5 women did not take up the offer of support. Research suggests that where a pregnant woman who smokes is going to quit smoking, she will most likely do this before she engages with the health services for the first time during her pregnancy. As these services continue to develop, new links with General Practitioners (GP's) will enable earlier referral of women who want support to quit or to maintain their quit status through using the dedicated stop smoking services. GP's can now refer directly to Quit services using their patient management systems and where it is indicated that the patient is pregnant, these patients are prioritised for follow-up by Quit services.

Where clients did engage with the stop smoking midwives, almost two-thirds engaged only on one or two occasions. While this may appear like a non-success, each of the clients who engaged with the service now has a knowledge of the stop smoking services that are available to them, and this advice and support provided to them will most likely assist them with their next attempt to quit smoking.

The good news is that for those who engaged with the standard treatment programme of care, their success at quitting smoking was extremely high. Four-week quit rates for the first year of this project are in excess of 75%, and 12-week quit rates are in excess of 60%; both these rates are in excess of national targets. At the time of report writing, more than 100 babies have been born 'smoke-free'. The benefits to those babies, their mothers and wider families is hugely impactful and life-long.

There are challenges to supporting women to stop smoking in pregnancy, not specific to this project, but for all maternity stop smoking services. Recently published Stop Smoking Guidelines address some of these challenges and for the first time recommends safe, effective behavioural and pharmacological supports that can be offered to women who want to quit smoking when pregnant. In addition, the guideline implementation plan includes the establishment of maternity-specific stop smoking services in all parts of the country over the next number of years.

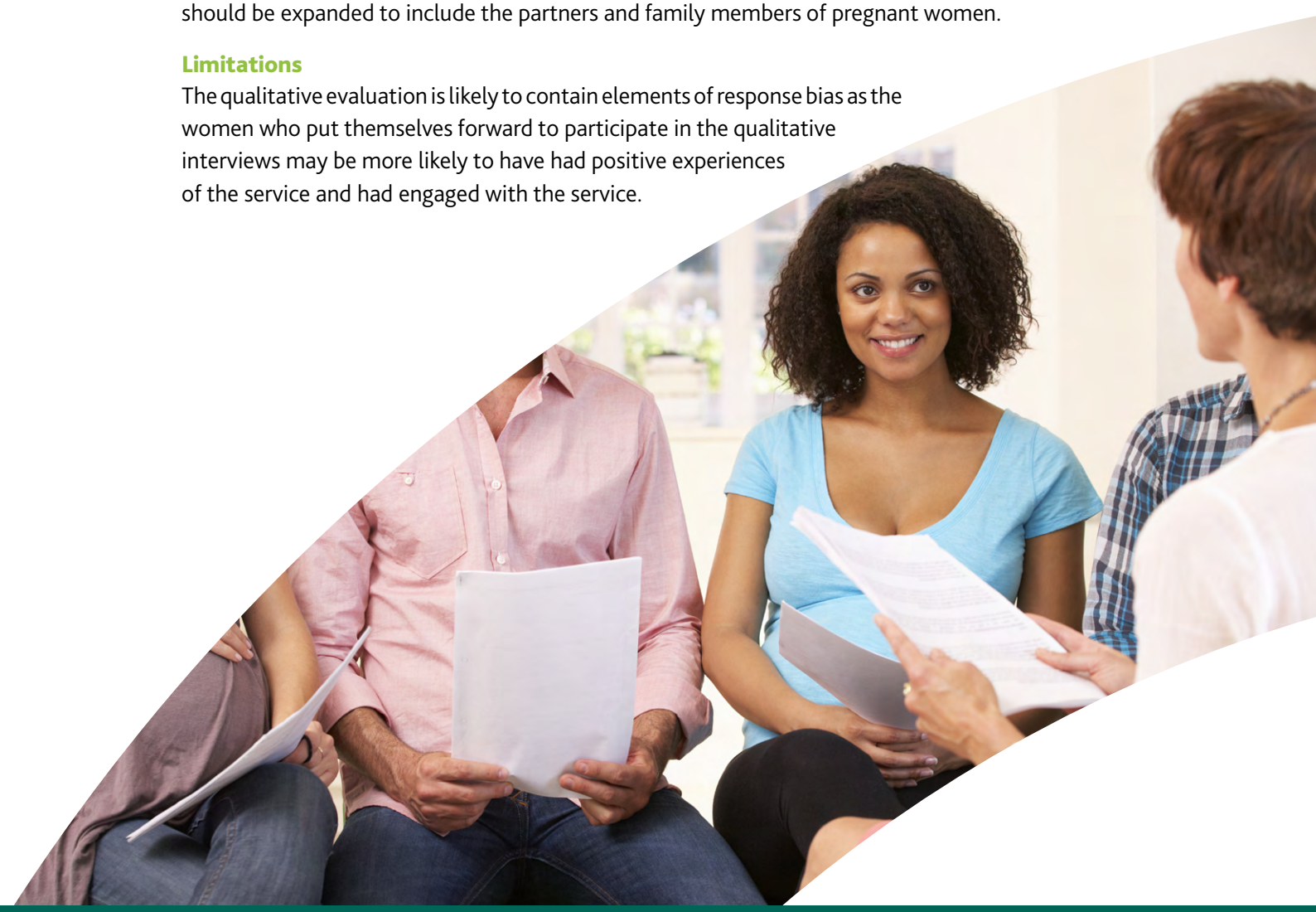
The qualitative research highlighted the importance of a non-judgmental approach in both recruitment to the programme and engagement with women in the programme. The importance of training of other healthcare professionals in taking a non-judgmental approach to women who smoke in pregnancy and in 'making every contact count' to create referral pathways to the service was evident in the research. The ongoing intensive support, positive relationship development and the non-judgemental and individual holistic approach offered by the Stop Smoking Midwives to pregnant women who smoke were central to the success of the programme. Many of the women had tried to stop smoking in the past and in previous pregnancies but were only successful with the support of the programme.

