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THE FAMILY NURSE PARTNERSHIP IN SCOTLAND 10 YEARS ON: A DETAILED ANALYSIS OF FNP DATA

CHILDREN, EDUCATION AND SKILLS

social research

Contents

The Importance of the Early Years

The earliest years of life, including during pregnancy, provide the greatest opportunity to influence a child's development[1]. There is now a wide ranging evidence base from neuroscience, epigenetics, endocrinology, and the study of physiological systems and inflammatory disorders that shows how the experiences and environments in which children grow shape the developing brain, influence genes, and affect the health of the body's systems[2].

The earliest years are also the most vulnerable for babies and children. The importance of positive and predictable caregiver interactions and experiences that are responsive and reliable cannot be over emphasised. These interactions and experiences help to build secure attachment[3] and are crucial to shaping a child's brain architecture, and in turn key life skills[4]. If responses are unreliable or inappropriate, the brain's architecture can be permanently altered, and this can have an impact on learning and behaviour and the ability to develop positive relationships, which are crucial for early development.

The evidence base on Adverse Childhood Experiences (ACEs), including neglect, abuse and parental substance use problems, also demonstrates the link between traumatic events in childhood and less positive outcomes over the life course, including physical health, mental health, education, and employment into adulthood[5]. This is particularly true in the absence of protective factors in a child's life.

The 'social determinants of health' are the collective set of conditions in which people are born, grow up, live and work. These include housing, education, financial security and the built environment, as well as the health and social care systems. It is now widely accepted that these social determinants are responsible for significant levels of health 'inequalities'[6].

The evidence, however, also indicates the importance of protective factors; the strengths that help to buffer and support families. They can also serve as safeguards, helping parents who otherwise might be at risk find resources, support, or coping strategies that allow them to parent effectively, even under stress[7].

Investing in early years can be considered a 'life course prevention' approach. The return on investment from early years interventions is greater than spending at later stages of development[8].

The Family Nurse Partnership Programme in Scotland

The Family Nurse Partnership programme (FNP) is an intensive, preventative, one-to-one home visiting programme developed in the United States of America (USA) by Professor David Olds and the University of Colorado, Denver (UCD).

FNP currently has a Level 4+ evidence rating from the Early Intervention Foundation (EIF)[9]. This is the highest rating given to programmes with evidence of a long-term positive impact established through multiple rigorous evaluations[10]. It is a highly intensive, complex clinical intervention, with the purpose of achieving three core outcomes:

- to improve pregnancy and birth outcomes, through improved prenatal health behaviours;
- to improve child health and development, through positive, responsive caregiving; and
- to improve the economic stability of the family, through developing their vision and realising their plans for the future.

FNP in Scotland focuses on supporting all young first-time mothers[i] aged 19 or under and some older mothers under 25, where there is local capacity to reach them. The programme is delivered from early pregnancy until the child reaches two years old, recognising the important 'window of opportunity' and capacity to influence child development during early key life stages. This is a voluntary programme, in that it is the decision of the young mother as to whether they want to enrol onto FNP, which is offered once eligiblity is established.

The focus of FNP on the mother and child, and the wider relationships and environments in which they live, means it maps well onto the Scottish children and young people policy context. Key policy drivers that are embedded in FNP include:

- Getting it Right for Every Child (GIRFEC)[11]
- Pregnancy and Parenthood in Young People Strategy (PPYP)[12]
- Tackling Child Poverty Delivery Plan[13]
- The Promise[14]
- Trauma informed[15]
- United Nations Convention on the Rights of the Child (UNCRC)[16]

Implementation of FNP in Scotland

FNP began in Scotland in 2010. A focused evaluation was carried out on the early implementation of the programme in Scotland[17]. The learning from this was used to implement the programme in other areas of Scotland, whilst increasing the reach of the programme within the existing sites.

[i] For the purposes of this report, the term "Mother" refers to the biological parent that births the child, with acknowledgement that this does not in all cases align to an individual's gender identity.

The scale and spread of the programme in Scotland, to cover a whole country, is the first time this has been achieved anywhere in the world. This has been largely due to the dedication of the clinical nursing teams, strategic leadership in NHS Boards, supportive relationships with Professor David Olds and the University of Colorado (UCD), the continuing relevance to National policy drivers, and the families receiving the programme.

By September 2018, all areas delivering the FNP programme in Scotland had a continuous model of recruitment in place, which meant that all eligible first-time young mothers, aged 19 or under, have been offered the programme since that point.

The programme is currently being delivered in all 11 mainland NHS Board areas, with the latest area being brought onboard in 2018 (see Table 1 below):

Table 1: Implementation of FNP across Scottish Health Boards and Region

Board	Region	Date recruitment began
NHS Lothian	East	Jan 2010
NHS Tayside	North	July 2011
NHS Fife	East	August 2012
NHS Greater Glasgow and Clyde	West	October 2012
NHS Ayrshire and Arran	West	February 2013
Highland	North	February 2013
NHS Lanarkshire	West	July 2013
NHS Forth Valley	East	March 2014
NHS Grampian	North	May 2015
NHS Borders	East	August 2015
NHS Dumfries and Galloway	West	October 2018

Since the start of the FNP programme in Scotland, over 10,000 young women have enrolled and over 6,000 have graduated to date[ii].

Further information regarding the evidence base, theories, models, core model elements and benchmarks/ fidelity measures can be found on the Child and Maternal Health Scottish Government webpages and on the FNP international website[18].

[ii] This data includes the 148 enrolments and 128 graduations from the FNP pilot in NHS Lothian.

The FNP Workforce

As part of the licensing conditions, the workforce model to deliver FNP consists of experienced, registered nurses or midwives, a supervisor (1WTE per 8 family nurses), and a data manager. In Scotland, there are also FNP Leads who provide strategic oversight for FNP within their local areas. To take on the role as a Family Nurse or Supervisor, extensive additional training at Masters level is delivered by NHS Education for Scotland (NES), as set out in the FNP education strategy[19].

All Family Nurses must receive regular supervision, as an essential element of support for nurses[20]. Family Nurses work in environments with high levels of risk and uncertainty, with complex and challenging circumstances, and are required to make autonomous decisions; at times, this can be physically and emotionally draining. Having a space to critically reflect is an important aspect of protecting the workforce, and building individual and team learning. Family nurses can experience the essence of a safe and trusting therapeutic relationship through role modelling with the supervisor.

Data gathered about FNP programmme delivery is essential to understanding the impact of the programme, and identifying areas of success and for improvement. The data manager works closely with the supervisor to ensure that the bespoke data, collected as part of the licensing conditions, is routinely and consistently collected, recorded and reported.

FNP Programme Delivery

FNP is a focused, preventative approach that seeks to enhance parents' understanding of their wider enviroment and influences, to promote and model sensitive, responsive care-giving and self-efficacy. The programme also supports clients[iii] to develop their own coping skills and strategies to enable them to be the nuturing carer and protective factor for themselves and their children.

The FNP client group is complex and because of this, the changes they wish to make in their lives are diverse. Programme delivery, therefore, aims to be robust and yet dynamic. The FNP programme sets out a schedule of structured home visits, with guidance on content. Family Nurses are encouraged to match their schedule of visits and the content of these to individual clients' specific needs and goals.

Family Nurses are provided with an extensive suite of materials to support client engagement and the development of knowledge, skills and confidence. During each visit the Family Nurse considers six domains: Personal Health; Maternal Role; Life Course Development; Family/Friends; Environmental Health and Health and Human Services, with an aim to build on previous learning.

The COVID-19 pandemic has had a profound impact on health, economy and society, with damaging impacts on the way of life and wellbeing of people in Scotland. There is considerable uncertainty about long term impacts at present, as the pandemic itself and response to it continue to evolve[21]. A recent Scottish Government report on FNP, which was commissioned to explore the experiences of the Family Nurses and clients in Scotland during the COVID-19 pandemic[22], highlighted the importance of the face-to-face, in-home visiting structure of FNP and the therapeutic relationships built between nurses and clients. The data analysed within this report shows that during the pandemic, FNP

[iii] In this report the term "client" refers to a biological parent in receipt of FNP.

continued to be delivered, new clients were enrolled, and clients continued to graduate without substantial variation in any of the benchmarks for programme delivery.

FNP Data In Scotland

The environment in which FNP is delivered has many intersecting factors that can impact on families health and wellbeing including socio-economic circumstances, geographic area, and access to services. The FNP programme is designed to be delivered flexibly and responsively to the individual needs of the parent and child, and understanding the environmental and individual circumstances enables the programme to be matched to the needs of the client.The use of qualitative and quantitative data sets in combination is fundamental to developing this understanding, to achieve successful programme implementation and beneficial outcomes for clients and their children. The data captured is more than management information, it is core clinical information used to inform the engagement between the client and the nurse. It also provides key insights about areas that are working well, and those for for local and national improvement, in both processes and outcomes, and continues to shape the FNP delivery model in the Scottish context.

FNP data requires to be captured on structured data forms and analysed in a specific way. As part of the scaling up of the programme in 2012, the use of the national Multi-Disciplinary Information System (MiDIS) was approved; this began routinely in 2014. As part of a Business Benefits Review in 2016, it was identified that the MiDIS system had some limitations and there was no scope to deliver improvements as the system itself was being decommisioned. A successful business case was put forward to develop a national bespoke FNP data system (Turas FNP) through NHS Education Scotland (NES).

Turas FNP, was launched in late 2019. The system was designed to reduce the data burden on Family Nurses and enhance the utility of the data at all levels of the programme. As part of the FNP quality improvement programme, the clinical experiences of stakeholders across Scotland are used to enhance the data systems usability. The additional benefits of this new system has been recognised across Scotland and FNP England have also adopted this system. The collaborative efforts used in its design and implementation continue to add value to the FNP programme impacts and effectiveness.

Alongside the development of robust IT systems, qualitative data continues to be gathered, to ensure that the client and nurse voice and experience is inherent in driving improvements to the programme. The most recent qualitative evaluation of FNP in Scotland, published in 2019, can be found on the Scottish Government website FNP Qualitative Evaluation 2019.

This Report

To mark the first ten years of FNP in Scotland, the Scottish Government has undertaken a review of FNP data over the 10 years of operation. This exercise was undertaken primarily to deepen understanding about the FNP programme as a whole and in particular to understand more fully who has received FNP, changes over the 10 years of operation, and to identify areas of success and for improvement.

The data drawn on in this report is based on the data of clients that have enrolled onto the FNP programme at some point between its inception and March 2021[23]. The analysis uses the data of 9,177 clients in section 1: intake and client characteristics. The remaining sections 2 to 4 analyse data on clients who have completed the programme (5,006 up to 31 March 2021), to ensure full data over the duration of the programme could be analysed, with the exception of attrition data which included the 1,262 clients who left the programme

before completion. However, the number of clients that data is analysed for at any given variable will depend on data completeness for that variable.

The statistics included in this report are descriptive, meaning that no hypotheses testing has been carried out on the datasets. This allows description of trends over time and between sub-groups of FNP clients, however no statements can be made about the the statistical significance or causation of differences.

Limitations

There are a number of limitations to this analysis, in that much of the data is sourced from the bespoke Turas FNP system. This means that while data is collected for FNP clients there is no real comparator group in administrative data that can be easily accessed.

The data held in Turas FNP is primarily self-reported data collected from clients by Family Nurses, therefore data reported here is not validated against any independent sources although data is compared to national datasets where possible.

The completion rate for each data form used for the analysis, and each question within data forms is variable. Therefore the number of clients that data is analysed for at any given measure will depend on data completeness for that measure. Percentages are expressed as a proportion of all clients or children for whom data was collected on a given measure, unless stated otherwise.

FNP clients will also be contained within different administrative datasets, however they cannot be identified within these datasets. This limits the analysis that can be conducted on such data, which would complement this analysis.

The Turas FNP IT system was implemented in October 2019. While there was the MiDIS database prior to the new system, the data collected has altered between the two systems. While much of the legacy data has been mapped to the new system to enable longer term comparisons, some data could not be migrated. This has substantially limited the outcome data that can be analysed.

As part of improving data quality, the Scottish Government and local sites continue to consider whether further modifications to data collection and analysis would be beneficial in the longer term.

The data from the pilot of FNP in NHS Lothian is not included in the majority of the analysis that follows, as this data was only held on a preliminary IT system and was never migrated to MiDIS. The pilot data is only included in Chart 4 – enrolment onto FNP over time and the overall number of enrolments and graduates in FNP since 2010 (page 16). Therefore the majority of the data commences in July 2011.

Section 1: Intake and Client Characteristics

Summary – Intake and Client Characteristics

- At a national level, there has been a substantial decline in the pregnancy and birth rate among younger mothers over the last 10 years.
- The number of first time births to mothers aged 19 and under in Scotland is now a third of what it was when FNP was first delivered in 2010. The geographical pattern of decline has changed the profile of younger mothers in Scotland with the majority (73%) now within the most deprived (SIMD 1 and 2) areas.
- Young women under 20 years old in the most deprived areas of Scotland are 13 times more likely to have a pregnancy that results in delivery compared to those in the least deprived areas.
- Evidence suggests that young mothers aged 20-25 years can face similar circumstances to young mothers aged under 20[24]. This evidence highlighted the importance of FNP accepting some clients aged 20-24 at enrolment,with some additional criteria. This is being trialled in some Health Boards in Scotland.
- From 2018/19 onwards, around 80% of all first time mothers aged 19 and under in Scotland voluntarily enrol onto FNP.
- Overall, just under a third (30%) of clients enrolling onto FNP were aged 17 or under at the time of enrolment. The majority (54%) were aged 18 to 19 and a sixth (16%) were aged 20 and older[iv].
- There has been a decrease in the proportion of clients aged 17 and under and an increase in those aged 18-24 years over the 10 years of delivery of FNP, in line with the decrease in births to younger mothers.
- The majority of FNP clients were of white origin (96%) and a small proportion (4%) of FNP clients were of a non-white ethnic group, similar to the proportions indicated in Scottish Maternity records.
- The Scottish statistics for attainment[25] show that the average qualification attainment for school leavers in Scotland is much higher than that seen among FNP clients.
- Analysis completed in 2018 has shown that almost all FNP clients (98%) had experienced some form of trauma or adverse experience in their lives before enrolling onto FNP. The most prevalent complexities for FNP clients at entry to FNP were; anxiety or other mental health issues (63%), experience of parental separation (63%), low income (60%), not being in work, education or training (57%). Over a fifth (22%) of FNP clients were care experienced or on the child protection register.

[iv] FNP is offered to some clients aged 20-24 subject to enrolment criteria in some areas of Scotland (NHS Ayrshire and Arran, NHS Borders, NHS Grampian, Highland, NHS Lothian, NHS Tayside) NHS Lothian and NHS Borders and parts of Highland offered FNP to all first time mothers aged up to 20. NHS Tayside and Highland offered FNP to first time mothers up to 24 years with those aged 20-24 subject to additional criteria at enrolment. NHS Ayrshire and Arran and NHS Grampian provided FNP to older clients that transferred in from other parts of Scotland only.

FNP IS AVAILABLE TO **ALL FIRST TIME MOTHERS 19 AND UNDER IN MAINLAND SCOTLAND**

OVER **10,000** FAMILIES HAVE TAKEN PART IN FNP IN SCOTLAND

AS AT 31 MARCH 2022 **2,658** FAMILIES ARE **ACTIVELY TAKING PART** IN FNP

OVER **6,000** FAMILIES HAVE COMPLETED FNP AND GRADUATED - AN **80%** COMPLETION RATE

FROM 2018/19 ONWARDS, **80%** OF ALL FIRST TIME MOTHERS AGED 19 AND UNDER VOLUNTARILY ENROL ONTO FNP

FNP HAS EXPANDED TO REACH **MORE FAMILIES** OVER THE TEN YEAR PERIOD OF DELIVERY

OVER THE TEN YEARS OF FNP **84%** OF CLIENTS WERE AGED **UNDER 20**

HOWEVER, SINCE 2017-18, **MORE THAN 20%** OF CLIENTS JOINING FNP WERE AGED 20 AND OVER

MORE THAN **1 IN 3 MOTHERS WERE SINGLE** WHEN THEY JOINED FNP.

6% OF FNP CLIENTS ARE FROM **A MINORITY ETHNIC** BACKGROUND IN 2021

OVER 70% OF FAMILIES RECEIVING FNP LIVED IN MORE **DEPRIVED AREAS** (SIMD 1&2)

IN 2018, **22%** OF FNP CLIENTS WERE CARE EXPERIENCED OR HAD BEEN ON THE CHILD PROTECTION REGISTER

IN 2018, **98%** OF FNP CLIENTS HAD EXPERIENCED SOME FORM OF TRAUMA OR ADVERSE EXPERIENCE IN THEIR LIVES PRIOR TO ENROLMENT

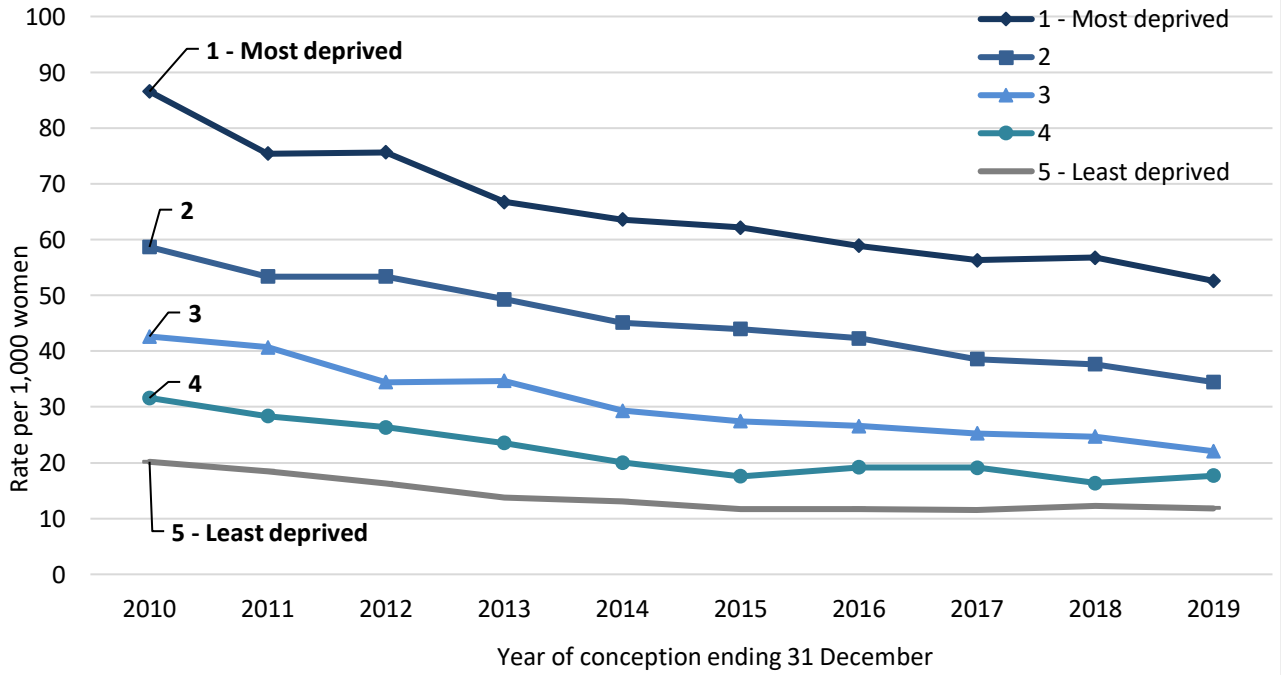
Pregnancy in Scotland

Pregnancy at an early age can be positive for some young people. It can be a planned choice and a new beginning. For others, it can increase the likelihood of poverty and reduce or compromise life chances, and this cycle can then repeat from one generation to the next[26]. Evidence shows that having a pregnancy at a young age can contribute to a cycle of poor health and poverty as a result of associated socio-economic circumstances before and after pregnancy (as opposed to the biological effects of young maternal age).

Pregnancy in young women is often a cause and a consequence of social exclusion and should not been seen narrowly as a health challenge[27]. The Institute of Fiscal Studies concluded that to significantly reduce levels of teenage pregnancy you cannot concentrate on high risk groups alone; a proportionate universalism approach is needed to ensure the needs of all young people are met. Universal services, across all agencies, have an important role to play in identifying and supporting the needs of young people[28].

Over the past ten years the rate of pregnancy (defined as all conceptions i.e. live births and terminations) in young people in Scotland have been reducing consistently. However, it is still high compared to other comparable western countries[29]. Between 2010 and 2019, Scotland experienced a reduction in the number of pregnancies in young people under 20 years of age, from 7,933 annual pregnancies to 3,814. However, as shown in Chart 1, young women from the most deprived areas are much more likely to experience a teenage pregnancy. The data shows that young people living in the most deprived areas are 4.5 times more likely to experience a pregnancy in Scotland, compared to those in the least deprived areas[30].

Chart 1: Rates of teenage pregnancy in Scotland by Scottish Index of Multiple Deprivation (SIMD), 2010-2019

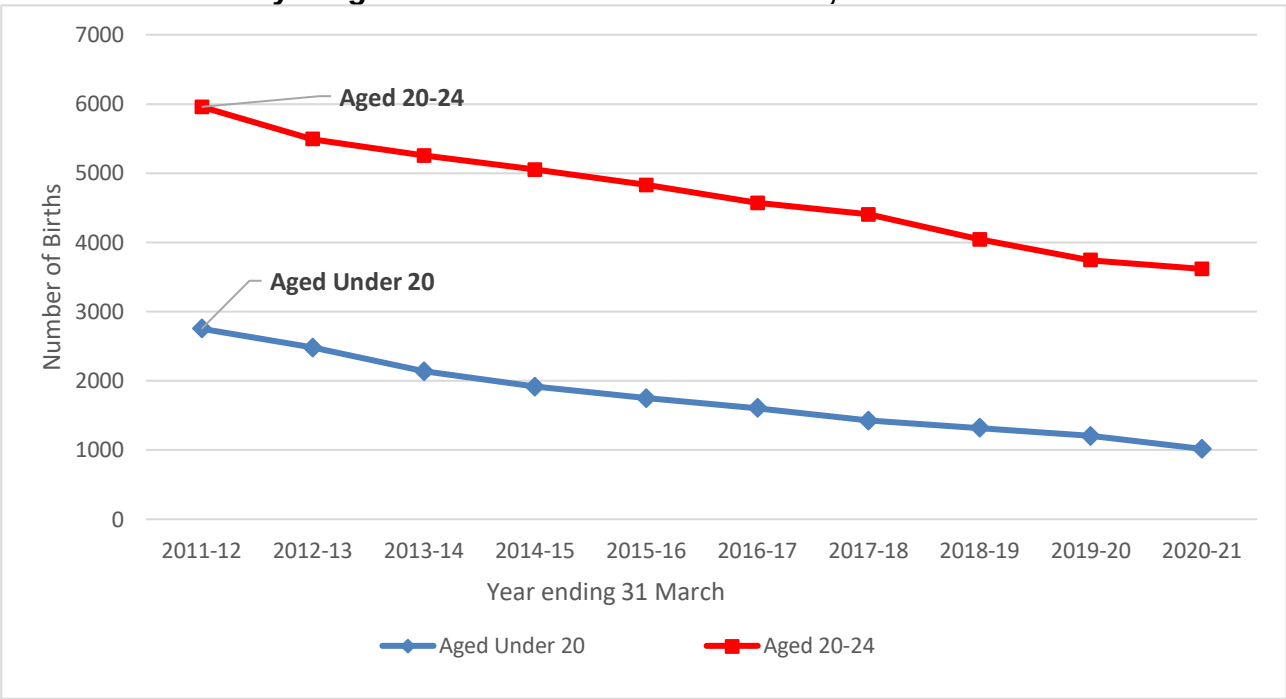


NOTE: Includes all pregnancies in women aged under 20. The rate is calculated using the female population aged 15-19.

Births to Younger Mothers

The average age at which women have their first baby in Scotland has been gradually increasing[3]. The trend of increasing maternal age is seen both when looking at first births exclusively, and all births. In 2020-21 the proportion of women giving birth that were aged 35 years and over was the highest recorded at 23.4% of all births and the proportion aged under 20 was the lowest recorded at 2.6%[31]. The number of young people giving birth to their first child aged under 20 was 2752 in 2011-12. This had decreased by almost two-thirds to 1,017 first time births in 2020-21 as shown in Chart 2.

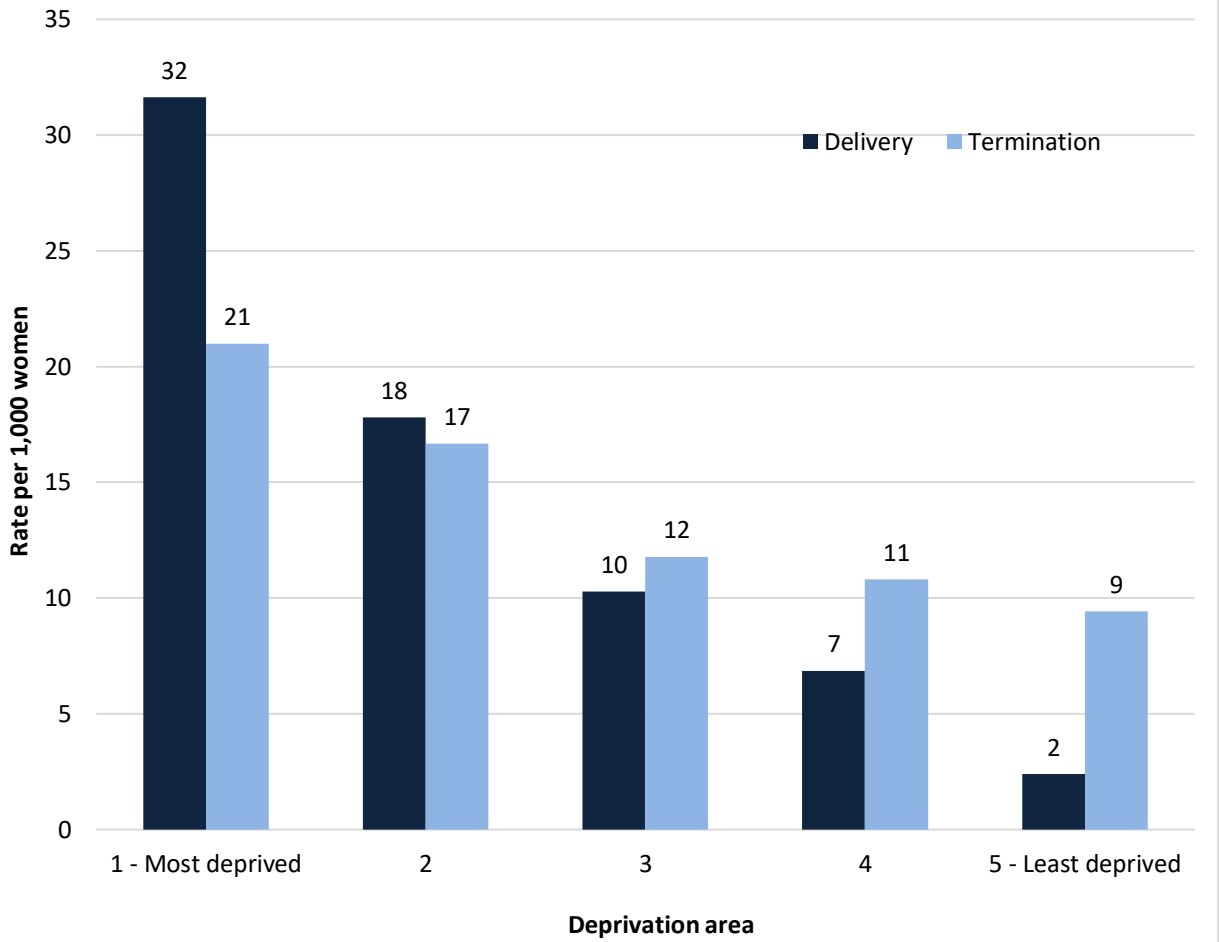
Chart 2: Births to young first time mothers in Scotland, 2011-12 to 2020-2021



There is also a deprivation divide. The most common maternal age at first birth is substantially lower in the most deprived areas, at 21 years compared to 32 years in the least deprived[32]. Young women in the most deprived areas of Scotland are more likely to have a pregnancy and they are also more likely to continue on with pregnancy and give birth. The vast majority of births to younger mothers are concentrated amongst those that live in the areas with the highest levels of deprivation as measured by Scottish Index of Multiple Deprivation (SIMD)[v] as highlighted in Chart 3 below.

[v] Collection of documents relating to the Scottish Index of Multiple Deprivation - a tool for identifying areas with relatively high levels of deprivation.

Chart 3: Rates of teenage pregnancy in Scotland by outcome and Deprivation Quintile (SIMD), 2019



Includes all pregnancies in women aged under 20. The rate is calculated using the female population aged 15-19. Source: NRS birth registrations & Notifications of abortions performed under the Abortion (Scotland) Regulations 1991.

Young women in the most deprived areas are 13 times more likely overall to have a pregnancy that results in delivery than those in the least deprived areas[33]. This difference is even higher than when FNP began in Scotland, and makes it important to consider and understand FNP clients in terms of how client characteristics have changed over the 10 years of service provision.

Young mothers and babies in Scotland who live in the most deprived areas can face a range of health issues as well as socioeconomic disadvantages. The births in Scottish hospitals statistics show that in 2020-21, young mothers (aged under 25) living in the most deprived areas (SIMD 1) were more likely than those in the least deprived areas to be underweight, but also more likely to be overweight or obese. Almost a third (31%) of young mothers in deprived areas smoked at the time of their antenatal booking, which is more than double the rate for all mothers in Scotland (13%). More than one in ten (12%) babies born to young mothers living in deprived areas required extra neonatal care at birth, which is almost double the rate of babies born to young mothers living in the least deprived areas (7.8%). This highlights the complexity of the challenges faced by young mothers – both in terms of health behaviors and outcomes – particularly those from more deprived backgrounds.

Intake to FNP

FNP commenced in Scotland in 2010 with 6 family nurses, 1 supervisor, 1 data manager and a cohort of 148 clients. Following implementation, there has been a national programme of expansion to build towards FNP becoming a universally offered service in mainland Scotland. This was achieved in 2018. FNP is a voluntary programme, all young people aged 19 and under that become pregnant and plan to proceed with their pregnacy in NHS Boards that deliver FNP[vi] are offered a place on the programme. As at 31st March 2021 there were 2,909 active clients in Scotland.

The recruitment and training of FNP staff has run in parallel with the national roll out of the programme and as at 31st March 2021 there were:

- 182.45 whole time equivalent (WTE) Family Nurses
- 32.6 WTE Family Nurse Supervisors
- 25.41 WTE Data managers
- 19.93 WTE Admin staff

One of the measures within FNP is the percentage of eligible women that choose to enrol onto the programme. The international benchmark is 75%. In Scotland this has always been exceeded with approximately eight in ten (80%) of those offered the programme deciding to participate.

Currently, little is known about those that opt **not** to take up the offer of a place on the FNP programme. While details of all young mothers are held centrally in Scottish maternity and birth records, the Turas FNP system does not capture data on young mothers that are not FNP clients. While some local areas capture data locally this is not systematic.

Eligible young mothers who choose not to take up the offer of FNP will continue to receive usual care, through the universally offered maternity and health visiting services.

The majority of young women that enter the programme stay on until their child reaches age two, at which point they graduate from the programme and are transferred to the Health Visiting Service. If a client leaves the programme early, then they will automatically be transferred to the Health Visiting Service at that point, ensuring they can continue to access the care and support they may need.

Between 21 July 2011 and 31 March 2021[vii], 9177 FNP clients had enrolled onto the FNP programme. Of these clients, 5006 (55%) had graduated from the programme, 1262 (14%) had left before graduating (attrition), and 2909 (32%) were still active FNP clients as at 31st March 2021.

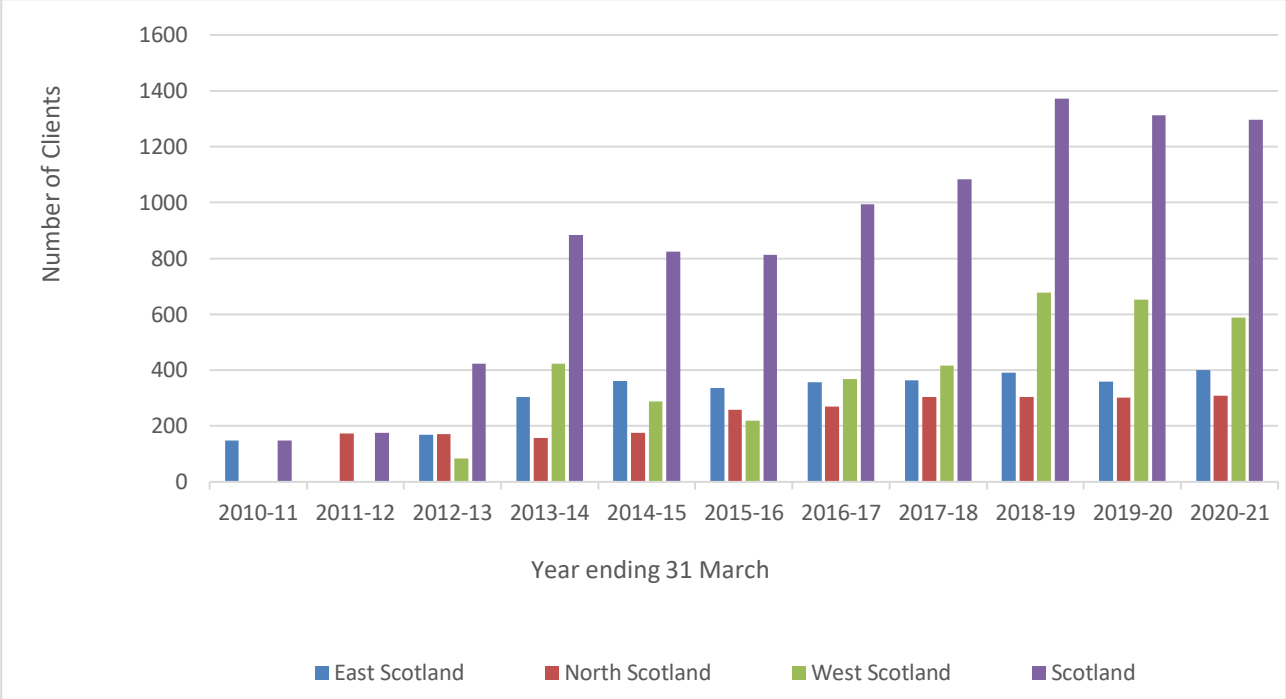
As shown in Chart 4 below, the number of clients joining FNP increased each year from 175 clients joining in 2011-12 to 1372 clients joining in 2018-19. This is due to the roll out of the programme across Scotland. Between 2018-19 and 2019-21, the number of FNP clients enrolling each year has become relatively stable at around 1300 annually, as it has

[vi] NHS Health Boards that Deliver FNP in Scotland include (NHS Ayrshire and Arran, NHS Borders, NHS Dumfries and Galloway, NHS Fife, NHS Forth Valley, NHS Grampian, NHS Greater Glasgow and Clyde, Highland, NHS Lanarkshire, NHS Lothian, NHS Tayside)

[vii] Data on enrolment commences in July 2011 as the pilot cohort from NHS Lothian that commenced in 2010 is not included in this analysis.

become a continuous programme across NHS boards. The regions of Scotland[viii] rolled out the programme at different times and the scale up of the programme can be seen in the Chart 4 below.

Chart 4: Number of FNP clients by year of enrolment and region of Scotland (N=9,325)



NOTE: Data from the Pilot site in NHS Lothian is included (2010/2011). Health Boards are grouped as follows (North Scotland – NHS Grampian, Highland, NHS Tayside), (East Scotland – NHS Borders, NHS Forth Valley, NHS Lothian, NHS Fife), (West Scotland – NHS Ayrshire and Arran, NHS Dumfries & Galloway, NHS Greater Glasgow and Clyde, NHS Lanarkshire)

Client Characteristics

In this section, the characteristics of clients are explored further, and compared with relevant comparator groups such as first time mothers under 20 years old.

Age

At the commencement of the FNP programme in Scotland, young people aged 19 or under having their first child were the eligible client group for FNP. However, in recognition of the similar poorer outcomes[34] for older mothers up to 25, the eligibility criteria was extended in 2016 to target some 20-24 year old first time mothers with additional needs. Alongside this deepening understanding of the client groups that would most benefit from FNP, the reduction in births to younger mothers (under 20 years) meant that some FNP teams had capacity to test the FNP programme with mothers aged 20-24 years.

This has not yet been consistently rolled out across Scotland, with areas testing slightly different approaches. The majority of 20-24 year old clients have been recruited in NHS

[viii] Regions of Scotland: East (NHS Borders, NHS Fife, NHS Lothian, NHS Forth Valley), North (NHS Grampian, Highland, NHS Tayside), West (NHS Ayrshire and Arran, NHS Dumfries and Galloway, NHS Greater Glasgow and Clyde, NHS Lanarkshire)

Tayside and NHS Lothian. There have also been small numbers in NHS Ayrshire and Arran, NHS Grampian, NHS Borders and Highland.

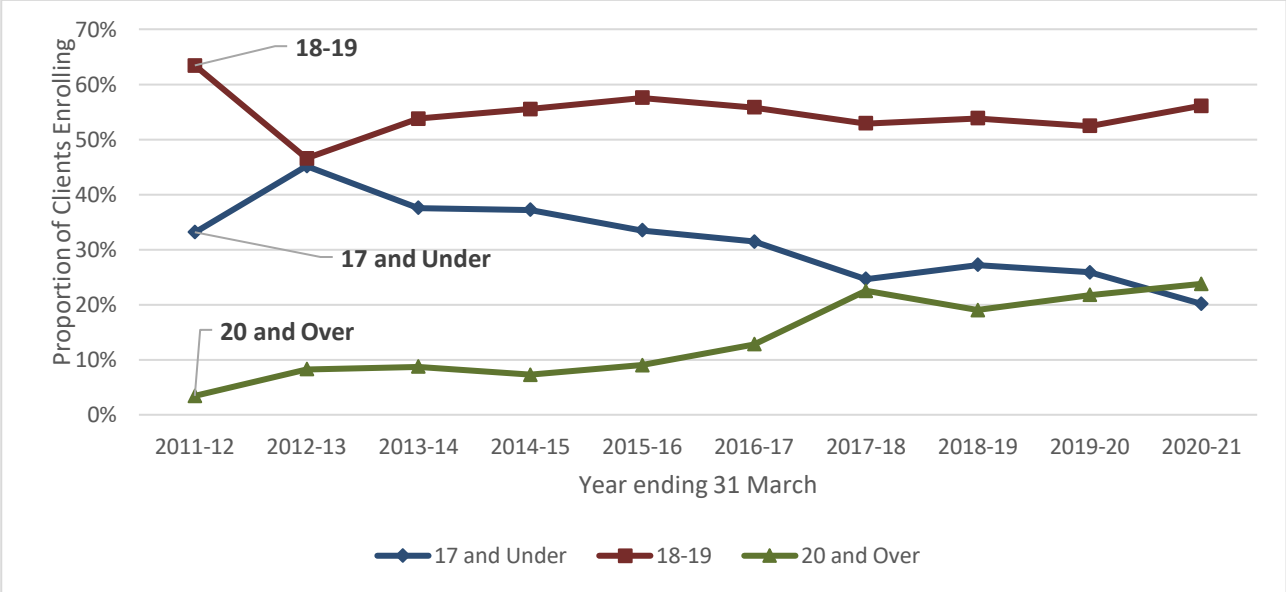
There is a developing evidence base for expanding the FNP offer to other groups based not only on age, but also on other characteristics. Internationally, there are targeted client groups relevant to individual countries[ix], including in:

- Australia - the programme is adapted specifically for women pregnant with an Aboriginal and/or Torres Strait Islander baby; there is no age criteria.
- Bulgaria - the programme is predominately aimed at first time mothers from the Roma community under the age of 22 years.
- Norway - the programme is offered to first parents with complex challenges based on fulfilling two or more criteria from a ten point inclusion criteria; they have only a small number of younger mothers and no age criteria.

This provides further evidence that the FNP programme has been adapted to the local context, and that this can be achieved in Scotland if the groups that would benefit most from the programme are effectively targeted.

In Scotland, over the ten years of the programme just under a third (30%) of clients enrolling onto FNP were aged 17 or under at the time of enrolment. The majority (54%) were aged 18 to 19 and 16% were aged 20 and older[x]. As shown in Chart 5, the age composition of the FNP client group has changed somewhat over time. The most common ages at enrolment have typically been 18 or 19 years old, and there has been an increasing proportion of clients aged 20 and over. Over time, there has been a gradual reduction in the proportion of the FNP client group aged 17 and under, though there is still a sizeable proportion of clients aged 16 or 17 at enrolment. Although clients aged 15 and under make up a relatively small proportion of the overall FNP client group, around 25 to 50 clients in this age group enrol every year.

Chart 5: Proportion of FNP clients by year of enrolment and age at enrolment (N=9177)

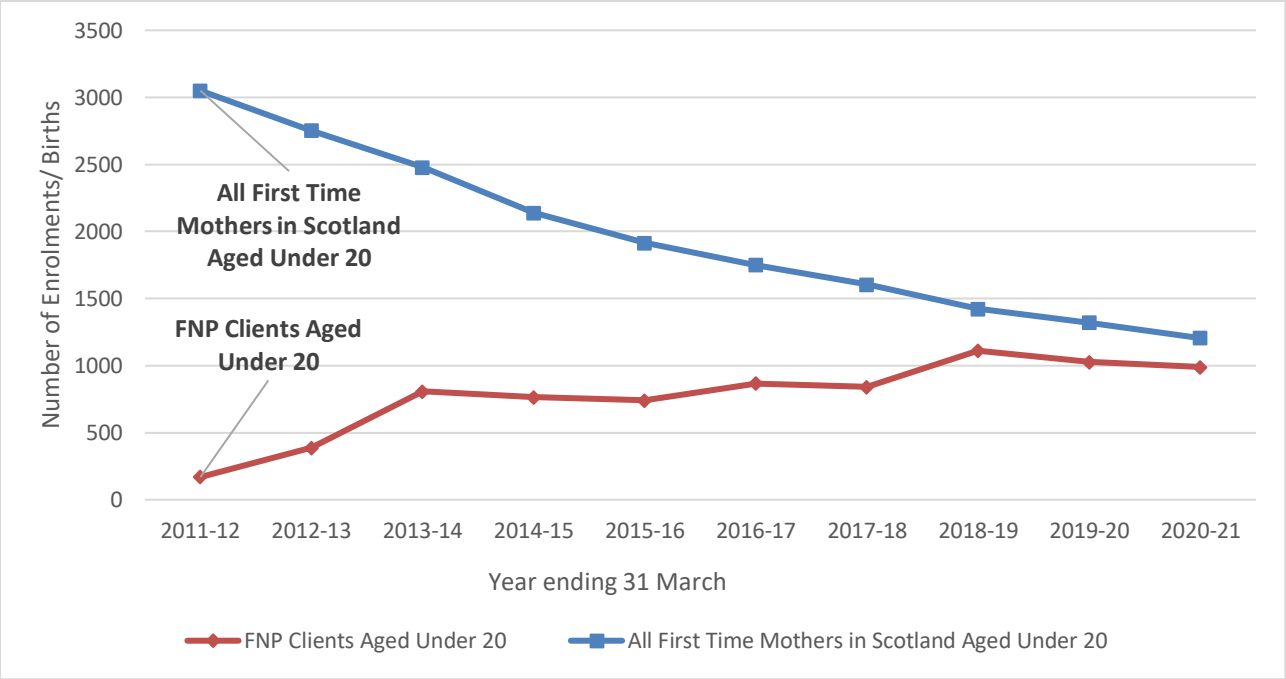


[ix] Nurse Family Partnership International Website

[x] FNP is offered to some clients ages 20-24 subject to enrolment criteria in some areas of Scotland (NHS Ayrshire and Arran, NHS Borders, NHS Grampian, Highland, NHS Lothian, NHS Tayside)

As shown in the Chart 6 below, the coverage of FNP has increased each year with coverage for the 19 and under age group increasing as the roll out of the programme progressed. By 2018/19, when FNP became available in all mainland NHS Boards, there were 1,423 births to mothers aged 19 and under and 1,111 enrolments onto FNP which indicates a 78% enrolment rate, in 2020/21 the enrolment rate has increased to 83%.

Chart 6: Total number of first time births with mother aged under 20 in Scotland and FNP clients aged under 20 enrolling, 2011-2021



Deprivation

The majority of FNP clients (71%) are from the most deprived areas of Scotland (SIMD 1 and 2) upon entry to the programme. This reflects the evidence above, with those in more deprived areas more likely to continue with their pregnancy.

As shown in Chart 7 below, the proportion of FNP clients aged under 20 from more deprived areas is similar to the profile of first time younger mothers across Scotland, at around 70% of all first time births in Scotland and FNP enrolments annually. In the first 3 years of FNP there was a large increase in the proportion of clients from SIMD 1 and 2 areas enrolling, but this has decreased slightly since 2013. Chart 8 shows that the proportion of FNP clients aged 20-24 from more deprived areas is slightly higher than the profile of first time mothers aged 20-24 across Scotland, which would reflect with the targeting of women living in the most deprived areas within this age group as a proxy measure for need.