In terms of lessons learned from establishing a dedicated maternity-specific stop smoking service, a number of issues were identified; namely, the demands on the Stop Smoking Midwives in the early stages of implementation, and it is acknowledged that administrative supports should be provided to them. In addition, many of the pregnant women who engage with the service are vulnerable and have other issues such as mental health, addiction and domestic violence issues, therefore, additional resources, supports and training in these areas is important for the Stop Smoking Midwives as well as linking in with relevant service providers. The need to target hard to reach women such as Traveller women to engage with the service was also highlighted, and initiatives such as working with Traveller healthcare workers to recruit and engage Traveller women could be pursued.

Finally, in relation to the future development of the service, both service providers and service users agreed the programme should be made available in all maternity hospitals, and the service offer should be expanded to include the partners and family members of pregnant women.

Limitations

The qualitative evaluation is likely to contain elements of response bias as the women who put themselves forward to participate in the qualitative interviews may be more likely to have had positive experiences of the service and had engaged with the service.



Acknowledgements & Thanks

Majella Phelan, Orla Bowe & Lisa Courtney, Stop Smoking Midwives

Martina Blake, National Lead, TFIP

Dr Paul Kavanagh, Health Intelligence and TFIP

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CHO 5 Project Team

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All Women who participated in interviews

APPENDIX 1

National Steering Committee Membership

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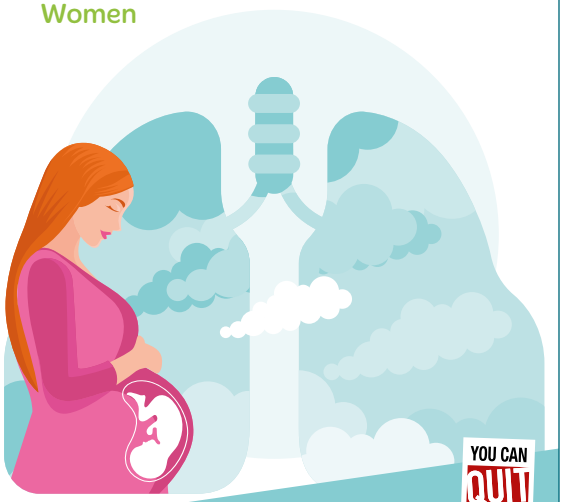
- Edward Murphy, Project Manager, TFIP
- Elaine Buckley, Stop Smoking Service Coordinator and QuitManager Project Manager, TFIP
- Martina Blake, National Lead, TFIP
- Mary-Jo Biggs, General Manager, NWIHP
- Dr Paul Kavanagh, Health Intelligence and TFIP

APPENDIX 2

Why we offer carbon monoxide breath testing at your first hospital visit

Information Leaflet for Pregnant Women



About this leaflet

As part of your care during pregnancy (antenatal care), we are offering you a carbon monoxide breath test at your first visit to help you and your baby be healthy. This leaflet explains what carbon monoxide (CO) is, how the breath test works, its benefits to you and your baby and what supports are available.

What is carbon monoxide?

Carbon monoxide (CO) is a poisonous gas which you can't see or smell but which is dangerous to you and your baby. Being exposed to and breathing in CO can prevent oxygen reaching your baby, slow your baby's growth and development and lead to poor health.

How are people exposed to carbon monoxide?

Most people are exposed to carbon monoxide in three ways:

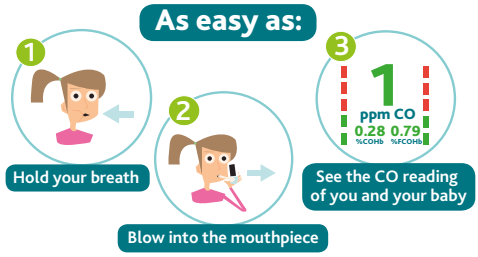
- Cigarette smoke
- Cooking or heating appliances that are faulty or poorly ventilated like gas, coal, wood and paraffin appliances
- Faulty car exhausts

Cigarette smoking is the most common source of exposure to carbon monoxide. Smoking during pregnancy can result in a wide range of problems for you and your baby, as described in the table below.

Effects on women
• Pregnancy occurs outside of the womb • Placenta (afterbirth) separates from the womb too early causing bleeding • Placenta covers the cervix (neck of womb) causing complications • Waters break too early • Risk of miscarriage
Effects on babies
• Stillbirth • Baby born too small or too early and needs to be admitted to intensive care • Infant death • Attention Deficit/Hyperactivity Disorder (ADHD) • Cleft lip/palate • Certain birth defects such as: – Clubfoot – Some heart defects – Gastroschisis (a small hole in baby's stomach)

How does the midwife check my carbon monoxide levels?

The breath test measures the amount of CO in your blood in parts per million (ppm). It only takes a few minutes with immediate results which tell you if you have been exposed to unsafe levels of CO. Your midwife will explain the test to you before asking if you would like to complete it. Like any test, you can decide if you want to go ahead or not.



What do the results mean?

Your midwife will discuss the results (see below) with you and explore possible sources of exposure to carbon monoxide. This will include asking you about smoking. The midwife will arrange any follow-up care with you.

0-3	Your recent level of exposure to carbon monoxide is low	This shows little exposure to carbon monoxide in the last two days
4+	You have had some recent exposure to carbon monoxide	This suggests you have had recent exposure to carbon monoxide and this may be of concern

Why would my CO test number be high?

The most likely reason for a high number on your CO test is exposure to cigarette smoke, either from smoking or if someone in your home smokes.

What can I do to reduce my exposure to CO?

Reducing your exposure to cigarette smoke is the most important thing you can do for your and your baby's health. You can:

- quit smoking yourself
- avoid being around other people who are smoking
- ask others not to smoke in your home, in the car or in front of you

The good news is that once you stop, the carbon monoxide will clear from your bloodstream and your baby's. This will allow oxygen to flow to support their growth and development.

What supports are available to help me quit?

Your midwife can discuss options to help you quit smoking, including referring you to on-site or local stop smoking services, and the use of nicotine replacement therapy during your pregnancy to help you quit.

To find out more about the free supports available to you and those you live with who smoke, call the Quitline on **1800 201 203** or visit **www.QUIT.ie**

What can I do if I have a high score, but don't smoke?

If you are not usually exposed to cigarette smoke, but you have a reading of 4 or more, you may have been exposed to CO through faulty heating or cooking appliances.

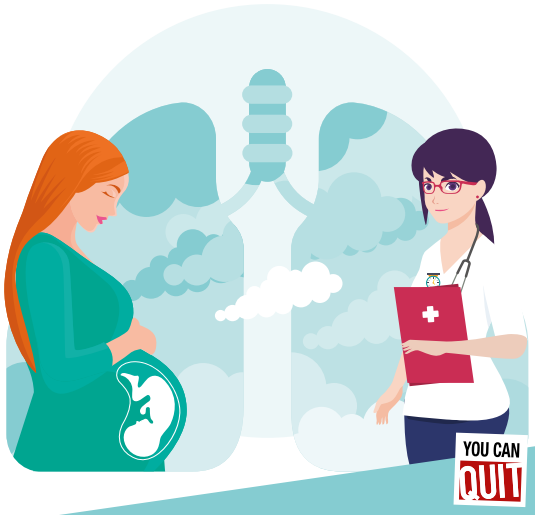
We strongly recommend that you get expert help from the carbon monoxide phone line **1800 89 89 89.**

- It is important to check that your heating and cooking appliances are safely installed.
- You may wish to buy a carbon monoxide alarm that will detect low levels of carbon monoxide in your home. You can get one for less than €20 at any major supermarket or electrical goods store.

APPENDIX 3

Carbon monoxide breath testing for pregnant women

An improved care pathway with advice for healthcare professionals



About this leaflet

This leaflet explains the rationale for a new breath test for carbon monoxide (CO) levels in pregnant women and how to do this test in four easy steps. These improvements in care are supported by the National Maternity Strategy – Creating a Better Future Together 2016-2026 and the Tobacco Free Ireland Strategy 2013-2025.