Chart 7: Proportion of first time births to women in Scotland aged under 20 years who lived in more deprived areas (SIMD 1 and 2) and and proportion of FNP clients, aged under 20 years who lived in more deprived areas (SIMD 1 and 2)

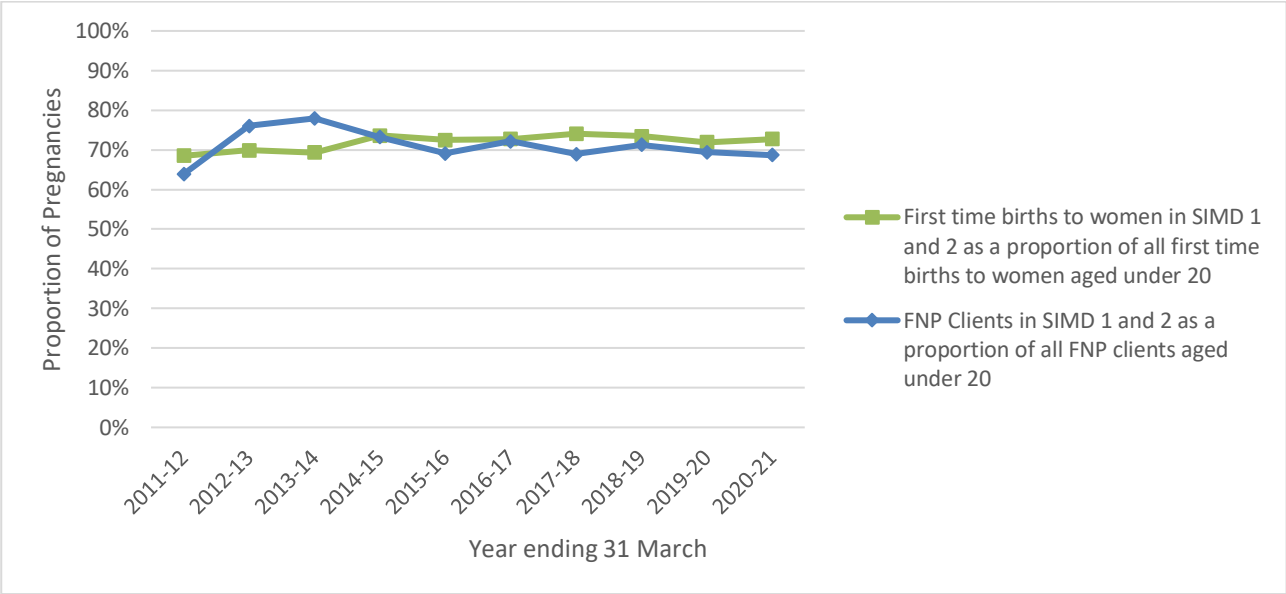
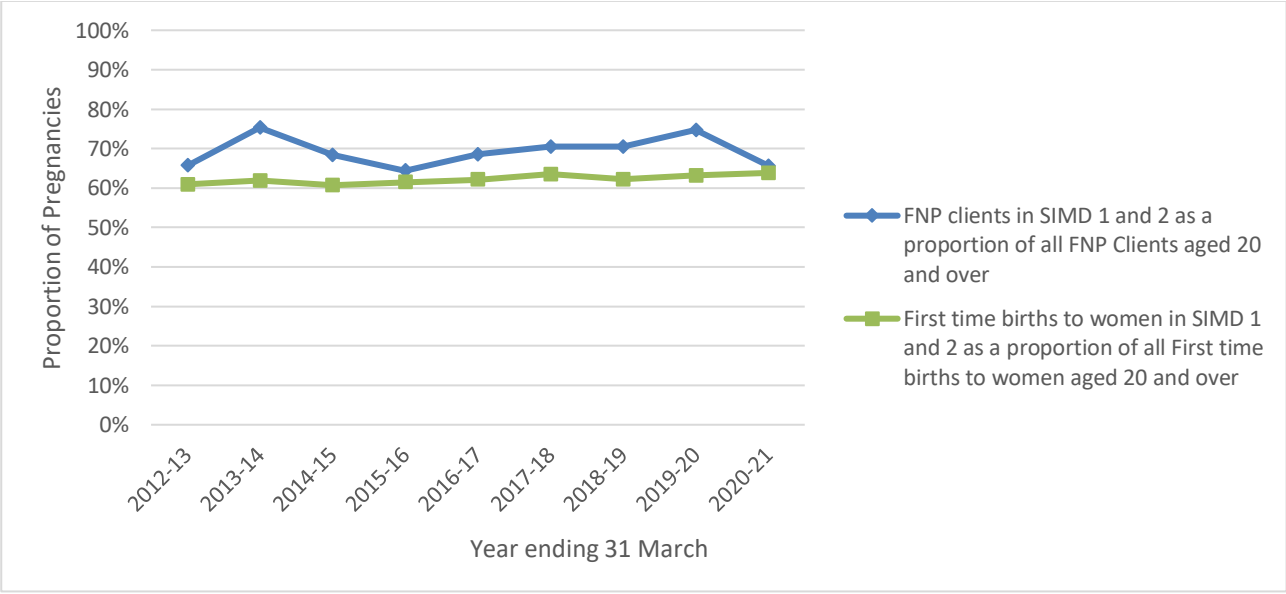


Chart 8: Proportion of first time births to women in Scotland aged 20-24 years who lived in more deprived areas (SIMD 1 and 2) and proportion of FNP clients aged 20-24 who lived in more deprived areas (SIMD 1 and 2)



Ethnicity

The majority of FNP clients were of white origin (96%), with 91% identifying as “White Scottish” or “White other British”. A very small proportion (4%) of FNP clients were from all other ethnic groups combined. This is similar to data shown in Scottish Maternity Records (SMR02). In 2020-21, 97% of young mothers (under 20 years) with a known ethnicity were white[35].

As shown in Chart 9, the majority of FNP clients were white, however there has been an increase over time in the proportion of clients from all other ethnic groups combined. As the roll-out of FNP progressed across Scotland, areas with higher levels of diversity have been more exposed to the programme which has changed the client profile over time.

Chart 9: Proportion of FNP clients of white and all other ethnic groups combined, by year of enrolment, 2011-2021

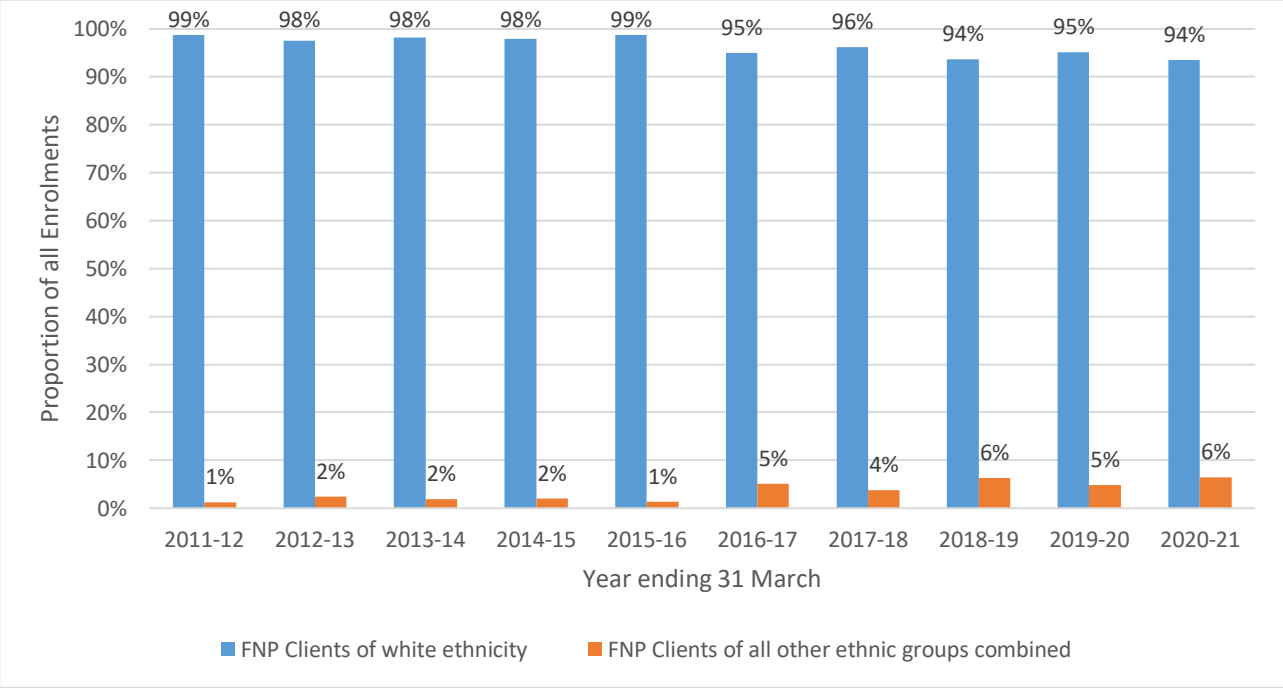


Table 2 shows that the majority of clients who were from all other ethnic groups combined at intake were primarily based in NHS Greater Glasgow & Clyde and NHS Lothian.

Table 2: Number and proportion of all FNP clients of all other ethnic groups combined, by Health Board.

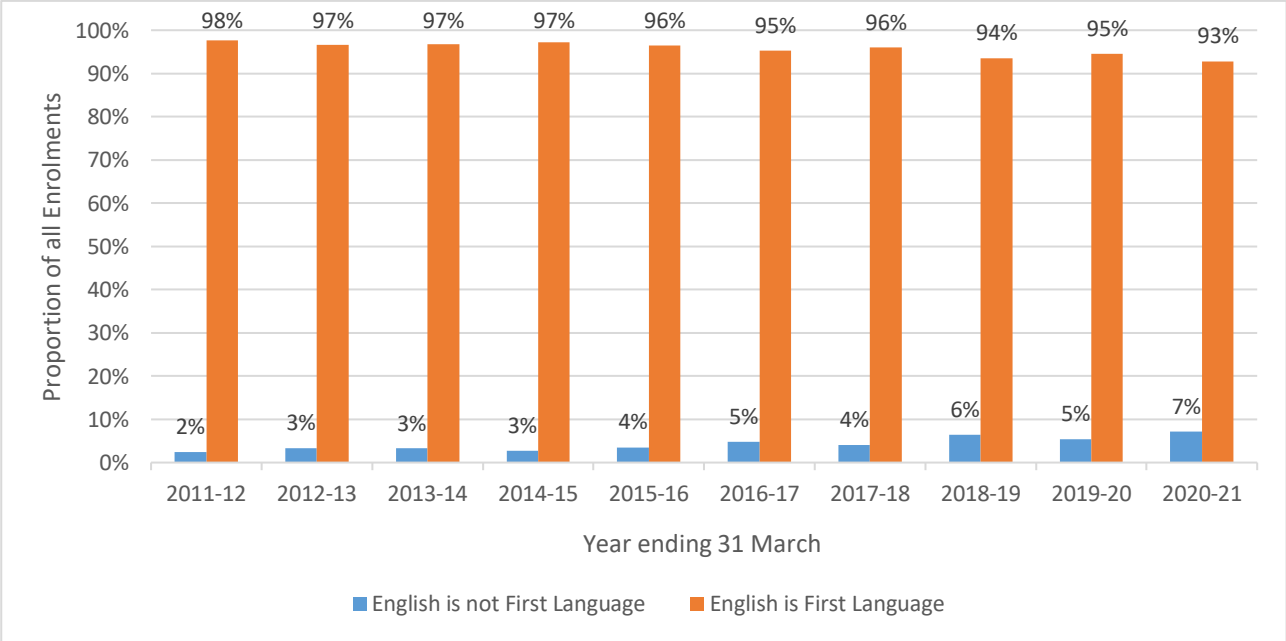
Health Board	Number of all FNP clients of all other ethnic groups combined	Proportion of all FNP clients in Health Board
NHS Ayrshire and Arran	7	1.2%
NHS Borders	*	*
NHS Dumfries and Galloway	*	*
NHS Fife	17	2.1%
NHS Forth Valley	11	3.1%
NHS Grampian	15	3.3%
NHS Greater Glasgow and Clyde	139	9.8%

Highland	7	2.2%
NHS Lanarkshire	30	2.7%
NHS Lothian	93	4.9%
NHS Tayside	38	2.5%
Scotland	**360**	**4.1%**

English as a Second Language

A smaller proportion of FNP clients (5%) did not speak English as their first language at intake, compared to the proportion of young people in Scotland who do not speak English as their first language (9% of all 3-24 year olds in Scotland[36]). There is no national dataset to compare those that do not speak English as a first language and the birth rates by age in Scotland. As shown in Chart 10 below, there has been an increase over time in the proportion of clients who did not speak English as a first language at enrolment.

Chart 10: Proportion of FNP clients who did and did not speak English as a first language, by year of enrolment, 2011-2021



There was also geographical variation in the proportion of clients who did not speak English as a first language. Table 3 shows that the majority of clients who did not speak English as a first language at intake were primarily based in NHS Greater Glasgow & Clyde and NHS Lothian. Therefore, similar to ethnicity above, as areas with higher levels of diversity began to fully roll-out FNP, the client group has become more diverse.

Table 3: Number and proportion of all FNP clients who did not speak English as a first language at intake, by Health Board.

Health Board	Number of all FNP clients who did not speak English as a First Language	Proportion of all FNP clients in Health Boards
NHS Ayrshire and Arran	*	*
NHS Borders	6	3.5%
NHS Dumfries and Galloway	*	*
NHS Fife	18	2.2%
NHS Forth Valley	8	2.2%
NHS Grampian	18	4.0%
NHS Greater Glasgow and Clyde	150	10.6%
Highland	14	4.5%
NHS Lanarkshire	25	2.3%
NHS Lothian	130	6.9%
NHS Tayside	47	3.1%
Scotland	**418**	**4.8%**

* Indicates number is less than 5

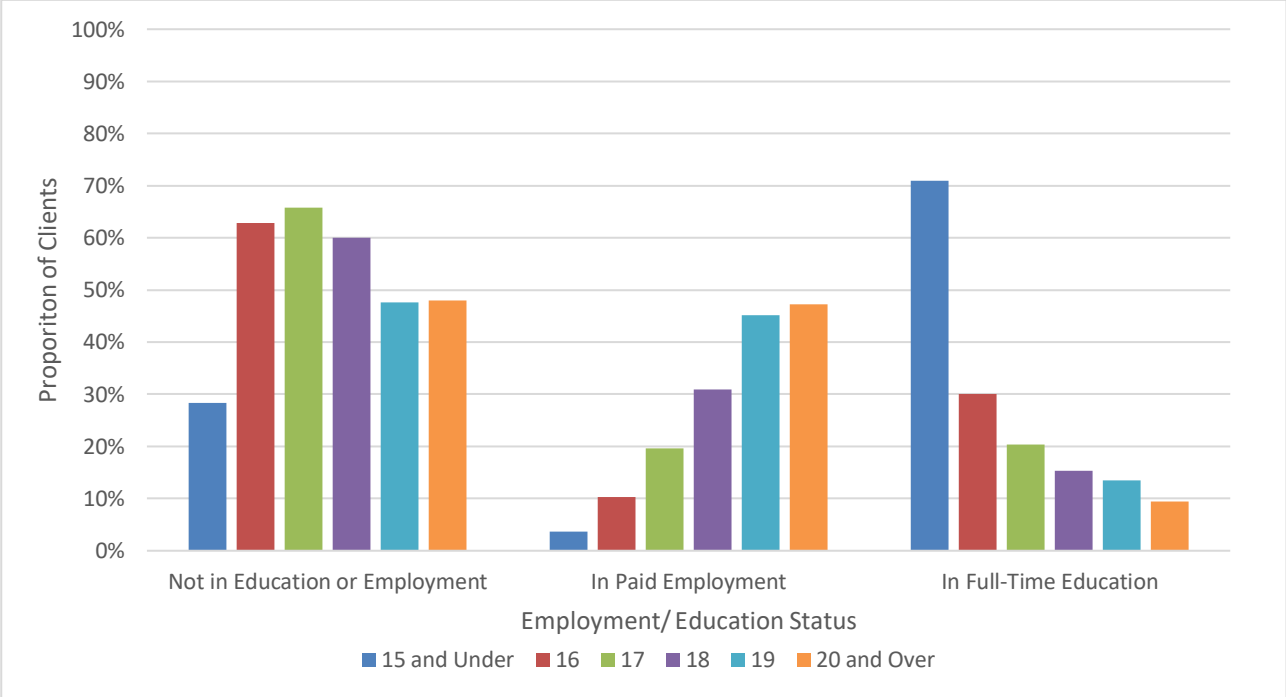
Qualifications and Working Status at Enrolment

A pregnancy at a young age can have an impact on schooling and education. For those that go on to give birth at a young age, the FNP data shows a clear linear pattern of an increase in qualifications with higher maternal age. Of all clients enrolling onto FNP, the majority (77%) reported having a National 1 to 5 equivalent qualification at entry onto the programme. Just over one in eight (13%) reported having a Higher or Advanced Higher level qualification (including those who also had a National level qualification) and a similar proportion reported having no qualifications (14%) upon entry to the programme.

The Scottish statistics for attainment[37] show that the average qualification attainment for school leavers in Scotland is much higher than that seen in FNP clients. This reflects the deprivation profile of FNP clients, as pupils from SIMD 1 and 2 areas are much less likely to leave school with a Higher or Advanced Higher level qualification than their peers. However, FNP clients typically had a lower rate of attainment of these qualifications than pupils from SIMD 1 and 2 areas overall. Age is another important factor: younger mothers (those aged 16 years and under) (33%) in FNP were almost 4 times as likely to have no qualifications at enrolment compared to those enrolling aged 19 or over (9%).

Overall, one in three clients (33%) were in paid employment at enrolment, one in five (18%) were in full-time education, and more than half were in neither paid employment or full-time education (55%)[xi]. There was notable variation between clients of different age groups in their employment status (Chart 11). Among clients who were above compulsory school age, those aged 19 and older were more likely to be in full-time education or employment (52%) than those aged 16-18 (38%) (Chart 11). Over time there was a slight reduction in the proportion of clients who were neither in education or employment at enrolment. This is possibly attributable to a larger number of clients who were aged 20 and over at enrolment in more recent years, as well as an increase in the proportion of clients aged 18-19 who were in paid employment at enrolment.

Chart 11: FNP Clients' employment status at enrolment, by age



Relationships at Enrolment

Relationships are key in FNP. The therapeutic relationship between the Family Nurse and the client is at the centre of the way in which FNP seeks to influence change. However, how parents perceive the connections they have in relation to others and how they are influenced by those relationships also play a central role in the programme.

More than a third (37%) of FNP clients said they were not in a relationship at enrolment. Around half of younger clients aged 17 and under were single at enrolment (49%), compared to a third of clients aged 18-19 (34%) and a quarter of clients aged 20 and older (26%). Younger clients were also less likely to be living with a partner at enrolment, though it was only a minority of clients who lived with a partner in all age groups (15% of those aged under 17, compared to 26% of those aged 18-19 and 30% of those aged 20 and older).

[xi] The sum of these groups is greater than 100% as there was 482 clients who were in both paid employment and full-time education at enrolment.

This is echoed in the findings from Growing Up In Scotland (2014), which found that the composition of the household in which mothers aged under 20 live differ greatly from those of mothers aged 20 or older. With nine in ten (89%) mothers aged 25 or older living with the child's biological father compared with 30% of those aged under 20.[38]

Data on fathers' involvement and communication with FNP clients at enrolment was only captured on the data system in more recent years. Of the 2267 clients for whom this data was captured between 2019 and 2021, more than three in four young mothers (77%) reported being in daily contact with the father, an additional 8% reported being in contact with the father at least once a week, while 15% of clients reported being in contact with the father less frequently or never.

Housing at Enrolment

The majority of FNP clients (53%) lived in local authority or housing association housing at enrolment. 17% of clients lived in privately rented accommodation and 17% in privately owned accommodation. Under one in twenty (4%) clients lived in temporary accommodation, and a small number of clients (1%) lived in supported accomodation. Most of the remaining clients had a housing type recorded as "other" or did not have housing data collected.

A notable percentage of FNP clients (5%) were registered homeless, highlighting the complex lives of the client group. While the majority of mothers who were registered homeless were aged 18 and older, there were also mothers aged 17 and younger who were registered homeless. Further, information on homelessness was not consistently captured in the earliest years of the programme, so the true figure is likely to be higher.

Complex Lives

While some of the complexities of clients' lives are captured in the FNP data as shown above, the recent Revaluation report[39], a qualitiative evaluation of FNP in Scotland, sought to understand this more fully. In 2018, all Family Nurses delivering the FNP programme in Scotland completed a questionnaire about their clients to help provide a deeper understanding of FNP clients' lives. They used a list of 43 items (Annex 2) to identify events experienced by FNP clients prior to entry to the programme.

The results of this exercise were stark and highlight the complex environments in which Family Nurses and clients are working to achieve the outcomes of the FNP programme. The Revaluation report provides insight into the many issues that some clients face alongside their new role as a parent. The incidence of mental health issues, insecure housing and poverty are high within the FNP client group. The needs of the client group are wide ranging across many different professional areas such as health, social work, housing and benefits. An essential element of the delivery of FNP in Scotland is the need to cultivate connections and partnerships with other professionals and organisations in order to best serve the needs of all clients and their children.

The results of the analysis of clients experiences pre-enrolment to FNP in 2018 from the Family Nurse Partnership in Scotland: revaluation report are found in the box below.

Complex Lives

Detailed analysis of clients experiences prior to entry to FNP. Data from The Family Nurse Partnership in Scotland: Revaluation Report published in 2019[xii]

Findings
The majority of FNP clients (98%) had experienced some form of trauma or adverse experience in their lives. The most prevalent complexities for FNP clients at entry to FNP were: anxiety or other mental health issues (63%), experience of parental separation (63%), low income (60%) and not being in work, education or training (57%).

Socio-economic Circumstances
Almost all clients in FNP in 2018 (88%) were recorded to have at least one socio-economic disadvantage upon entry to FNP. This was shown across all age groups, including those over 20 years old.

Six in ten (60%) of all clients were living on a low income and one in ten (11%) were viewed as having low job stability such as zero hours or temporary contracts. The majority of clients (57%) were not in work, education or training at the time of enrolment. Those aged 16 or 17 years were the most likely of all groups to be not in education, work or training (67%), whereas just under half (45%) of 19 and 20 year olds were not in education work or training.

A third of all clients had irregular, limited or no school attendance (31%). This varied substantially by age with younger clients being more likely to have irregular, limited or no school attendance (51% of those 16 and under) compared to a quarter of those aged 18-24 years (22%).

Over a quarter of clients (28%) had experienced homelessness and 28% were viewed as living in poor or unsuitable housing at the start of the programme. Of those that were living in poor or unsuitable housing almost half (47%) were also recorded as having experienced homelessness.

A majority of clients were parenting on their own (58%), while two in five were recorded as having had a partner at the start of the programme (42%). Over a third of clients (36%) were viewed as having limited social networks or as being social isolated. This was spread across the age ranges. However, for those that were care experienced or had been on the child protection register this was 56% and 53% respectively.

Just over one in twenty (7%) had caring responsibilities for dependent others.

Health
Family Nurses rated three quarters of clients as having health issues upon entry to the programme (75%) with 63% experiencing anxiety or other mental health issues. Physical health issues were reported at a much lower rate among this group compared to mental health issues. A small proportion of FNP clients were recorded as having had a long-term health issue (7%) or were registered disabled (1%). 5% of clients were thought to have a

[xii] Family Nurse Partnership in Scotland: revaluation report

learning disability. Within the FNP cohort, less than one in ten (8%) were rated as having substance misuse issues or alcohol misuse issues (7%) when they entered the programme in pregnancy. Clients rated as having a parent with substance or alcohol misuse problems were more likely to use substances or alcohol themselves (21%).

A significant proportion of clients were viewed by their nurses (based on subjective judgement rather than a BMI measurement) to have been at an unhealthy weight (either over-weight/ obese or underweight) (22%). Within FNP, 63% of clients were thought to have anxiety or other mental health issues upon entry to the programme. This is high compared to the Scottish Health Survey which indicated that 26% of 16-24 year olds had signs of a possible psychiatric disorder[40].

Two in ten FNP clients (22%) were thought to have self-harmed, 10% to have attempted suicide, and 20% had attended Child and Adolescent Mental Health Services (CAMHS). Almost one in ten (8%) of all clients have experienced a previous pregnancy.

Social Services
The proportion of FNP clients recorded as ever having been care experienced or on the child protection register was 22%. Similarly, a significant minority of FNP clients were rated as being from families with previous involvement with social services (36%) or from families that are known to social services (31%).

Criminal Justice
Overall, 6% of clients were rated as having been involved with the criminal justice system, this increased to 17% among those that were care experienced or had been on the child protection register. Family Nurses recorded that almost a quarter (22%) of clients who had experience of a family member being incarcerated had also had involvement with the criminal justice system themselves.

Adverse Childhood Experiences
Adverse Childhood experiences have been defined as intra–familial events or conditions causing chronic stress responses in the child's immediate environment. These include notions of maltreatment and deviation from societal norms. Evidence shows that adversity and trauma in childhood can impact on a wide range of education, health, justice and social outcomes. Of the top ten events that clients had experienced, as identified by Family Nurses, only two are regarded as adverse childhood experiences. These are parental separation (63%) and parental mental health problems (33%).

Overall, 7% of FNP clients had experience of incarceration of a family member and 10% were believed to have experienced the death of their mother, father or primary attachment figure. At least a fifth of clients are recorded as having experienced bullying, with clients aged 15 and 16 years old more likely to experience bullying (30%).

A quarter of FNP clients (25%) were recorded by Family Nurses as having experienced emotional abuse. Exposure to emotional abuse in childhood decreases in prevalence among FNP clients with age on entry. Those entering the programme at a younger age (13-17 years) appeared more likely (31%) than the older age groups (16%) to have experienced emotional abuse. This pattern was similar among clients who have experienced emotional neglect, with younger clients (23%) more likely to have experienced this than older clients (12%). Exposure to sexual abuse also decreased with age upon entry with clients who entered the programme at a younger age being more likely to have experienced some form of sexual abuse (20% of those aged 13-17 years)

than their older counterparts (12%). Experience of physical abuse was recorded for 16% of clients.

Almost one fifth (18%) of clients were rated as having experienced intimate partner violence in their relationships. A similar figure was recorded (17%) for FNP clients experiencing their mother being treated violently. Those that had witnessed their mothers being treated violently were more likely to have experienced intimate partner violence themselves (33%).

Whilst we need to bear in mind that these recorded events are based on the views of Family Nurses, the findings highlight the complex lives and substantial burden of challenge that young women entering FNP face.

Section 2: Programme Delivery

Summary – Programme Delivery

- To gain most benefit from FNP, clients should be enrolled by 16 weeks and 6 days gestation. While around half (51%) of clients were enrolled by 16 weeks and 6 days overall, this is slightly lower than the benchmark of 60%. However, a higher proportion of clients have enrolled by 16 weeks and 6 days in recent years (56% in 2020-21). There is geographical variation in enrolment by 16 weeks and 6 days. Clients in the East of Scotland region were more likely than clients in other regions to enrol by 16 weeks.
- The majority (97%) of FNP clients enrol onto the programme prior to 28 weeks and 6 days. For those that enrol later this is usually due to late interaction with maternity services.
- Some FNP clients in Scotland are receiving fewer visits in each phase when compared to the set benchmarks. In the pregnancy phase 46% of graduates received their expected number of visits as per the standard schedule. In infancy phase, 60% of clients met the benchmark of 19 or more visits. In toddlerhood 57% of clients received 14 or more of expected visits.
- On average the benchmark of 60 minute visits for each phase was exceeded in every phase for clients who completed FNP, with visits lasting an average of 68 minutes in pregnancy, 62 minutes in infancy and 61 minutes in toddlerhood.
- The majority (80%) of FNP clients completed the programme and graduated. One in five (20%) left prior to graduation (attrition).
- Completion rates are similar across Scotland and have increased over the ten years of programme delivery. Completion rates were slightly higher for clients who lived in the most deprived (SIMD 1) areas (80%) at enrolment, compared to the least deprived (SIMD 5) areas (74%).
- The most common reasons for leaving the programme among the 1262 clients who left prior to completion (20%) were having no contact with the programme for 6 months (client inactivity - 463 clients), followed by moving out of the service area to an area where FNP is not offered (174 clients), and the client's child going into long term care (160 clients).
- There was some evidence of a correlation between the number of visits a client received in a given phase and likelihood of graduating, with those that graduated receving slightly more visits as per the standard visit schedule than those that did not.
- Of all planned scheduled visits, 77% were completed, 9% were attempted, 12% were cancelled by the FNP Client, and 1% were cancelled by the FNP Nurse.

50%
OF WOMEN ENROLLED ONTO FNP BY 16 WEEKS GESTATION AND
97%
ENROLLED BY 28 WEEKS GESTATION

VISITS
LASTED, ON AVERAGE,
MORE THAN
THE BENCHMARK OF
60 MINUTES

COMPLETION RATES
SLIGHTLY HIGHER FOR CLIENTS
WHO LIVED IN THE
MORE DEPRIVED AREAS (80%)
AT ENROLMENT, COMPARED TO
LESS DEPRIVED (74%)

COMPLETION RATES HAVE INCREASED OVER THE TEN YEARS OF FNP DELIVERY

77%
OF ALL PLANNED VISITS WERE COMPLETED

Enrolment and Visit Data

Enrolment

There is a model for the delivery of FNP (Core Model Elements (CME)), some of which have associated national benchmarks that are set by the licence holder, the University of Colorado Denver, in conjunction with the delivering country. These benchmarks are also known as fidelity measures or stretch aims that are used as goals to drive continuous improvement. In Scotland, there is variation in achievement of the benchmarks.

There are benchmarks for the point of gestation at which clients should be enrolled on FNP to get the most benefit from the programme. These benchmarks state that 60% of clients should have enrolled before 16 weeks and 6 days gestation and 100% before 28 weeks and 6 days gestation.

However, following a review of enrolment data in early 2016, it became apparent that some of the most vulnerable potential clients were not presenting to maternity services until very late in the pregnancy journey (concealed pregnancy) and sometimes even at birth. Up to 2016, these potential clients would have been excluded from FNP due to the timing of their first interaction with maternity services, despite there often being a high level of need for this service. Following the review on eligiblity, a change to the enrolment criteria and agreement with the licence holder to alter the related benchmark was put in place for Scotland. This change allowed first time mothers, who would have ordinarily been eligible for the programme, to enrol onto FNP despite not being referred or enrolled prior to the 28 weeks and 6 days. Although small in number, this change will have implications for the data below.

Half (51%) of FNP clients enrolled onto the programme by 16 weeks and 6 days, falling short of the benchmark of 60%. However, almost all FNP graduates (97%) had received their first home visit by 28 weeks and 6 days, almost meeting the benchmark of 100%.

Clients in the East of Scotland were more likely than clients in other regions to enrol by 16 weeks and 6 days and 28 weeks and 6 days, with 57% and 99% enrolling by these time points respectively.

There was a reduction over time in clients enrolling by 16 weeks and 6 days between 2012-13 and 2017-18 (from 58% to 47%), followed by a subsequent increase for clients enrolling between 2018-19 to 2020-21 (from 47% to 56%).

Linked to the changes to the enrolment criteria, FNP clients in the most recent enrolment cohorts have been slightly less likely to enrol by 28 weeks and 6 days, when compared to earlier cohorts. While 99% of clients enrolled by this time point between 2011-2018, this had reduced to 95% between 2018-2021 to allow for later enrolment. Overall, a very small proportion of clients have been enrolled beyond 28 weeks and 6 days (3%).

There was a lower proportion of clients of Caribbean or Black ethnicity and clients of Asian, Asian Scottish, or Asian British ethnicity who had enrolled by 16 weeks and 6 days (42% and 44% respectively) though a similar proportion had enrolled by 28 weeks and 6 days (95% and 96% respectively). Clients who primarily spoke a language other than English and who required an interpreter were also less likely to have enrolled by 16 weeks and 6 days (34%) and 28 weeks and 6 days (86%).

Number of visits

The data on visits relates to those that completed the programme (graduates) as the data is incomplete for those that left the programme prior to completion.

As part of the programme materials and dosage requirements, there is set guidance on the number of visits that FNP clients should receive throughout the duration of the FNP programme, as per a standard visiting schedule. The standard visiting schedule is as follows:

- Weekly visits for the first four weeks upon initial enrolment prenatally, then every other week until delivery
- Weekly visits for six weeks after infant birth, followed by visits every other week until the baby is 21 months of age
- Monthly visits from 21 through 24 months of age.

The benchmarks state that all FNP clients should ideally receive at least 80% of scheduled visits in pregnancy, 65% in infancy and 60% in toddlerhood. For infancy, this equates to a benchmark of 19 visits, in Toddlerhood it equates to 14 visits. In pregnancy, the expected number of visits depends on the length of time the clients was enrolled before giving birth.

In the pregnancy phase, 46% of graduates received their expected number of visits as per the standard schedule, given the length of time they were enrolled before infant birth. In infancy phase, 60% of clients met the benchmark of 19 or more visits. In toddlerhood 57% of clients received 14 or more of expected visits as per the standard schedule of visits.

There was geographical variation in this, with a notably lower proportion of graduates from the West of Scotland reaching the benchmark number of visits in each phase (36% in pregnancy, 49% in infancy, and 51% in toddlerhood).

On average, FNP graduates received 10 visits during pregnancy, 19 during infancy and 14 during toddlerhood. As shown in table 4 below, younger FNP graduates had a marginally higher number of overall visits than the older age groups.

Table 4: Number of visits by age of client and stage of the programme

Phase	Number of visits			
	Aged 17 and Under	Aged 18 to 19	Aged 20 and Over	Benchmark
Pregnancy	10	10	9	Dependant on client gestation at enrolment
Infancy	20	19	19	19
Toddlerhood	14	14	14	14

Note: Data only included for those that completed the programme prior to 31 March 2021

The average number of visits received per phase was broadly similar across SIMD quintiles. FNP graduates in SIMD 1 (most deprived) at enrolment received, on average, 9 visits in pregnancy, 19 visits in infancy and 14 visits in toddlerhood. FNP graduates in SIMD 5 (least deprived) at enrolment received, on average, 10 visits in pregnancy, 19 visits in infancy and 14 visits in toddlerhood.

The average number of visits received by graduates was slightly less for clients in “African, African Scottish, or African British” and “Asian, Asian Scottish, or Asian British” ethnic groups, with these clients typically receiving one fewer visit per phase than graduates of “White” ethnicity. Also, clients who did not speak English as their primary language received, on average, one fewer visit in each phase than clients who did speak English as a first language at enrolment. This was consistent across regions of Scotland.

The number of visits received per phase varied somewhat between graduates. In pregnancy, the majority of graduates received either 6-10 visits (2379 graduates, 48%) or 11-15 visits (1959 graduates, 39%). However, a notable minority received less than 5 visits in pregnancy (579 graduates, 12%). There was a clear correlation between weeks gestation at enrolment and the number of visits clients received during pregnancy, with the majority of clients who enrolled later than 16 weeks and 6 days receiving less than 10 visits in this phase. There was also a higher proportion of graduates based in the West of Scotland who received less than 5 visits in pregnancy (18%).

The majority of graduates received at least 16 visits in the infancy phase (4052 graduates, 81%) and almost all received at least 11 visits (4833 graduates, 96.5%), as shown in table 5.

As show in table 6, in the toddlerhood phase the majority of graduates received either 11-15 visits (2097 graduates, 42%) or 16-20 visits (1469 graduates, 29%). There was a higher proportion of graduates receiving 10 or less visits in toddlerhood in the West of Scotland (28%) than nationally (22%).

Table 5: Average number of completed visits received per phase – all graduates

Phase	Average Number of Completed Visits	Benchmark	Proportion of Clients Reaching Benchmark
Pregnancy	9.57	Dependant on client gestation at enrolment	46%
Infancy	19.30	19 visits	60%
Toddlerhood	14.08	14 visits	57%

Table 6: Number of completed visits received per phase – all graduates

Phase	Less Than 5	6-10	11-15	16-20	More Than 20
Pregnancy	12%	48%	39%	2%	0%
Infancy	1%	3%	16%	43%	38%
Toddlerhood	3%	19%	42%	29%	7%

Duration of Visit

The national benchmark for duration of visit at each phase is 60 minutes. On average, this benchmark was exceeded for every phase for clients who completed FNP, with visits lasting an average of 68 minutes in pregnancy, 62 minutes in infancy and 61 minutes in toddlerhood. Visit duration during pregnancy was slightly higher in the West of Scotland, averaging 69 minutes, perhaps reflecting the higher instances of later enrolment. Visit duration during toddlerhood was slightly lower in the North of Scotland, averaging 59 minutes.

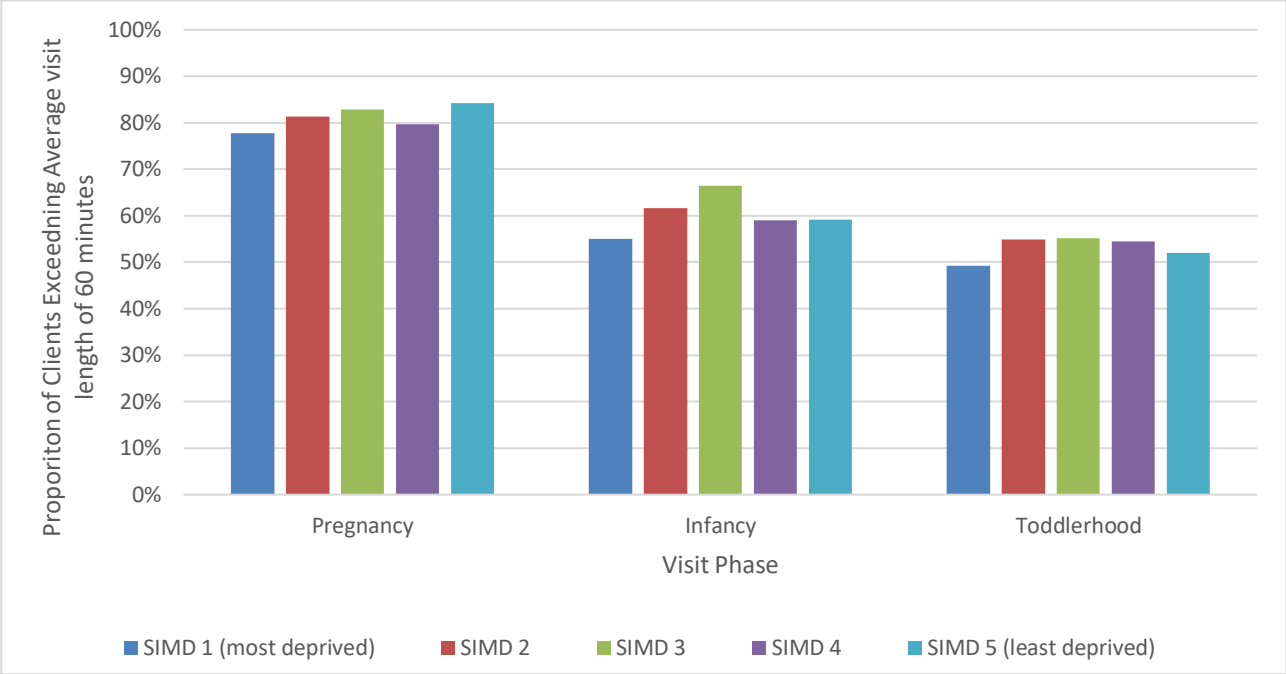
When viewing average visit duration for graduates at the client level, however, there was wide variation in the average duration of visits received. In the pregnancy phase, the lowest average visit duration for a client was 30 minutes, while the highest was 150 minutes. In the infancy phase, the lowest average visit duration for a client was 32 minutes, while the highest was 108 minutes. In the toddlerhood phase, the lowest average visit duration for a client was 19 minutes, while the highest was 117 minutes.

In the pregnancy phase, 80% of graduates had an average visit length at or exceeding the benchmark of 60 minutes. During the infancy phase, 59% of graduates had an average visit length exceeding the benchmark, as did 52% of graduates during the toddlerhood phase. Since the beginning of FNP, the vast majority of clients have had visits lasting at least 60 minutes during pregnancy. There has been a general pattern of increase in the proportion of clients with visits lasting at least 60 minutes during infancy and toddlerhood throughout implementation of FNP in Scotland.

Graduates from the least deprived areas (SIMD 5) were most likely to have an average visit length of at least 60 minutes during pregnancy. Clients from SIMD 3 were more likely to have an average visit length of at least 60 minutes during infancy and toddlerhood (Chart 12). A higher proportion of younger clients had visits exceeding 60 minutes in each phase of the programme – 66% of clients aged 17 and under had an overall average visit length exceeding 60 minutes, compared with 59% of clients aged 20 and over.

Reflecting on the earlier demographic findings where overall younger clients were more likely to have a higher number of complex needs, this is possibly reflected in the fact they received longer and more frequent visits overall. However, this was not necessarily reflected for clients living in more deprived areas overall, who were not more likely to receive longer or more frequent visits than other clients.

Chart 12: Proportion of graduates with average visit length of over 60 minutes, visit phase by SIMD Quintile



Composition of Visits

The composition of individual visits are broken down into 5 domains: Personal Health (My Health), Maternal Role (My Child and Me), Environmental Health (My Home), My Family & Friends (Family & Friends), Life Course Development (My Life). FNP nurses record how much time is spent on each domain per visit, as a proportion of the overall visit.

In the pregnancy phase, the benchmark for proportion of time spent on the **My Health** domain per visit is 35-40%. In infancy the benchmark for this domain is 14-20% and in toddlerhood it is 10-15%. Across FNP graduates, the average coverage of My Health fell within these benchmark ranges during pregnancy phase (35%) and infancy (20%), and slightly exceeded the benchmark in toddlerhood (17%).

In the pregnancy phase, the benchmark for proportion of time spent on the **My Child and Me** domain per visit is 23-25%. In infancy the benchmark for this domain is 45-50% and in toddlerhood it is 40-45%. Across FNP graduates, the average coverage of My Child and Me slightly exceeded the benchmark during pregnancy phase (28%), fell just short during infancy (44%), and met the benchmark in toddlerhood (41%).

In the pregnancy phase, the benchmark for proportion of time spent on the **My Home** domain per visit is 5-7%. In infancy the benchmark for this domain is 7-10% and in toddlerhood it is 7-10%. Across FNP graduates, the average coverage of My Home slightly exceeded the benchmark during pregnancy phase (10%), infancy (11%), and toddlerhood (12%).

In the pregnancy phase, the benchmark for proportion of time spent on the **Family & Friends** domain per visit is 10-15%. In infancy the benchmark for this domain is 10-15% and in toddlerhood it is 10-15%. Across FNP graduates, the average coverage of Family & Friends met the benchmark during pregnancy phase (15%), infancy (14%), and toddlerhood (14%).

In the pregnancy phase, the benchmark for proportion of time spent on the **My Life** domain per visit is 10-15%. In infancy the benchmark for this domain is 10-15% and in toddlerhood it is 18-20%. Across FNP graduates, the average coverage of **My Life** met the benchmark during pregnancy phase (12%) and infancy (12%), and fell just short during toddlerhood (15%), as show in Table 7.

Table 7: Proportion of Visit time spent on each Domain per phase

Domain	Pregnancy Benchmark (%)	Pregnancy actual (%)	Infancy benchmark (%)	Infancy actual (%)	Toddler benchmark (%)	Toddler actual (%)
Personal Health (My Health)	35-40%	**35%**	14-20%	**20%**	10-15%	**17%**
Maternal Role (My Child and Me)	23-25%	**28%**	45-50%	**44%**	40-45%	**41%**
Environmental Health (My Home)	5-7%	**10%**	7-10%	**11%**	7-10%	**12%**
My Family & Friends (Family & Friends)	10-15%	**15%**	10-15%	**14%**	10-15%	**14%**
Life Course Development (My Life)	10-15%	**12%**	10-15%	**12%**	18-20%	**15%**

Completion of Visits

Data is also captured on planned scheduled visits that did not take place. Of all planned scheduled visits, 77% were completed, 9% were attempted, 12% were cancelled by the FNP Client, and 1% were cancelled by the FNP Nurse. A higher proportion of planned scheduled visits during pregnancy and infancy (80%) were completed, when compared to planned scheduled visits during toddlerhood (72%). This was due to a higher proportion of attempted visits that were not completed and a higher proportion of visits cancelled by FNP clients during toddlerhood phase.

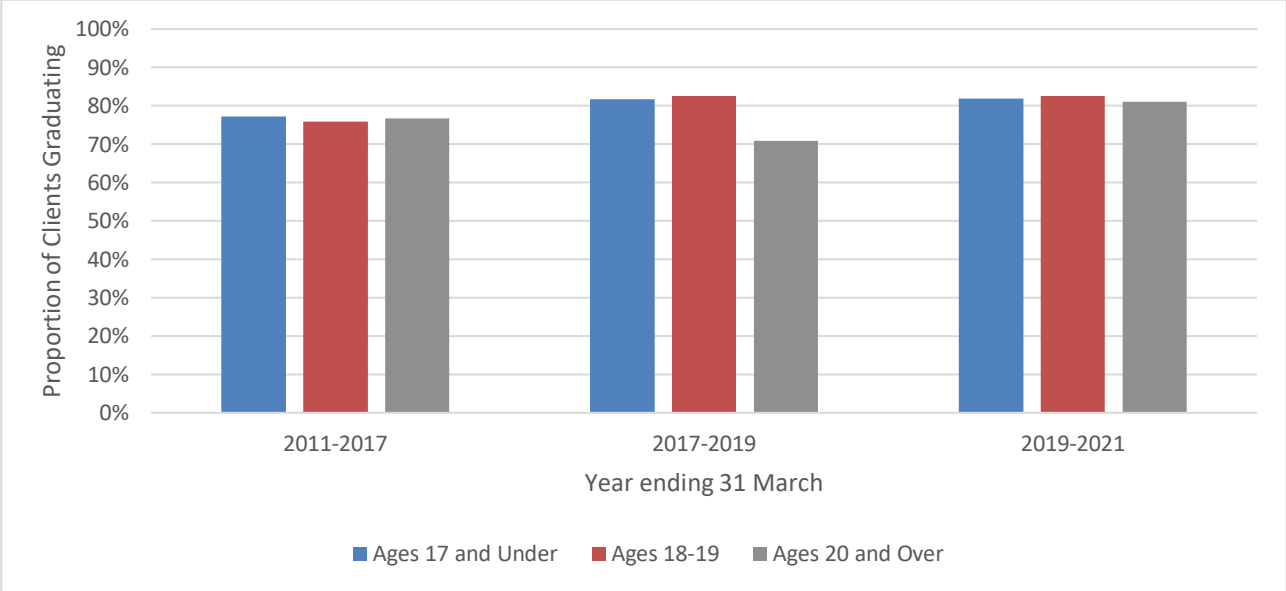
Programme Completion and Attrition

The majority (80%) of the 6,268 clients on the FNP programme to 31 March 2021 completed the programme and graduated. One in five (20%) left prior to graduation (attrition).

Graduation

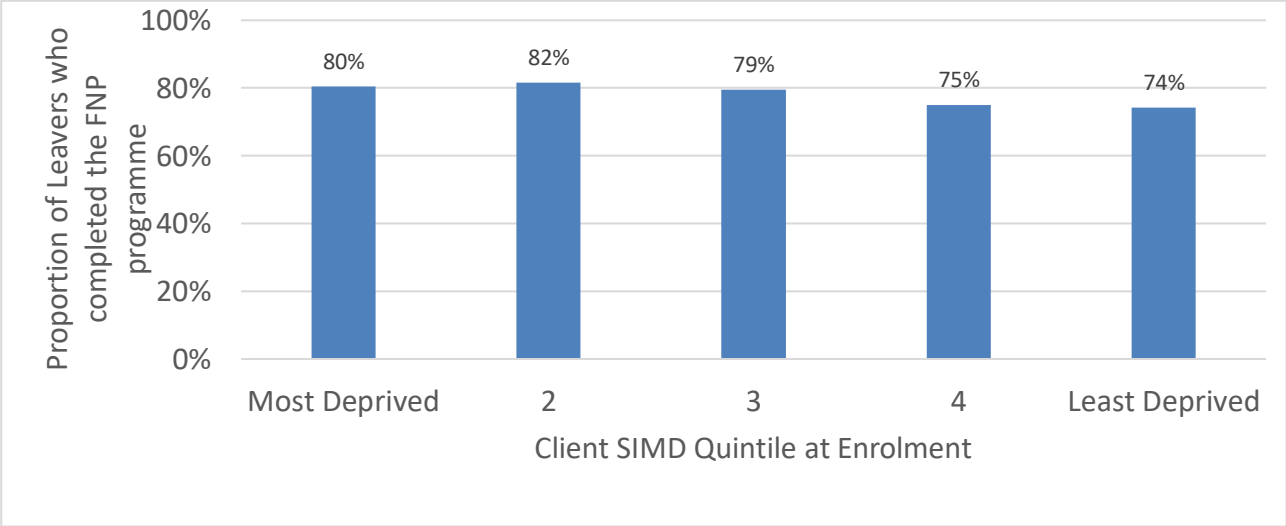
The rate of clients completing the programme was consistent across the regions of Scotland (East 79%, North 80% and West 81%). Completion rates have marginally increased over the years, from 77% completion in 2010-2017 to 81% in 2017-19 to 82% in 2019-21. Completion rates were also largely similar across client age groups (80% aged 17, 80% aged 18-19 and 78% aged 20 and over) as shown in Chart 13.

Chart 13: Proportion of FNP clients graduating, of all those leaving the programme, by year of graduation and age at enrolment (N=5,006)



As shown in Chart 14 below, completion rates were slightly higher for clients who lived in the more deprived areas at enrolment compared to less deprived.

Chart 14: Proportion of FNP graduates, by SIMD Quintile



When a client leaves the programme prior to their child turning two years old it is classed as 'attrition', as they did not stay on the programme until graduation. Therefore clients that do not graduate from the programme are included in the attrition rates. Overall around 20% of clients leave by attrition each year, with attrition rates decreasing slightly in more recent years.