What we are asking midwives to do and why

At the first antenatal visit, we ask midwives to:

- invite women to complete a breath test for carbon monoxide
- discuss the results
- deliver a brief intervention by explaining the dangers of smoking and make a referral to stop smoking services.

Carbon monoxide is a colourless, odourless and tasteless poisonous gas which can kill people. Cigarette smoke is the most common source of this gas, but it can also come from exhaust fumes, faulty gas appliances, coal or wood fires and oil burning appliances.

It is important to offer and encourage all pregnant women to have a CO breath test as exposure to CO is especially dangerous during pregnancy.
It deprives the baby of oxygen, slows its growth and development and increases the risk of miscarriage, stillbirth and sudden infant death.

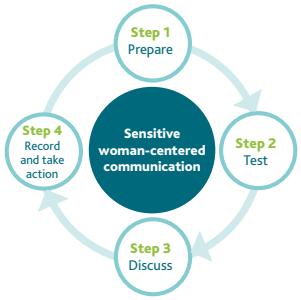
The benefits of CO testing

CO testing during the first antenatal visit raises awareness of CO exposure and allows the midwife to introduce key information to discuss smoking and how to quit if appropriate. This supports a healthier pregnancy. The test takes just a couple of minutes to do and results are available immediately.

Studies from other countries show that CO testing with opt-out referral to stop smoking services has:

- Improved how care needs are identified
- Increased the use of supports to stop smoking
- Increased quit rates and improved outcomes for women and babies
- Been well received by pregnant women and healthcare professionals

4 Steps



Step 1: Prepare
- Prepare equipment like the breath monitor.
- Introduce the test and explain the test to the woman.

Step 2: Test
- Complete the test.

Step 3: Discuss
- Discuss the test results in a sensitive and non-judgemental manner.
- Enquire about smoking status.

Step 4: Record and take action
- Record CO test result and smoking status.
- Take action depending on CO test result. See below.
- Encourage partners and other household members to contact stop smoking services.

Limits of carbon monoxide breath testing

CO breath testing can help you see if the woman has recently been exposed to unsafe levels of CO, but it can't tell you if the results are only because of smoking. You can explore the reasons for this together. The most common reason for high CO levels (4 parts per million (ppm) or above) is usually smoking, but there are other reasons that need to be explored like a faulty heating or kitchen appliance.

Reading is **less than 4ppm:** What to say or do

- If the woman does not currently smoke, provide reassurance and no further action is required. This is the most common outcome from the test.
- If the woman has recently quit, congratulate her on her success, positively re-enforce the importance of remaining smoke-free and discuss whether she would like support now to remain stopped.
- If the woman currently smokes, deliver a brief intervention and schedule an appointment for her with stop smoking services.

If her partner or others in the household smoke, encourage them to contact the local stop smoking service, visit the Quit website at **www.quit.ie** or contact the HSE Quitline **1800 201 203**

Reading is **4ppm or above:** What to say or do

Explain that the reading is at a level consistent with someone who smokes or who has been exposed to CO. Ask her if she, or anyone else in her household smokes.

- If the woman does not currently smoke, recommend that they install a CO monitor at home and that they get expert advice from the Carbon Monoxide helpline 1800 89 89 89. Repeat the test at the next visit.
- If the woman has recently quit, encourage her on her success, positively re-enforce the importance of staying smoke-free, and discuss whether she would like support now to stay a non-smoker.
- If the woman currently smokes, explain the dangers and deliver a brief intervention. Schedule an appointment for her with stop smoking services. See tips below.

If her partner or others in the household smoke, encourage them to contact the local stop smoking service, visit the Quit website at **www.quit.ie** or contact the HSE Quitline **1800 201 203**

Tips about testing and intervention

- Remain positive, supportive and non-judgemental in your approach and give evidence-based information about the test and its benefits.
- All discussion must be phrased and delivered sensitively to encourage conversation.
- Assess her interest in giving up smoking and encourage her to take up the support offered by the onsite and or local stop smoking service.
- Make a referral to stop smoking services.
- As with any test, the midwife's role is to facilitate women's informed choice and their consent or refusal of the CO test.

While it may not be practical to repeat CO breath testing, remember to ask women about their smoking status at every opportunity in their antenatal care to record any advice given. (Ask at least once in each trimester.) This ensures that stopping smoking is seen as important throughout the pregnancy, and not just at the first visit.

APPENDIX 4

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Lead Author, Year of Publication	Full Citation
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