In general, clients from more deprived areas were less likely to leave by attrition, and younger clients were slightly less likely to leave by attrition. The client group with the lowest attrition rate was those clients aged 17 and under in SIMD 2, with 17% attrition. Conversely, the client group with the highest attrition rates (33%) were clients in SIMD 5 (least deprived) in the youngest age group (17 and under). (Table 8).

Table 8: Attrition rates in each client age group by SIMD Quintile (both recorded at enrolment).

Deprivation quintile	**Age of client at enrolment to FNP**							
	Aged 17 and Under attrition		**Aged 18 to 19 attrition**		**Aged 20 and Over attrition**		**Total attrition**	
SIMD 1 (Most Deprived)	187	20%	277	19%	78	21%	542	20 %
SIMD 2	97	17%	167	18%	49	22%	313	18 %
SIMD 3	59	22%	104	20%	26	21%	189	21 %
SIMD 4	37	24%	78	25%	23	28%	138	25 %
SIMD 5 (Least Deprived)	25	33%	42	25%	10	20%	77	26 %
Total	405	20%	668	20%	186	22%	1262	20 %

Of the 1262 clients who left through attrition, 468 left during pregnancy (7% of all clients who have completed or left FNP) , 411 (7%) left during infancy (the client's child was less than 1 year old) and 383 (6%) left during toddlerhood (the client's child was between 1 and 2 years old), and this was broadly consistent across geographical regions of Scotland. For each phase, the national benchmarks for attrition of 40% or less across the programme consisting 10% in pregnancy 20% in infancy and 10% in toddlerhood were met consistently in each part of Scotland. Attrition during pregnancy and infancy has decreased throughout implementation and attrition during toddlerhood has been consistently low.

The phase in which clients left the programme was largely consistent across regions of Scotland. The higher overall rate of attrition in the earlier years of FNP (2010-2017) is largely explained by attrition during pregnancy, with 10% of all clients leaving FNP in these years doing so during pregnancy, compared to 6% in 2017-19 and 6% in 2019-21.

Clients aged 17 and under at enrolment were slightly less likely to leave during pregnancy (6%), compared with other age groups (8% aged 18-19 years and 9% aged 20 and over).

Clients living in the least deprived areas (SIMD 5) had slightly higher overall attrition rates and were more likely than other groups to leave the programme during pregnancy. 10% in SIMD 5 left in pregnancy, compared to 8% in SIMD 1 and 6% in SIMD 2.

Reasons for Leaving the FNP Programme

The most common reasons for leaving the programme among the 1262 clients who left through attrition were: having no contact with the programme for 6 months (client inactivity), with 443 clients having this stated as their leaving reason (35%), followed by moving out of the service area to an area where FNP is not offered (174 clients, 14%) and the client's child going into long term care (160 clients, 13%). A further 214 clients who left the programme before completion had a reason coded as "other" (17%). Table 9 outlines the reasons why clients left the FNP Programme.

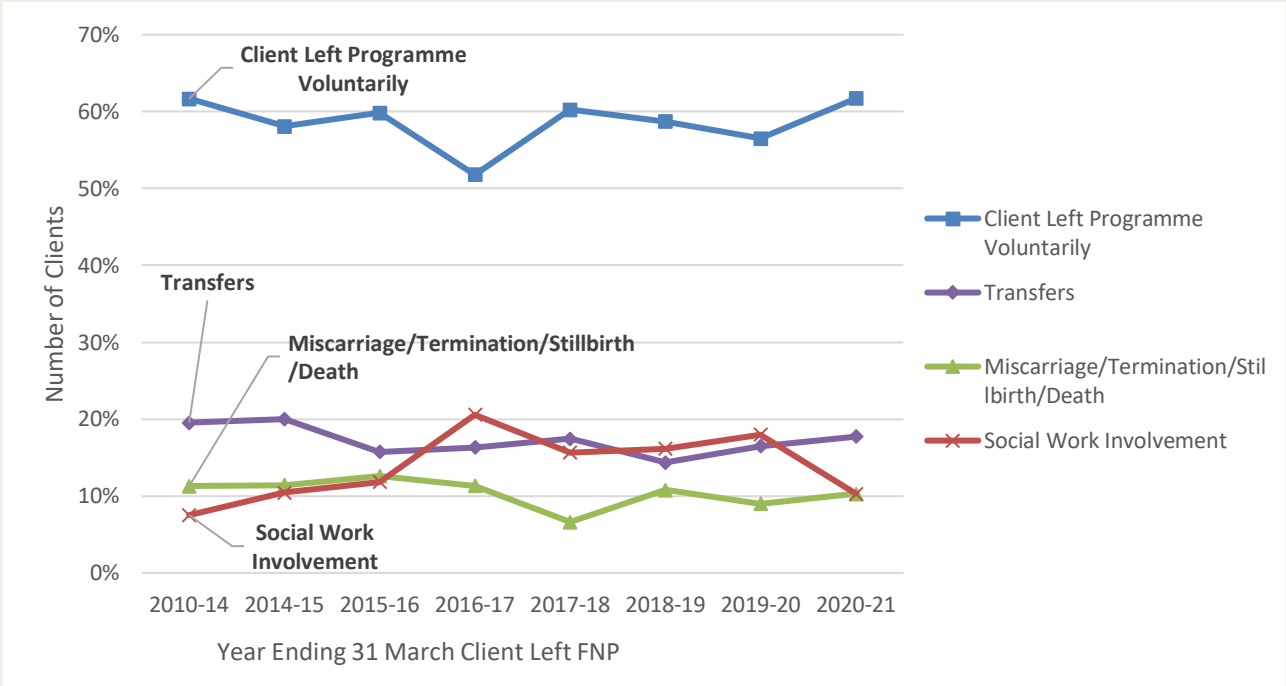
Table 9: Number and Proportion of Clients leaving through attrition for each reason

Reason	Number of Clients	Proportion (of clients leaving through attrition)
Client Left Programme Voluntarily		
Client has had no contact with programme for 6 months (client inactive)	443	35%
Too much commitment	50	4%
Strong friend/family support	20	2%
Did not accept change of family nurse	7	1%
Father is the main carer of the child	*	*%
Other	214	17%
Social Work Involvement		
Child into long term care	160	13%
Parental rights terminated	16	1%
Miscarriage/Termination/Stillbirth/Death		
Miscarriage	36	3%
Still birth (greater than 26 weeks gestation)	33	3%
Neonatal death (i.e. death in first four weeks of life)	20	2%
Infant death (i.e. death in the first year of life)	19	2%
Termination	17	1%
Maternal death	*	*%

Transfers		
Client has transferred to FNP site outside Scotland	40	3%
Client has moved out of service area	174	14%

NOTE: * indicates number supressed due to small numbers.

Chart 15: FNP clients leaving the programme by leaving reason group, as a proportion of all attrition, by year of leaving



When looking at the different reasons for attrition, (Chart 15), many of the reasons for leaving the programme are due to extenuating circumstances. The proportion leaving that move to an area that does not provide FNP accounts for 17% of all leavers. While miscarriage/termination/stillbirth/death accounts for 11% of all leavers and removal of the child or parental rights accounts for 14%.

After accounting for the reasons mentioned above, overall 41% of attrition is due to these extenuating circumstances, while 59% opt to voluntarily leave the programme.

Voluntarily Leaving FNP

When comparing the group of clients who left the programme voluntarily with those who either left for other reasons or completed the programme, there was a slightly higher proportion of clients who left the programme voluntarily from the least deprived areas (SIMD 5) (18%) than those who did not leave voluntarily(13%). There was also a slightly higher proportion of clients who left voluntarily who were aged 20 and over (17%) than does who did not leave voluntarily (13%). There was a slightly lower proportion of clients who left voluntarily who had enrolled onto FNP by 16 weeks gestation (45%) than those who did not leave voluntarily (50%).

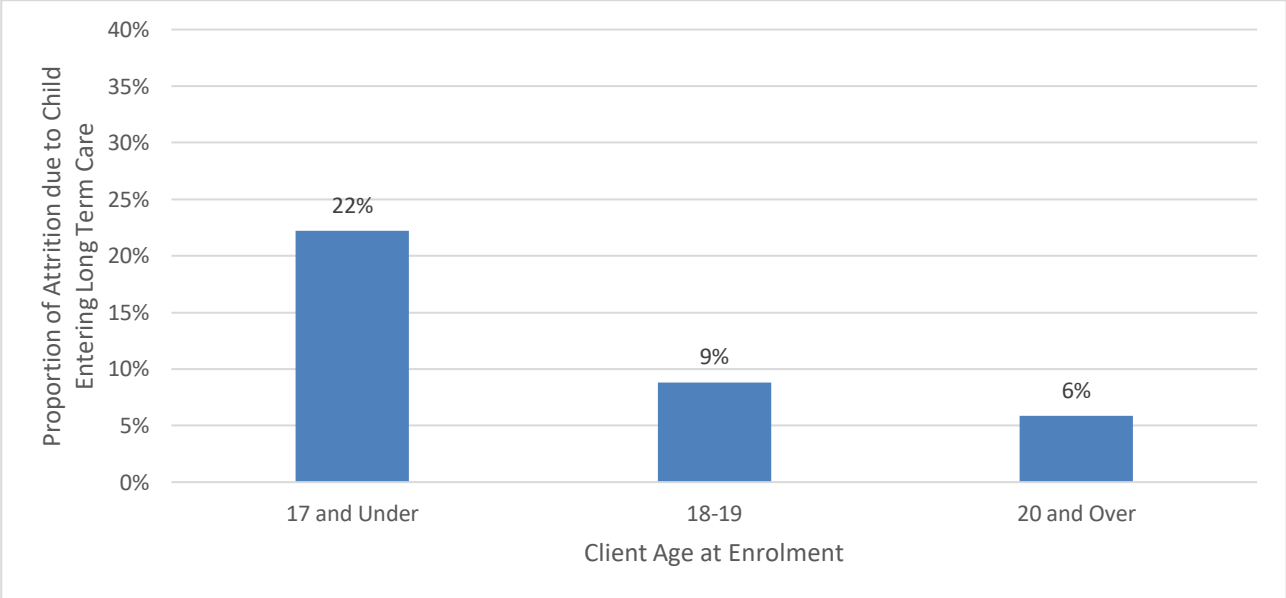
A slightly lower proportion of clients who left voluntarily lived with a partner upon leaving the programme (23%) compared to those who did not leave voluntarily (27%). A slightly higher proportion of clients who left voluntarily were either in full-time education or employment (43%), compared to 39% of those who did not leave voluntarily. A lower proportion of those who left voluntarily were in local authority or housing association housing (52%) compared to those who did not leave voluntarily (65%), with a higher proporiton of those who left voluntarily in privately owned accomodation (16% vs 8%).

Attrition due to Child Entering Long Term Care

Of the 160 clients leaving the programme due to the child entering long term care, 44% (71 clients) left during infancy and 56% (89 clients) left during toddlerhood. Almost one in five clients in the North region who left by attrition left for this reason (18%, 61 clients), compared with one in ten in the East (11%, 53 clients) and West (10%, 46 clients).

As shown in Chart 16 below, clients aged 17 and under at enrolment were more likely than older clients to leave due to their child entering long term care. Of those that left, over one in five (22%, 90 clients) aged 17 and under left due to their child going into long term care. There was no clear correlation between attrition due to the child going into long term care over time or SIMD quintile.

Chart 16: Proportion of attrition due to the child entering long term care, by client age



Miscarriages (8%), still births (7%), and termination of pregnancies (4%) accounted for some of the clients who left the programme during the pregnancy phase.

Visits and Attrition

There was some evidence of a correlation between the number of visits a client received in a given phase and likelihood of graduating. For example, clients who left FNP in the infancy phase received, on average, 8 visits in preceding phase (pregnancy), compared to an average of 10 visits among those who went on to graduate. Clients who left FNP in the toddlerhood phase received, on average, 9 visits in pregnancy and 18 visits in infancy, whereas those who went on to graduate received 10 visits in pregnancy and 19 visits in infancy.

The difference in the number of completed visits between clients who went on to graduate and those who did not appears to be due to a higher rate of completion of scheduled visits in this group, as opposed to a higher number of scheduled visits overall. Clients who went on to graduate completed 77% of scheduled visits, with 12% cancelled by the client, 9% attempted and 1% cancelled by the nurse. Clients who left by attrition completed 72% of scheduled visits, with 14% cancelled by the client, 13% attempted and 1% cancelled by the nurse.

Clients enrolling after 28 weeks and 6 days gestation also had slightly lower graduation rates than clients who enrolled prior to 16 weeks and 6 days gestation (77% compared with 81%), with more than double the rate of clients in the former group leaving during infancy (13% vs 6%), though it should be noted that the total number enrolling after 28 weeks was low, with only 53 clients in this group.

The same pattern was not found for average visit duration – with the average visit duration for graduates similar to or slightly less than clients who left the programme by attrition. For example, graduates received visits averaging 68 minutes in pregnancy, whereas clients who left the programme in toddlerhood had visits averaging 70 minutes long in pregnancy.

Section 3: Maternal Outcomes

This section uses data about clients who completed the programme (graduates) only, unless stated otherwise. Data for those that left prior to completion is excluded as the data is incomplete. Data is collected at various points in the FNP journey and is collated across all graduates from the programme's inception to the 31st March 2021. This analysis does not include the data from the pilot of FNP.

Summary – Maternal Outcomes

- More than half (54%) of FNP graduates smoked at some point during pregnancy (including before they knew they were pregnant). This decreased to a third (32%) two weeks after enrolment and a slightly lower proportion again (28%) by 36 weeks gestation.
- At 12 months post-birth, over a third (37%) of FNP clients reported that they currently smoked cigarettes. A higher proportion of clients living in the most deprived areas (40%) smoked at 12 months post-birth, compared to 26% in the least deprived areas
- In recent years the majority of FNP clients had not consumed alcohol (68%) or taken drugs (94%) during pregnancy[xiii], including before they knew they were pregnant.
- Of clients who were sexually active, 90% reported using birth control at 6 months post-birth. However this decreased at 24 months post-birth (79%)
- Almost a third (31%) of FNP clients reported experiencing a second pregnancy by 24 months post-birth of their first child. Overall, 13% of FNP clients had a live birth within 24 months of the birth of their first child.
- The proportion of FNP graduates in education post-birth increased from 9% in full-time education 6 months post-birth to 14% in full time education 24 months post-birth. This varied with age, with the youngest clients more likely to be in education than those over 20 years.
- Overall, over one in ten (12%) clients who graduated from FNP were in paid employment at 6 months post-birth, however this increased to one in four clients (25%) by 12 months post-birth and almost a third (30%) of clients by 24 months post-birth. Those aged 20 years and older at enrolment were more likely to be in paid employment than younger clients.
- FNP clients in work and/or education post-birth increased across all age groups, SIMD quintiles and regions from one fifth (20%) at 6 months post birth to two fifths (40%) at 24 months post birth.
- The majority of FNP clients lived in local authority or housing association housing, and the proportion living in this type of accommodation increased slightly from 60% at 6 months post-birth to 65% at 24 months post-birth.
- At each stage post-birth, around 40% of clients were single, 30% were living with their partner and/or married or in a civil partnership, and 30% were in a relationship but not living with their partner.

[xiii] Data on alcohol and drug use in the FNP data system was limited to clients enrolling onto the programme in the most recent years (2019 onwards).

2 IN 3 FNP GRADUATES REPORTED **REGULARLY USING BIRTH CONTROL** AFTER THE BIRTH OF THEIR FIRST CHILD

ALMOST 1 IN 3 FNP GRADUATES HAD A **SUBSEQUENT PREGNANCY IN THE 2 YEARS** AFTER THE BIRTH OF THEIR FIRST CHILD

THE **MAJORITY** OF FNP GRADUATES **HAD NOT** CONSUMED **ALCOHOL OR DRUGS** DURING PREGNANCY

54% OF FNP GRADUATES SMOKED AT SOME POINT DURING PREGNANCY, THOUGH THIS DECREASED TO **28%** STILL SMOKING LATER IN PREGNANCY

65% OF FNP GRADUATES LIVED IN **LOCAL AUTHORITY OR HOUSING ASSOCIATION** ACCOMMODATION 24 MONTHS POST BIRTH

FNP CLIENTS IN **WORK OR EDUCATION** POST BIRTH **INCREASED FROM 20%** AT 6 MONTHS POST-BIRTH TO **40% AT 24 MONTHS** POST BIRTH.

Young mothers represent one group that are at particular risk of engaging in health behaviours that can lead to poorer health outcomes. There is a strong association between teenage pregnancy and social deprivation[41], meaning that younger mothers may struggle financially, live in poorer housing and have lower educational attainment [42,43.] Behaviours like smoking and physical inactivity often begin in youth and are closely aligned with social deprivation[44], and young mothers may leave school early or move away from the parental home, leaving them at risk of isolation due to inadequate social support[45].

The evidence also indicates that younger mothers tend to have poorer perinatal health outcomes (later engagement with services, lower birth weights, less likely to breastfeed, higher infant mortality and higher rates of postnatal depression)[46]. Further to this, mothers aged under 20 are at a 33% increased risk of stillbirth and a 75% increased risk of neonatal death compared to mothers aged 30-34[47].

Alongside this, young mothers are also more likely to experience poorer mental health and are at a higher risk of mental health issues, such as postpartum depression, in the first three years after giving birth than older mothers. Postpartum depression can have long-term consequences for both the mother and child[48].

FNP has been implemented in many countries in the 45 years since its inception. There have been demonstrable programme effects on a range of child and maternal outcomes. However, FNP is not delivered in the same context to the same clients in every country, although the target client group overall usually comprises of first time mothers with an idetified need. Furthermore, the context within which the programme is delivered can have a bearing on the outcomes achieved. In particular the health care setting in which the programme is delivered is a key consideration in the intepreatation of outcomes achieved by FNP in the country context.

The Early Intervention Foundation's Guidebook[49] provides a summary of the evidence base for the Family Nurse Partnership programme and has provided an established evidence rating (Level 4+) of improving a variety of child and parent outcomes, including attachment security in the short term, children's early language development and reduced risk of preventable death in early adulthood.

In the five randomised control trials (RCTs) conducted to date in countries that have implemented FNP, the following maternal outcomes have been show to be affected by FNP in two or more trials[50]:

- Reduced smoking (at childbirth) (Elmira, Denver and Dutch Trials)
- Increased attempted breastfeeding (between childbirth and child age two) (Memphis and Dutch Trials)
- Improved home environment (child age two) (Memphis and Dutch Trials)
- Improved self-efficacy (child age two) (Memphis and English Trials)
- Reduced domestic violence (child age 2-6) (Memphis and Dutch Trials)

Smoking, Drug and Alcohol Use

Smoking in Pregnancy

Tobacco smoking is associated with adverse pregnancy outcomes because smoking during pregnancy harms both the mother and her baby. Prenatal smoking is thought to account for an estimated 20 to 30 percent of cases of low birth weight (<2500g), and also increases the risk of shortened gestation, respiratory distress syndrome, and sudden infant death syndrome. Babies born with lower-than-average birth weight are more likely to get infections and have other health problems. Even after controlling for alcohol use, socioeconomic status, maternal height, maternal weight and years of education, smoking has been implicated in long term effects such as poor cognitive performance on achievement tests and decreased physical growth.[51]

Over the past two decades, smoking among pregnant women has declined by about 60–75% in high-income countries[52]. In Scotland in 2000, approximately 29% mothers smoked while pregnant. By 2021 this figure had dropped to 13%[53]. However, generally Scotland reports higher rates of smoking during pregnancy than many other European countries[54].

In Scotland overall, the proportion of women recorded as current smokers at the time of their booking appointment has steadily decreased since 1997/98, falling from 30.7% of those with a known smoking status to 13.1% in 2020/21. In 2020/21 a further 14% were former smokers at the time of their booking appointment, whilst 72.9% had never smoked. However, smoking rates are not equitable accross all age ranges and deprivation quintiles. Nationally, in 2020/21 almost a quarter (24%) of mothers in the most deprived areas (SIMD 1) were smokers at the time of their antenatal booking, which is more than double the rate of all mothers in Scotland (13%). Women aged under 25 years were approximately three and a half times more likely to be a current smoker at booking than women aged 35 and over[55].

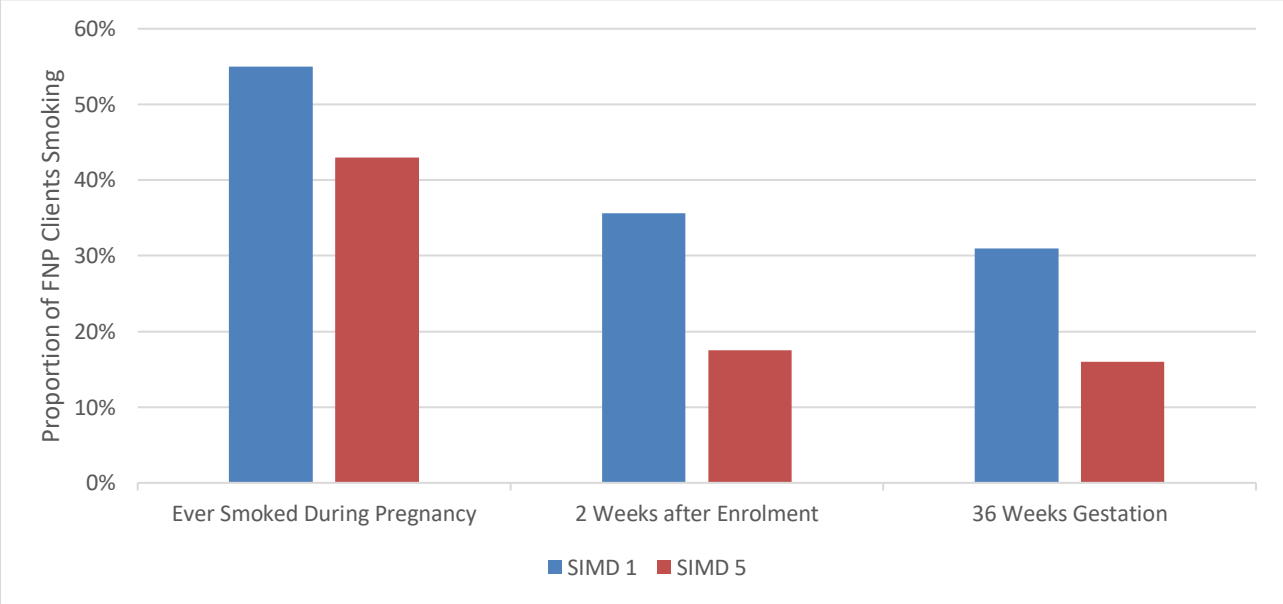
There are many factors associated with smoking during pregnancy such as socioeconomic status (low educational attainment and deprivation), white ethnicity, higher level of nicotine dependence, lack of social support, having a partner who smokes or other smokers in the home, using alcohol during pregnancy, culture, high levels of stress, and mental health conditions including depression and past-year psychiatric symptoms[56,57.]

Overall, more than half (54%) of FNP graduates had smoked at some point during pregnancy (including before they knew they were pregnant). This decreased to around one in three clients (32%) being a current smoker 2 weeks after enrolment onto the programme and a slightly lower proportion (28%) by 36 weeks gestation.

When compared to the findings in the Building Blocks trial[58] about FNP in England (which combined data from self reported smoking and urine analysis) the findings showed that 55.6% of FNP clients were smokers in late pregnancy and 51.6% of the control arm were smokers in late pregancy (about 34 to 36 weeks gestation).

There was evidence of differences by social deprivation, although this was not as marked as that seen in the general population, with over half 55% of clients in the most deprived areas reporting having ever smoked during pregnancy, compared to 43% of clients in the least deprived areas. This gap widened at subsequent stages of pregnancy, with clients in the most deprived areas almost twice as likely (31%) to smoke at 36 weeks gestation, as clients in the least deprived areas (16%) (Chart 17).

Chart 17: Proportion of FNP clients who reported having smoked at all during pregnancy, and subsequent time-points, SIMD 1 and 5



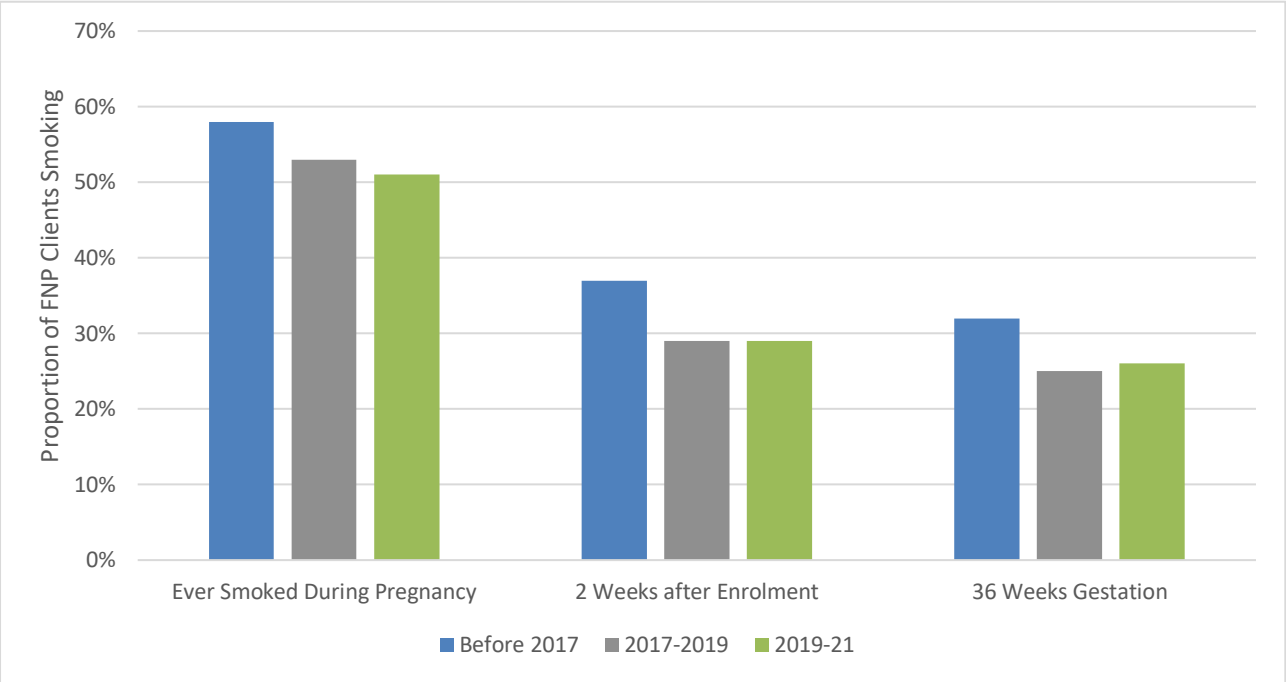
Clients who spoke English as their primary language were more likely to smoke at each time-point than those who did not. Over half (55%) of clients who spoke English as their primary language reported having smoked at all during pregnancy, compared to 43% of clients who spoke a primary language other than English, with a similar reduction in smoking between the two groups at subsequent time-points.

There was a similar proportion of clients in each age group smoking at each timepoint.

Smoking was slightly less prevalent at each time-point in the West of Scotland, with 50% reporting having ever smoked during pregnancy, 28% at 2 weeks after enrolment and 24% at 36 weeks gestation, compared to 54%, 32% and 28% at these respective time-points among all FNP clients.

Smoking was also slightly less prevalent for clients entering FNP in more recent years, in line with decreases in smoking more generally. For clients who went on to graduate between 2019-21, 51% reported having ever smoked during pregnancy, 29% at 2 weeks after enrolment and 26% at 36 weeks gestation. For clients who graduated prior to 2017, 58% reported having ever smoked during pregnancy, 37% at 2 weeks after enrolment and 32% at 36 weeks gestation (Chart 18).

Chart 18: Proportion of FNP clients who reported having smoked at all during pregnancy, and subsequent time-points, by year of graduation (year ending 31 March)



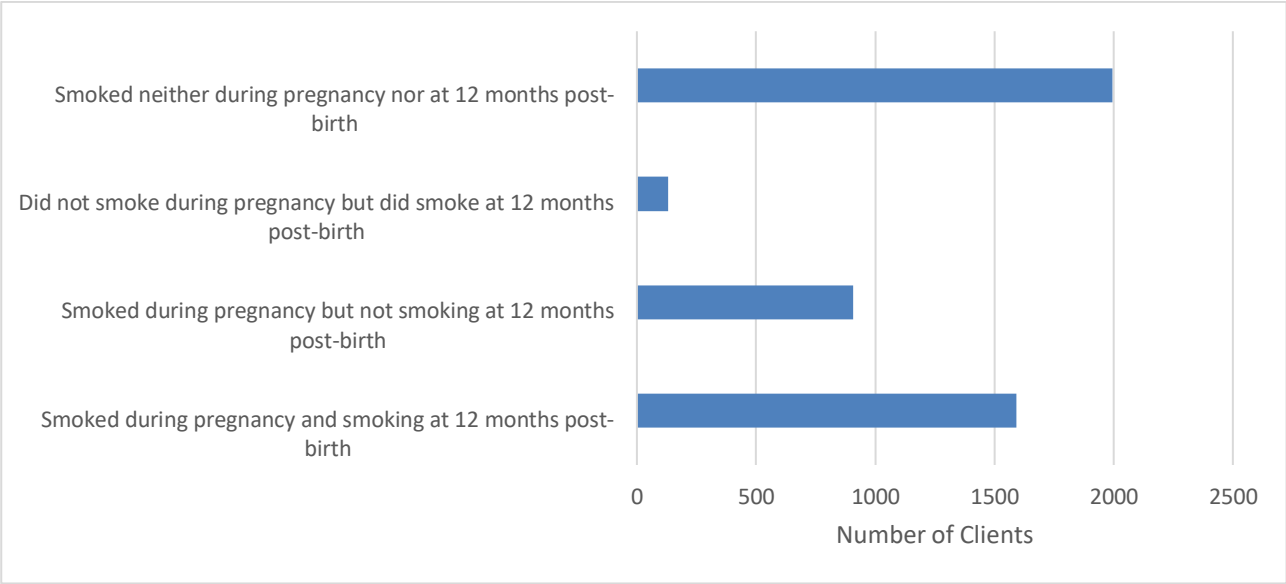
Postnatal Smoking

Studies have shown that while high proportions of mothers stop or abstain from smoking during pregnancy, a high proportion relapse from 6 to 12 months postpartum. A study in the US in 2016 showed 58% of those that had stopped smoking begin to smoke again postnatally[59,60].

The evidence shows that having a supportive partner is particularly important in stopping smoking during pregnancy[61]. Pregnant women with partners who are active smokers find it harder to quit and are more likely to relapse, especially during the postnatal period[62]. Themes central to smoking cessation in pregnancy at an individual level were perception of risk to baby, self-efficacy, influence of close relationships and smoking as a way of coping with stress. At an interpersonal level, partners' emotional and practical support, willingness to change smoking behaviour and role of smoking within relationships were important[63].

At 12 months post-birth, over a third (37%) of FNP clients reported that they currently smoked cigarettes (Chart 19). A slightly higher proportion of clients aged 17 and under at intake (41%) smoked at 12 months after birth, compared to 35% aged 18-19 and 37% aged 20 and over.

Chart 19: FNP clients' smoking status during pregnancy and at 12 months post-birth



Smoking rates at 12 months post-birth were also higher amongst clients who spoke English as a primary language at intake (38%) when compared to those who did not (31%).

As with smoking during pregnancy, a higher proportion of clients living in the most deprived areas (SIMD 1) (40%) smoked at 12 months post-birth, compared to 26% in the least deprived areas (SIMD 5). Smoking rates at 12 months post-birth were also higher in the East of Scotland (41%), compared to the North (37%) and West (34%) of Scotland. As with smoking during pregnancy, there appeared to be a reduction in the proportion of FNP clients smoking 12 months post-birth over time. Just over one in four (42%) of the group graduating before 31 March 2017 smoked, compared to 34% graduating between 2017-2019 and 35% of those graduating between 2019-21.

Of clients who reported having smoked at any time during pregnancy, the majority (64%) smoked at 12 months post-birth, while one in three (36%) had ceased smoking. The vast majority (94%) of clients who did not report smoking at all during pregnancy also did not smoke at 12 months post-birth.

Alcohol Use

The health risks of drinking alcohol while pregnant are well documented. Drinking in pregnancy can increase the chances of miscarriage, pre-term birth and low birthweight, and may lead to life-long harm to the foetus. Higher levels of drinking increase risks[64,65]. A baby's brain and body develop during the entire pregnancy. Alcohol can affect this development and result in a number of lifelong physical, emotional and developmental difficulties including fetal alcohol spectrum disorder (FASD)[66]. The UK Chief Medical Officers guidelines[67] state that pregnant women or those who think they could become pregnant should not consume any alcohol immediately prior to or during pregnancy.

Within the Scottish maternal and infant nutrition survey in 2017[68] younger respondents were more likely than older respondents to report avoiding alcohol or drinking infrequently before they became pregnant. Nearly two-thirds (64%) of respondents aged 19 and under[xiv] reported that they never drank alcohol compared to less than half of those over 35 years (45%).

The Growing Up in Scotland study[69] found that mothers living in the most advantaged circumstances were more likely to say they consumed alcohol during pregnancy[xv]. In birth cohort 2 of Growing Up in Scotland, 34% of those in the highest income quintile consumed alcohol while they were pregnant, compared with 11% of mothers in the lowest income quintile. These findings were also found when children were 10 months: main carers in the highest income quintile were more likely to drink alcohol than those in the lowest income quintile. However, parents in the lowest income quintile were over twice as likely to drink five or more units on a typical drinking day compared with those in the highest income quintile (45% compared with 20% respectively), indicating more alcohol being consumed per drinking day among those in the most deprived groups.

Data on alcohol use in the Turas FNP system was limited to clients enrolling onto the programme in the most recent years (2019 onwards), so limited analysis is available.

Where there was data available, clients were asked at 2 weeks after enrolment onto FNP whether they had consumed alcohol at any time during their pregnancy, including before they knew they were pregnant. Of the 1750 clients for whom this data was collected, the majority had not consumed alcohol during pregnancy (68%), while 567 clients (32%) reported having consumed some alcohol. However, clients were also asked at this time-point how many units of alcohol they had consumed in the prior 7 days and almost all (99%) reported having not consumed alcohol, with just 13 clients reporting that they had consumed alcohol in the last 7 days. This was also the case when clients were asked the same question at 36 weeks gestation – only 11 clients reported having consumed alcohol in the last 7 days when asked at this time-point.

Clients were also asked, 2 weeks after enrolment, how many units they had drunk the last time they were at a night out or party (including before their pregnancy). Of the 1660 clients for whom valid data was collected for this question, 572 clients (34%) stated that they had not drunk alcohol, 475 clients (29%) stated that they had consumed 6 units or less, 265 clients (16%) stated that they had consumed 7 to 10 units, 263 clients (16%) had consumed 11 to 20 units, and a small group of clients (85 clients, 5%) had consumed more than 20 units.

[xiv] Results for respondents aged 19 or under should be treated with caution due to the small number of respondents in this age group (weighted base = 57; unweighted base = 44).

[xv] It must be noted that the vast majority of those who consumed alcohol in pregnancy, did so less than once a month and we are not able to use the Growing Up in Scotland data to identify whether this was before or after the mother discovered she was pregnant.

Drug Use

In 2019/20, drug use was recorded in 1.6% (769) of 47,767 maternities[xvi] in Scotland[70]. Where maternal drug use was recorded, the drugs most often used during pregnancy were cannabis, cocaine and opiates . The rate of maternities with drug use recorded was highest in the under 20 age group (52.0 per 1,000 maternities).

In 2019/20, the rate of maternities where drug use was recorded was over five times higher in the most deprived neighbourhoods in Scotland than in the least deprived neighbourhoods[71,xvii].

Data on drug use amongst the FNP data system clients was limited to clients enrolling onto the programme in the most recent years (2019 onwards) due to issues with data migration from previous FNP systems.

Clients were asked at 2 weeks after enrolment onto FNP whether they had taken any drugs in the previous month. Of the 1750 clients for whom this data was collected, the majority had not used drugs in the previous month (94%), while 111 clients (6%) reported having used drugs in the previous month. The most common drugs used were cannabis (96 clients) and cocaine (15 clients).

Clients were also asked at 36 weeks gestation whether they had taken any drugs in the previous month. Of the 1511 clients for whom this data was collected, 96 clients (6%) reported having used drugs in the previous month. Again, the most common drugs used were cannabis (80 clients) and cocaine (13 clients).

Birth Control, Subsequent Pregnancies and Births

Birth Control

In Scotland, young people under the age of 25 experience the greatest burden of sexually transmitted infections (STIs), and young women aged 20-24 years experience the highest rate of abortion care, suggesting unplanned conception. Research has shown that for adolescents, use of a long-acting reversible contraceptive (LARC) method (intra-uterine device (IUD) or contraceptive implant) is associated with better spacing of pregnancies.[72]

Condoms are still the most commonly used form of protection against STIs and unintended pregnancies by young people in Scotland. Over the last five years, however, there have been strong indications that fewer young people than before are accessing free condom services, or LARC[73].

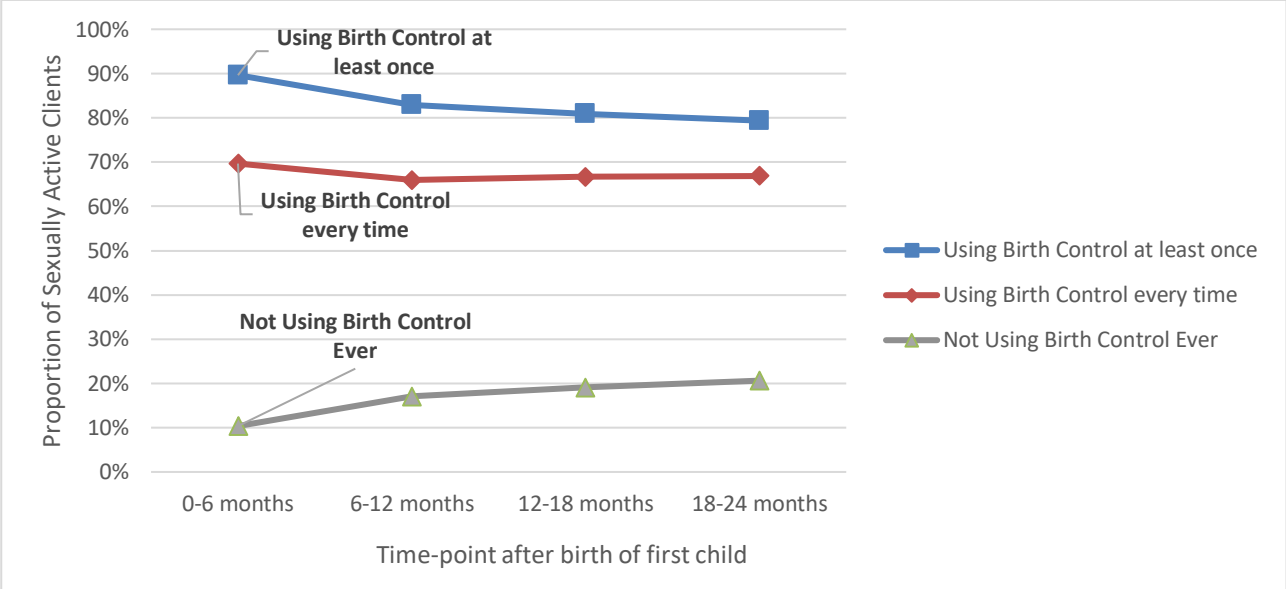
The prescribing rate for new insertions of a LARC (an implant, IUD, intra-uterine system (IUS), or contraceptive injection) has been significantly impacted by the COVID-19 pandemic across all NHS board areas, decreasing from 54.3 per 1,000 women in 2019/20 to 32.1 per 1,000 women in 2020/21[74].

[xvi] Maternities means women having babies (including stillbirths). A maternity is a pregnancy resulting in the birth of 1 or more children, therefore, these figures are not the same as the number of babies born.

[xvii] These data are known to be incomplete, caution should be exercised when interpreting these data.

FNP clients were asked about their use of birth control over the previous six months and at six month intervals after birth. Of clients who were sexually active, 90% reported using birth control at 6 months post-birth. However, this decreased at 24 months post-birth (79%). Overall, the proportion using birth control every time they had sex remained relatively stable at around two thirds of clients (Chart 20). Birth control use at each time-point was broadly similar across demographic groups, geographically, and over time.

Chart 20: Proportion of sexually active clients who used any form of birth control, by post-birth time-point

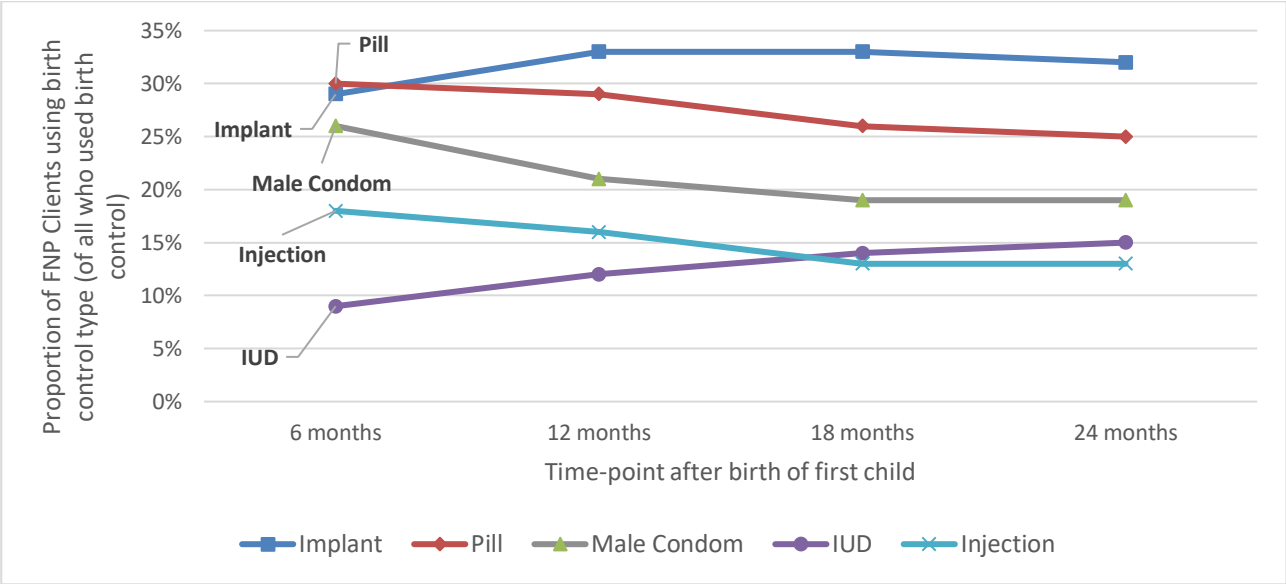


The most common forms of birth control used were the contraceptive implant (around a third of those using birth control used this at each timepoint) and combined oral contraceptive pill (around 30% used this at six months post-birth, though this decreased to around 25% by 24 months post-birth). The male condom was another commonly used birth control method, though use of this decreased from 26% at 6 months post-birth to 19% at 24 months post-birth. The next most commonly used birth control methods were IUD and contraceptive injection, with around 10-15% of those who used birth control using these at each time-point (Chart 21).

When viewing the proportion of all FNP graduates using LARC forms of birth control, a similar proportion of FNP graduates overall were using these at 6 months post-birth (46%) and 24 months post-birth (44%).

Between 2015-16 and 2020-21, the proportion of the overall FNP client group using LARC at 6 months decreased (from 50% to 43%) as did the proportion using LARC at 24 months (from 49% to 42%). This is possibly partially attributable to the composition of the FNP client group including an increasing number of mothers aged 20 and over in later years, of whom a smaller proportion used LARC at 6 months and 24 months (44% and 39% respectively), when compared to mothers aged 17 and under (52% and 48% respectively).

Chart 21: Types of birth control used, by post-birth time-point



Of the small group of clients who were sexually active but did not use birth control at 6 months post-birth, most did not have a reason stated for not using birth control. However, the reduction in overall birth control use at subsequent time-points appears to correspond with an increase in clients who were either pregnant or trying to conceive. By 24 months post-birth 298 clients were pregnant and 116 were trying to conceive (around 10% of the client group overall).

Subsequent Pregnancies

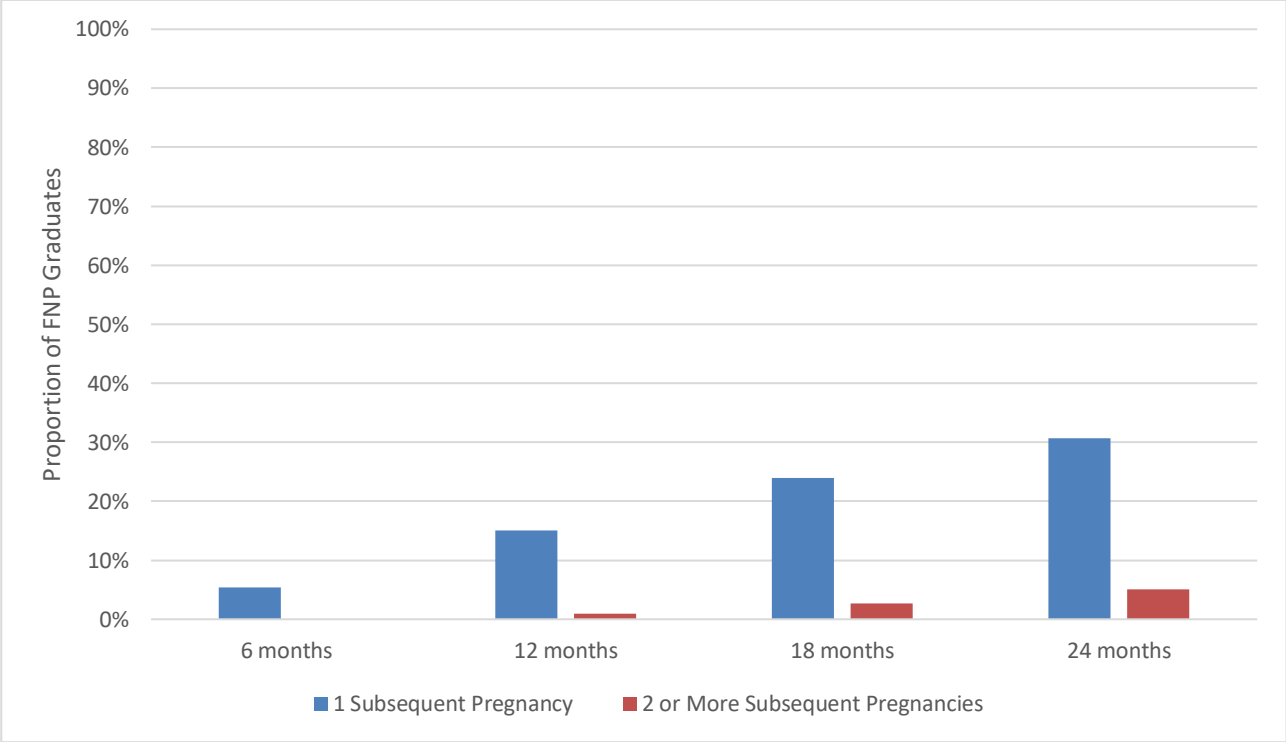
Rapid, repeat pregnancy (i.e. within two years) is associated with an increase in adverse health outcomes[75]. An early repeat pregnancy has also been associated with a number of negative short-term consequences in the areas of education, employment, and welfare dependency[76].

Scottish data (2011) shows that approximately 25% of mothers aged under 20 will have a subsequent conception within two years (with around 7% conceiving again within one year). Percentages for under 18s are similar (24.9%), however rapid subsequent pregnancies amongst those aged under 16 are notably lower (5.9%).[77]

FNP clients were asked about whether they had experienced subsequent pregnancies at 6, 12, 18, and 24 months after the birth of their first child. Around one in twenty (5%) FNP clients had at least one subsequent pregnancy within 6 months. This increased to 15% by 12 months post-birth, around one in four (24%) clients by 18 months post-birth, and almost a third (31%) of clients by 24 months. By 24 months post-birth there was a small group of clients (5%) who had experienced more than one pregnancy since the birth of their first child (Chart 22).

These proportions in the Scottish FNP data are lower than similar data from England. The Building Blocks trial in England showed that 50% of mothers in the FNP group and 55% of the control group reported having had another pregnancy within 24 months[xviii], compared to 31% of FNP clients that reported a subsequent pregnancy to their nurse in Scotland.

Chart 22: Proportion of FNP clients having subsequent pregnancies by post-birth time-points



There was little difference in the proportion of clients by age or by geographical region experiencing a subsequent pregnancy, and there was no clear correlation in the proportion of clients experiencing a subsequent pregnancy over time. A slightly higher proportion of clients in SIMD 1 (33%) and SIMD 2 (36%) at enrolment had experienced a subsequent pregnancy than those in SIMD 5 (29%). A higher proportion of clients who were in neither employment or education at enrolment experienced a subsequent pregnancy (36%) than those who were either paid employment or education (27%).

A slightly higher proportion of clients who spoke English as their primary language at intake (24%) had experienced a subsequent pregnancy by the time their child was 18 months old than those who did not (19%). The proportion of clients who did and did not speak English as their first language at intake experiencing pregnancy by 24 months post-birth was largely similar, though a higher proportion of clients who spoke English had experienced 2 or more pregnancies by this time-point (5% vs 1%).

Of clients who experienced a subsequent pregnancy, just under one third (31%) were single at 24 months post-birth, while 35% were in a relationship and living with their partner and 34% were in a relationship but not living with their partner.

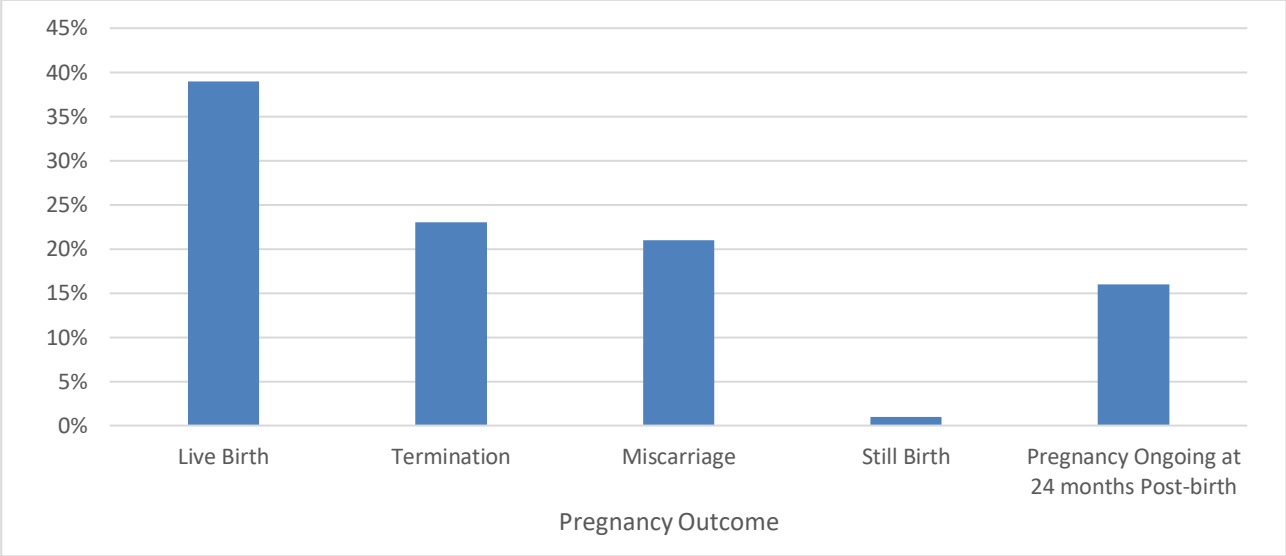
[xviii] Subsequent Pregnancies in Building Blocks Trial FNP England

Overall, one in five (20%) of clients who were using LARC at 6 months post-birth had reported a subsequent pregnancy by 24 months post-birth, compared to 42% of clients who were not using LARC at 6 months.

Subsequent Births

Overall, 13% of FNP clients had a live birth by 24 months after the birth of their first child. Therefore, of the subsequent pregnancies experienced by FNP clients up to 24 months post-birth, around two in five (39%) resulted in live births, representing 628 clients having subsequent live births. One in five pregnancies resulted in termination (22%), and one in five (23%) resulted in miscarriage, and the majority of the remainder of pregnancies (16%) were still ongoing at the time of graduation from FNP (Chart 23).

Chart 23: Subsequent pregnancies of FNP clients by pregnancy outcome by 24 months post-birth

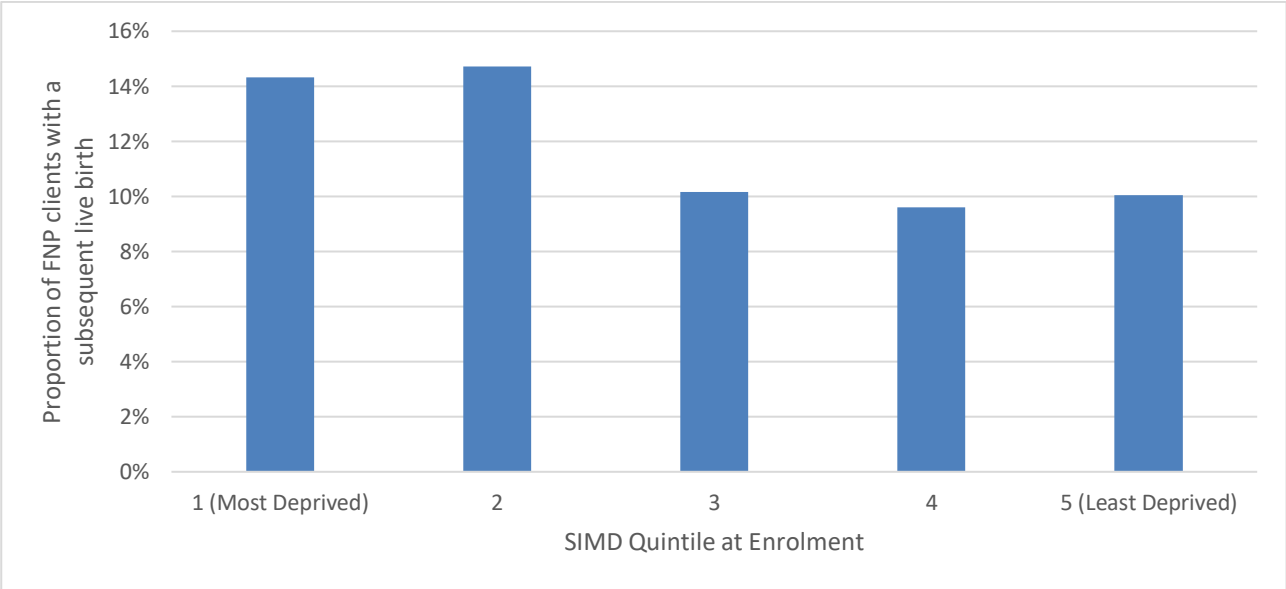


The proportion of FNP clients who had a subsequent live birth was broadly similar across client age groups. Clients from the most deprived areas (SIMD 1) (14%) were slightly more likely to have a subsequent live birth by 24 months than those from the least deprived areas (10%) (Chart 24). A higher proportion of clients who were in neither employment nor education at enrolment experienced a subsequent birth (16%) than those who were (10%). The proportion of FNP clients having a subsequent live birth was broadly similar for clients who did and did not speak English as their primary language at intake and over time.

Of clients who experienced a subsequent pregnancy, around a quarter (24%) were single at 24 months post-birth, while 40% were in a relationship and living with their partner and 33% were in a relationship but not living with their partner.

The rate of subsequent births differed when comparing these rate with use of LARC. 6% of clients who were using LARC at 6 months post-birth had reported a subsequent birth by 24 months post-birth, compared to 19% of clients who were not using LARC at 6 months.

Chart 24: Proportion of FNP clients having a subsequent live birth by 24 months post-birth, by SIMD Quintile



Education, Work, Housing and Relationships

Education and Work

Evidence shows that education and engagement with learning are key interventions that help young people to plan for their future – including pregnancy and parenthood. Supporting young mothers and fathers back into school or learning environments is important for preventing a rapid subsequent pregnancy and ensuring better outcomes for mother and child. Evidence suggests that a focus on employment and provision of jobs and higher earning for young mothers is associated with improved long-term self-sufficiency[78].

Findings from Growing up in Scotland in 2014[79] showed that 72% of mothers aged under 20 had a household income amongst the lowest 20% of all family incomes at 10 months after giving birth. By comparison, the same was true for 40% of mothers aged 20 to 24 and just 12% of those aged 25 or older. At all age points, mothers aged under 20 were significantly more likely than other mothers to be in the lowest income quintile. Mothers under 20 were considerably more reliant on state benefits and tax credits than are older mothers. This position remained as the child aged.

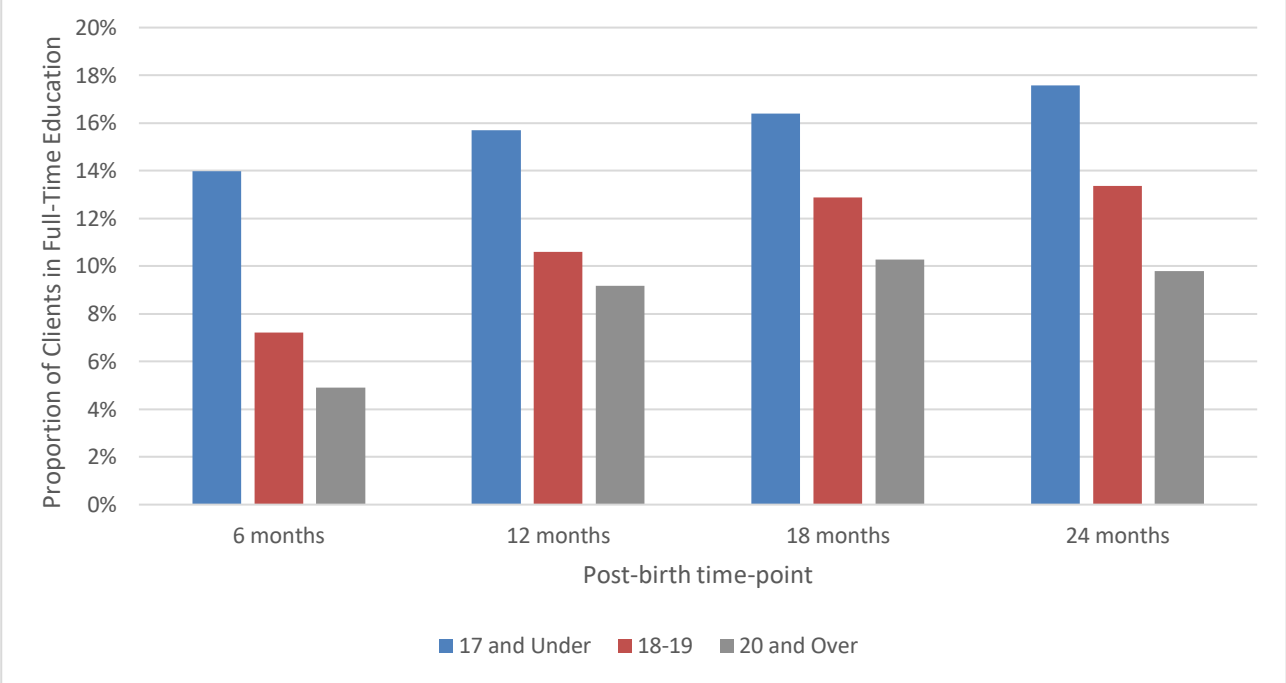
Findings from Growing up in Scotland[80] also showed that more mothers aged under 20 had qualifications at Higher Grade level or above when their child was aged six than they did when their child was aged two. Although acquisition of qualifications increases as their child grows, even when their child was aged 6, mothers aged under 20 at the time of their child's birth remained the group least likely (by a significant margin) to have these qualifications[81].

As well as being captured at intake onto FNP, information on clients' education, work and relationships was captured throughout their time on the programme, at 6 months, 12 months, 18 months and 24 months post-birth.

The proportion of FNP graduates in education post-birth increased from 9% in full-time education at 6 months post-birth to 14% in full time education at 24 months post-birth, as detailed in Chart 25 below. This trend of increasing educational attendance can be seen across all age groups with the youngest age groups more likely to be in full time education and the older age groups more likely to be in employment as shown below.

At 6 months post-birth there was a similar proportion of FNP graduates from the most deprived areas (9%) and the least deprived areas (11%) who were in full-time education. The proportion of clients in full-time education increased across all SIMD quintiles by 24 months post-birth, with 14% of clients in the most deprived areas in full-time education at this time-point, compared to 18% from the least deprived areas. There was a similar proportion of graduates in full-time education at these time-points in each region of Scotland.

Chart 25: Proportion of FNP clients in full-time education at post-birth time-points, by client age at enrolment



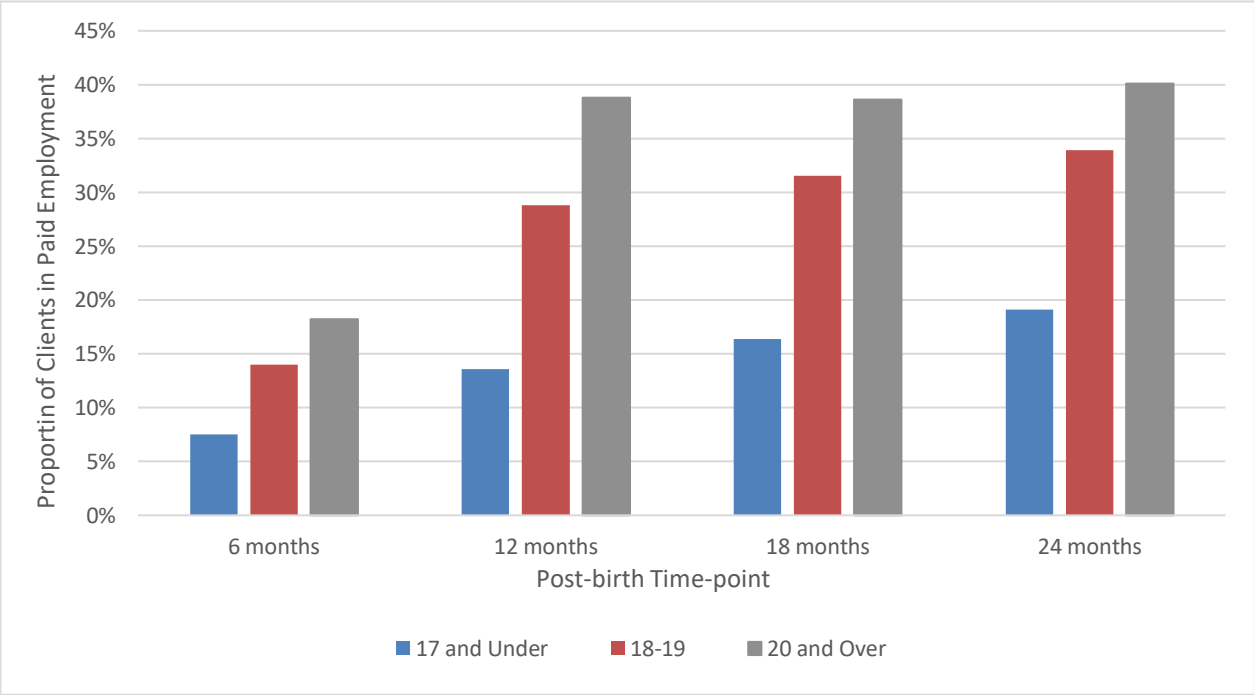
The findings from Growing Up in Scotland showed that at 10 months, 21% of mothers under 20 were employed (either full-time or part-time) compared with 55% of those in their early twenties and 83% of those aged 25 or older. As the child ages, mothers aged 25 or older remain most likely to be in employment and mothers aged under 20 remain least likely. Employment levels amongst mothers aged under 20 do increase over time, however, whilst for other groups they remain similar, so that by the time the child is age six the gap is narrower than at age two.

Overall, over one in ten (12%) clients who went on to graduate from FNP were in paid employment at 6 months post-birth, however this increased to one in four clients (25%) by 12 months post-birth and almost a third (30%) of clients by 24 months post-birth. The proportion of clients in paid employment increased across all client age groups between 6 months and 24 months post-birth: increasing from 8% to 19% of clients aged 17 and under

at enrolment, 14% to 34% of clients aged 18-19 years and 18% to 40% of clients aged 20 and over (Chart 26).

There was also a differential in the proportion of clients from the most and least deprived areas in paid employment at subsequent time-points post-birth. While the proportion of clients from the most deprived areas in paid employment increased from 10% at 6 months post-birth to 25% at 24 months post-birth, the proportion of clients in the least deprived areas in paid employment increased from 16% at 6 months post-birth to 48% at 24 months post-birth. By 24 months post-birth there was a higher proportion of clients from the North of Scotland (35%) in paid employment when compared to those from the East (29%) and West (27%) of Scotland.

Chart 26: Proportion of FNP clients in paid employment at post-birth time-points, by client age at enrolment



Taken together, those in work or education post-birth increased across all age groups, SIMD quintiles and regions: from 20% in work and/ or education at 6 months post-birth to 40% at 24 months post birth.

Housing

At each post-birth time-point, the majority of FNP clients lived in local authority or housing association housing, and the proportion living in this type of accomodation increased slightly from 60% at 6 months post-birth to 65% at 24 months post-birth. Most of the remaining clients either lived in privately rented or in privately owned accomodation.

The proportion of clients living in temporary accomodation was relatively stable between post-birth time-points at 3-4%. The proportion of clients who were registered homeless was only consistently captured on the data system for clients entering FNP in more recent years, but from the avaiable data it appears that the proportion of clients who were registered homeless was relatively stable at subsequent post-birth time-points at 4-5%.

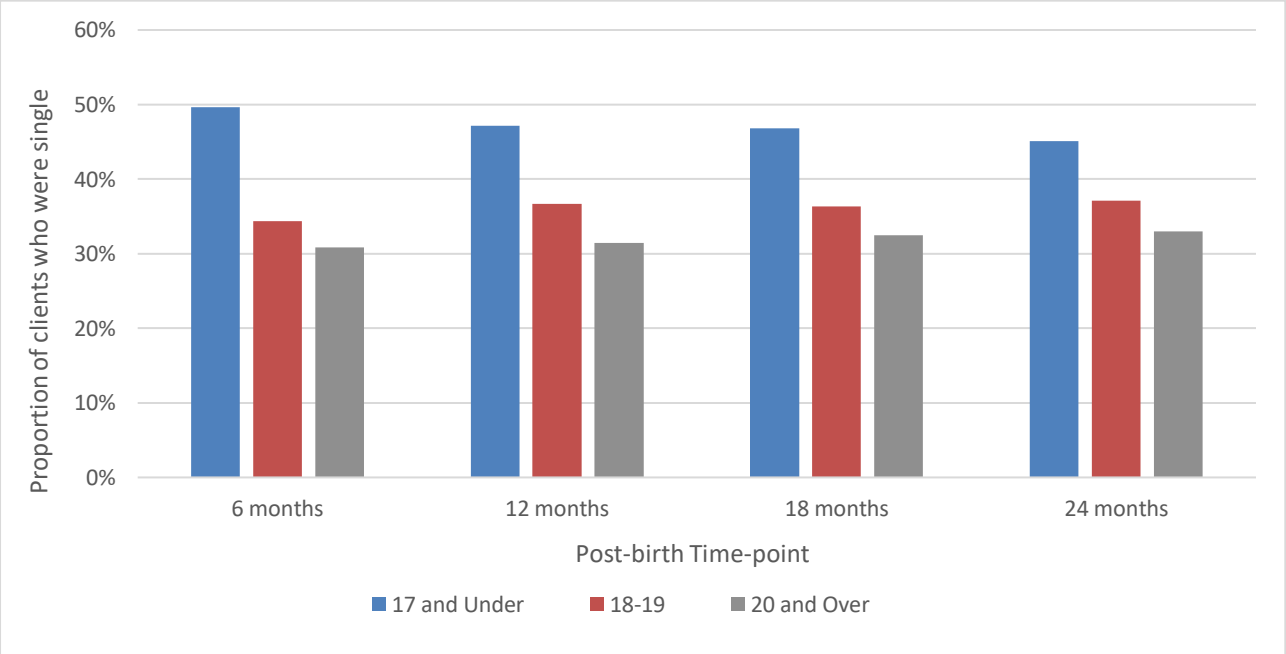
This is similar to the findings in Growing up in Scotland that the majority of mothers aged under 20 lived in social rented housing and were the group most likely to do so. The figure increased over time with a corresponding decrease in the proportion living in owner-occupied housing. Mothers aged under 20 were more likely than older mothers to live in the most deprived areas. The gap between them and those aged 25 or older did not change over time.

Relationships

Findings from Growing Up in Scotland showed that when the child is aged 10 months, mothers aged under 20 were less likely to be living with the child's biological father. The figures differ starkly by age. 30% of mothers aged under 20 live with the child's father compared with 56% of those in their early twenties and 89% of those aged 25 or older. By the child's sixth birthday, mothers aged under 20 were still more likely than older mothers to be lone parents. However, a significant number who were lone parents when the child was aged two had partners by the child's sixth birthday.

The proportion of FNP clients who were in a relationship was largely stable between post-birth time-points. At each stage, around 40% of clients were single, 30% were living with their partner and/or married or in a civil partnership, and 30% were in a relationship but not living with their partner. At each stage, a higher proportion of clients aged 17 and under were single than other age groups, though this gap narrowed slightly over time (Chart 27). There was no clear difference in the proportion of clients from the most and least deprived areas who were single at 6 months and 12 months post-birth. There was, however, a slightly higher proportion of clients from the most deprived areas who were single at 18 and 24 months post-birth (41% at both time-points), when compared to those from the least deprived areas (36% at both time-points).

Chart 27: Proportion of FNP clients who were single at post-birth time-points, by client age at enrolment



Section 4: Child Outcomes

This section uses data about clients who completed the programme (graduates) only. Data for those that left prior to completion is excluded as the data is incomplete. Data is collected at various points in the FNP journey and is collated across all graduates from the programme inception to the 31st March 2021. This analysis does not include the data from the pilot of FNP.

Summary

- Overall, 84% of babies born to FNP mothers had a birth weight in the normal range, while 8% had a low birthweight and 8% had a high birthweight.
- Almost half (44%) of all FNP graduates had initiated breastfeeding. Clients graduating between 2019-21 were slightly more likely to have initiated breastfeeding (45%) than those graduating in earlier cohorts - 43% prior to March 2017. Breastfeeding initiation rates were higher amongst clients who had received at least the benchmark number of FNP visits during pregnancy.
- FNP clients that had themselves been breastfed were three times more likely to intend to breastfeed their child (59%) than those that were not (19%). They were also more likely to initiate breastfeeding.
- Within FNP there has been an increase in breastfeeding rates at different time-points measured (6 weeks post-birth, 6, 12, 18, 24 months) and this increase has generally been seen across each client age group, deprivation quintile and region of Scotland. This suggests that as well as the overall increase in breastfeeding initiation in FNP clients over time, there has been an increase in maintenance of breastfeeding.
- The majority of FNP children did not have a child development concern noted at any point where the ages and stages questionnaire (ASQ:3) was used.
- Just over one in twenty (5.4%) FNP children had at least one developmental concern noted at 4 months and a similar proportion at 14 months (5.5%). Just over one in ten (11.5%) FNP children had a developmental concern at 20 months.
- Overall 95% of FNP children had received all of their immunisations by 24 months, in line with the national average for all children.
- Overall, 192 children (4%) had a hospital admission recorded between birth and 24 months.

84%
OF CHILDREN BORN TO FNP MOTHERS HAD A **BIRTHWEIGHT IN THE NORMAL RANGE**

BREASTFEEDING INITIATION
AMONG FNP GRADUATES HAS **SLIGHTLY INCREASED** OVER THE TEN YEARS OF FNP TO 45% INITIATION IN 2019/20

MOST
CHILDREN IN FNP HAD **NO DEVELOPMENT CONCERNS**
UP TO 24 MONTHS

THERE IS EVIDENCE OF **INCREASED BREASTFEEDING DURATION**
OVER THE TEN YEARS OF FNP

95%
OF FNP CHILDREN HAD RECEIVED ALL OF THEIR **IMMUNISATIONS** BY 24 MONTHS

FEW (4%)
FNP CHILDREN HAD A **HOSPITAL ADMISSION** BETWEEN BIRTH AND 24 MONTHS*

*excludes neonatal admissions

The early years, from pregnancy to age three, are the most critical period of human development[82]. Parent and child interactions in the early years are the cornerstone for future child development. In a range of research using Growing Up In Scotland data, maternal age has rarely emerged as a factor independently associated with child outcomes. Those findings suggest, instead, that child outcomes are influenced more by the behaviours, experiences and circumstances of parents than by their age. As such, younger mothers who exhibit protective behaviours – such as frequent reading to their child and a healthy lifestyle, and who provide a secure and stable environment, have similar chances of raising children with positive outcomes as older mothers who do the same. The key difference is that their more challenging starting point – a pregnancy which is often unplanned, an unstable relationship, lack of educational qualifications, and a peer group who largely do not have children – makes it considerably more difficult for mothers under 20 to achieve the security and stability necessary to develop and support positive child outcomes[83].

In the five RCTs conducted to date the following child outcomes have been show to be affected by FNP in two or more trials[84]:

- Reduced child behavioural problems (Elmira Trial, Memphis Trial)
- Reduced Internalising Behaviour problems (Memphis Trial and Dutch Trial)
- Improved child receptive language (Memphis Trial and English Trials)
- Reduced child abuse and neglect (Elmira Trial, Dutch Trial)
- Reduced arrests in adolescence (Elmira Trial, Memphis Trial)

Birth Weight

Babies weighing between 2500g and 3999g at birth are generally considered to have a ‘normal’ birthweight. A birthweight of less than 2500g is considered low, and a birthweight of 4000g, or sometimes 4500g, or more is considered high. A baby’s weight at birth reflects both their gestation and how well they have grown whilst in the womb.

Babies who are both preterm and small for their gestational age are at particular risk of short and long term health problems[85]. Many factors that increase the risk of preterm birth also increase the risk of poor growth in the womb and low birthweight.

The age of the mother is a factor in birth weight. The incidence of low birthweight is higher among mothers under the age of 18 or over the age of 35. Early childbearing can increase risks for newborns as well as young mothers. Babies born to mothers under 20 years of age face higher risks of low birth weight, preterm delivery and severe neonatal conditions.[86]

An adequate supply of nutrients is essential for the normal progression of healthy fetal growth and development. Several factors that can help identify nutritional risk in a pregnancy include: adolescence, anemia, abnormal pre-pregnancy weight, multiple gestation, medical illness or medication that interferes with absorption of vitamins and minerals, cigarette smoking, alcohol abuse, and low socioeconomic status[87].

Variations in infant birth weight, even within normal range of weight, have a significant effect on child health and social outcomes[88]. Social conditions during pregnancy have a strong influence on birth outcomes, including birth weight[89].

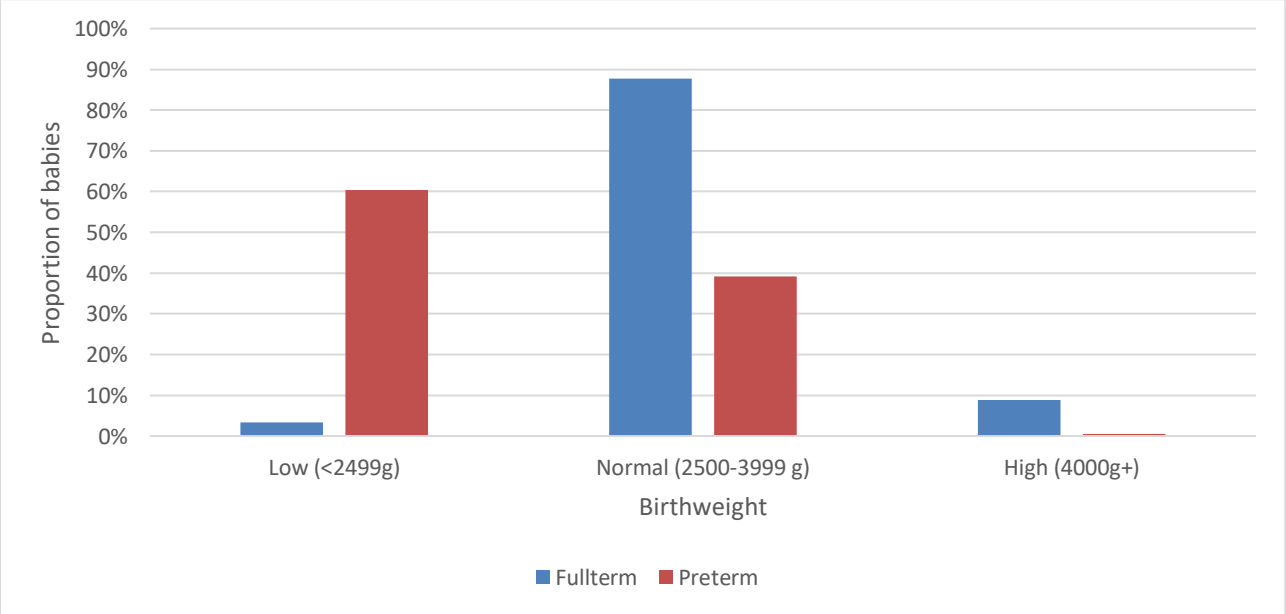
Despite a decrease in smoking rates and a decrease in births to mothers under 20 years, the proportion of babies with low birthweight in Scotland overall has shown little change since records began in the mid-1970s. In 2020/21, overall 5.2% of all singleton babies had low birthweight; this was higher in mothers under 20 years at 7.8%[90]. However, the proportion of singleton babies that are born preterm has also increased over time. Underlying reasons are likely to include more women having babies at older ages and increasing use of assisted reproduction techniques such as in vitro fertilisation (IVF) bringing associated increases in multiple births. In addition, developments in maternity and neonatal care have led to increases in non-spontaneous preterm deliveries. There is a relationship between low birthweight and deprivation, with higher proportions of low birthweight babies born to mothers living in the most deprived areas. This has not changed markedly over time in Scotland[91].

While FNP trials have looked at birthweight as an outcome for FNP there has been no findings that indicate FNP influences birthweight.

Overall, 8% of babies in FNP had a low birthweight, 8% had a high birth weight, and 84% had a normal birthweight. These findings are comparable to the Building Blocks Trial[92] where 84% of babies in both the intervention group and control group had a normal birth weight (while 6.5% has a high birthweigh overall and 9% a low birthweight).

Three in five babies born preterm had a low birthweight[xix] (60%) compared to a very small proportion of full-term births (3%). Almost one in ten babies born full-term had a high birthweight (9%) (Chart 28).

Chart 28: Proportion of full-term and preterm babies in FNP who had low, normal and high birthweights

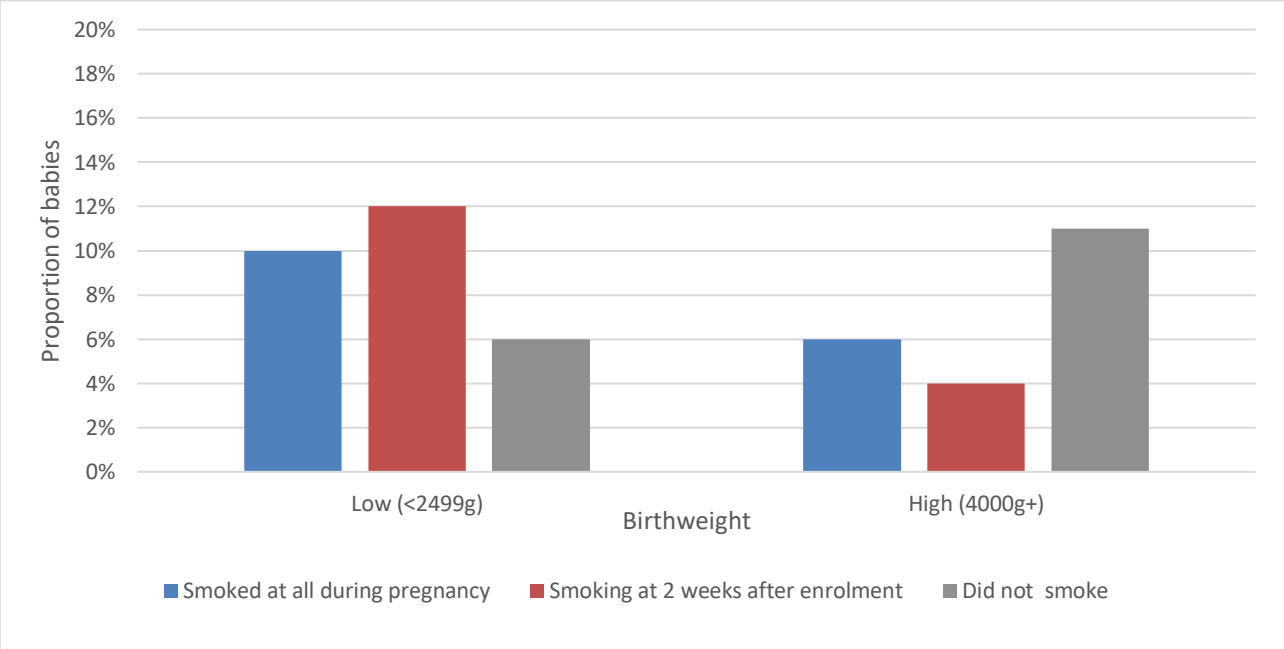


[xix] Birthweight has not been adjusted for gestational age in this analysis.

A higher proportion of babies of clients who had smoked at all during pregnancy (10%) and those who were smoking two weeks after enrolment (12%) had a low birthweight, compared to 6% of those who had not smoked. A lower proportion of babies of clients who had smoked at all during pregnancy (6%) and those who were smoking at two weeks after enrolment (4%) had a high birthweight, compared to those who had not smoked (11%) (Chart 29).

A lower proportion of children of clients who did not speak English as their primary language at enrolment (4%) had a high birthweight compared to clients who spoke English as their primary language (8%), although there was a similar proportion with a low birthweight in the two groups (7% and 8% respectively). A lower proportion of children in the most deprived (SIMD 1) areas had a high birthweight (6%) than those in the least deprived (SIMD 5) areas (11%), though these groups had a similar proportion with a low birthweight (9% and 7% respectively).

Chart 29: Proportion of babies who had low and high birthweights, by client smoking during pregnancy



Infant Feeding

Infant feeding In Scotland

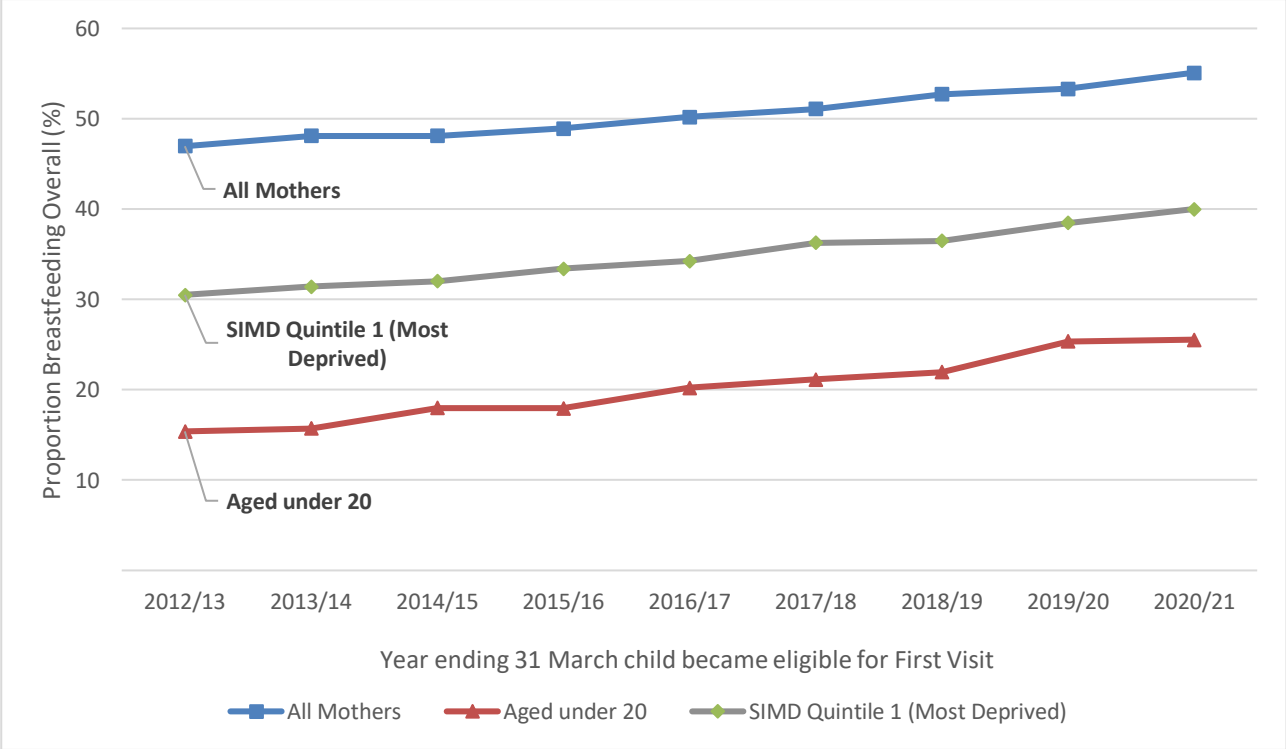
Breastfeeding provides the best nutrition for babies and supports children's health in the short and longer term. Current guidance recommends that babies should receive just breast milk for the first 6 months of life, then, after introduction of solid foods, breastmilk should continue to be provided up to their second birthday or for as long as the mother and baby wish[93]. The benefits of breastfeeding for both baby and mother are seen across the world, and are advocated by the World Health Organisation (WHO).

Rates of infant feeding for all children in Scotland are captured routinely at national level in child health reviews as part of the Child Health Surveillence Programme (CHSP). Data on the proportion of children ever breastfed (breastfeeding initiation) as well as the overall breastfeeding rates (exclusive and mixed feeding) and exclusive breastfeeding rates at

First Visit (10 to 14 days after birth), 6 to 8 weeks after birth, and 13 to 15 months after birth is reported on annually in the Public Health Scotland Infant Feeding Statistics Publication[94].

Breastfeeding rates have been consistently lowest for younger mothers and those living in the most deprived areas over many years and at each of the time-points where this is measured nationally, exacerbating health inequalities. However, this gap has narrowed in recent years and breastfeeding rates have increased nationally between 2012/13 and 2020/21. The largest proportional increases in breastfeeding rates have been seen for mothers aged under 20 (+10%) and those living in SIMD 1 areas (+9%), particularly at the First Visit time-point (Chart 30).

Chart 30: Proportion of children in Scotland breastfed (includes exclusive breast feeding and mixed feeding) at First Visit, 2012/13 to 2020/21



Data on infant feeding behavior is captured throughout a client's time on FNP. Clients are initially asked at enrolment whether they intend to breastfeed their child and are subsequently asked about actual feeding at birth, when the child is 6 weeks, 6 months, 12 months, 18 months and 24 months old.

Infant Feeding Intention

Women's intention to breastfeed is influenced by cultural norms and context, and is strongly associated with both initiation[95] and duration[96,97] of breastfeeding. Many studies have shown that positive intentions to breastfeed and the intention to feed for longer are associated with both increased initiation and duration of feeding.

At enrolment onto FNP, clients are asked to indicate whether they intend to breastfeed their child. Of clients who went on to graduate from FNP, 31% stated that they definitely intended to breastfeed, 38% stated that they would possibly breastfeed and 31% stated that they definitely would not. Breastfeeding intention varied largely between demographic and socioeconomic groups - intention to breastfeed was lower amongst clients living in the West of Scotland (25%), clients living in the most deprived areas (SIMD 1) (28%), and clients aged 17 and under (26%). Clients from minority ethnic backgrounds and those who did not speak English at enrolment were much more likely to state that they intended to breastfeed (80%).

Clients are also asked at enrolment whether they themselves were breastfed as a child, those that had been breastfed were three times more likely to intend to breastfeed their child (59%) than those that were not themselves breastfed as a child (19%).

Ever Breastfed

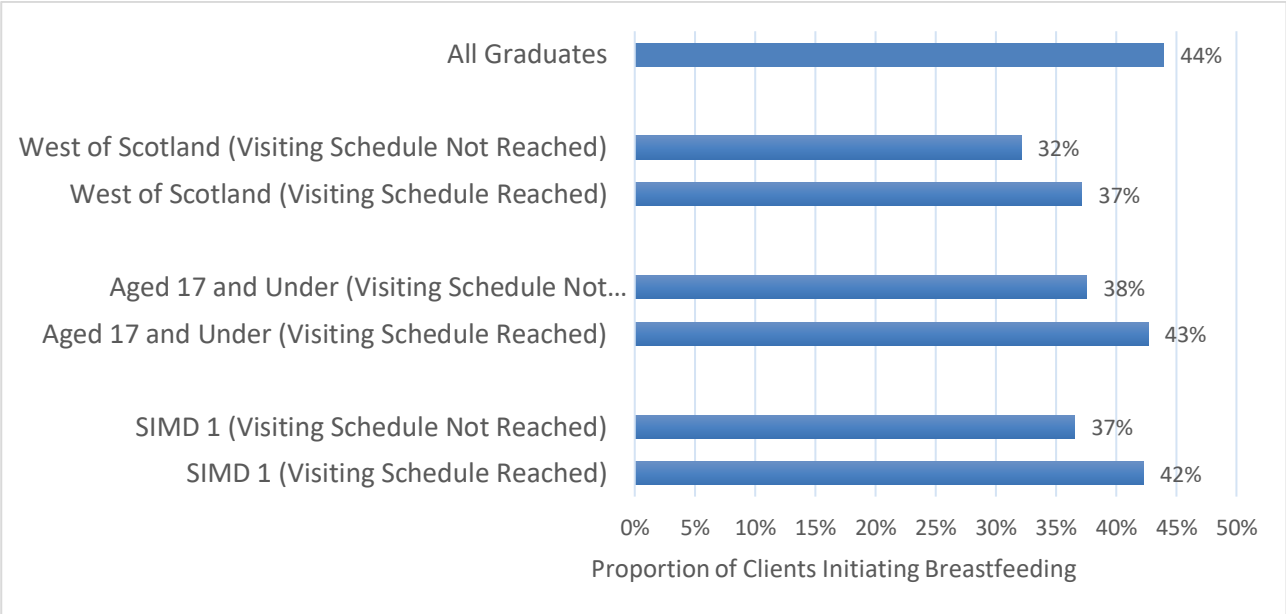
When their baby is born, clients are asked whether their child has ever received breastmilk (breastfeeding initiation). Almost half (44%) of all clients who went on to graduate had initiated breastfeeding. Again, this varied amongst client groups, with clients from the West of Scotland (34%) and those living in the most deprived areas (SIMD 1)(39%), as well as clients aged 17 and under (40%) less likely to have initiated breastfeeding. This aligns with national data on breastfeeding rates more generally.[98] Again, clients from minority ethnic backgrounds (78%) and those who did not speak English as their primary language at intake (80%) were two groups who were more likely to have initiated breastfeeding.

There was an increase over time in the proportion of clients initiating breastfeeding. Clients graduating from FNP between 2019-21 were slightly more likely to have initiated breastfeeding (45%) than those graduating between 2017-19 (44%) and those graduating up to 2017 (43%).

Breastfeeding initiation rates were also higher amongst clients who had received the benchmark number of FNP visits during pregnancy, as per the standard visiting schedule. Almost half (49%) of clients in this group reported initiating breastfeeding compared to 40% of those who had not received the benchmark number of visits. This was found even for client groups who had lower overall breastfeeding initiation rates: clients from the most deprived areas were more likely to initiate breastfeeding if they had received the benchmark number of visits in pregnancy, as were clients aged 17 and under, and clients living in the West of Scotland (Chart 31).

As with breastfeeding intention, there was a noticeably higher rate of breastfeeding initiation amongst clients who were themselves breastfed as a child (71%) when compared to those who were not (32%).

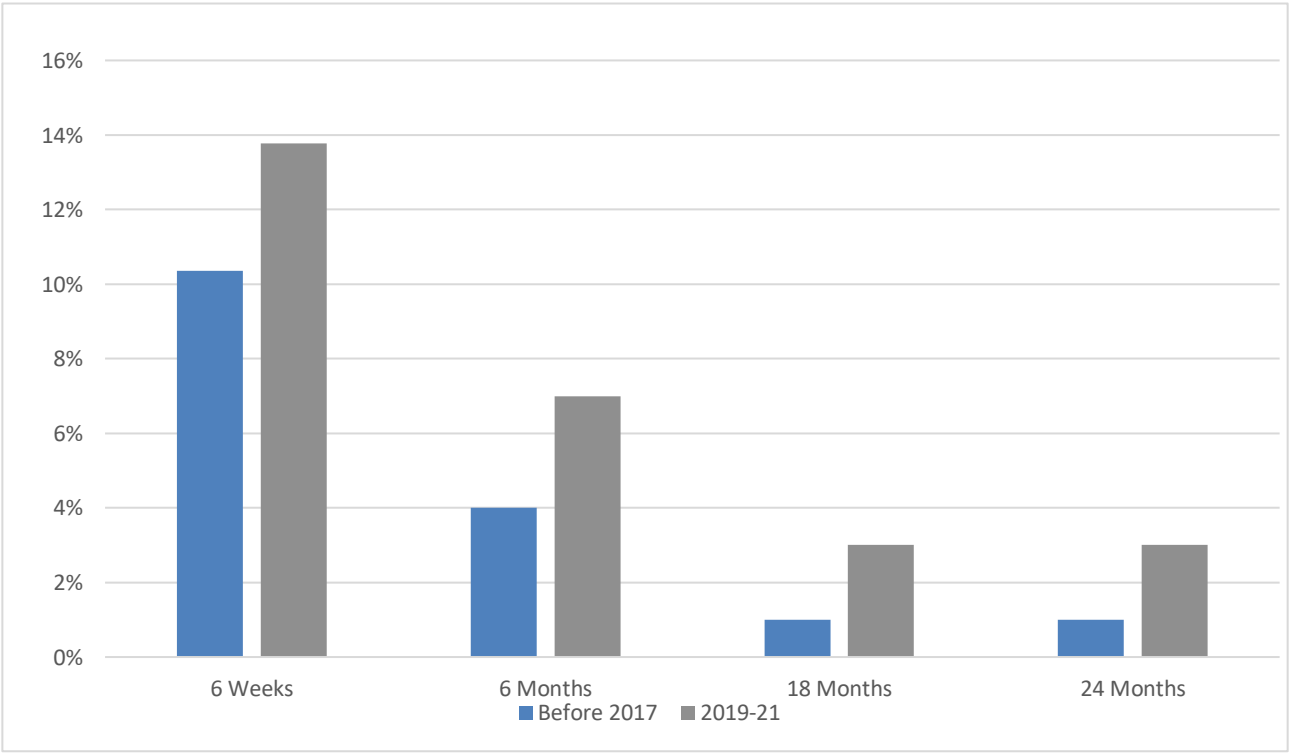
Chart 31: Proportion of graduates who ever breastfed, by whether or not benchmark number of visits were received during pregnancy



Continuation of Breastfeeding

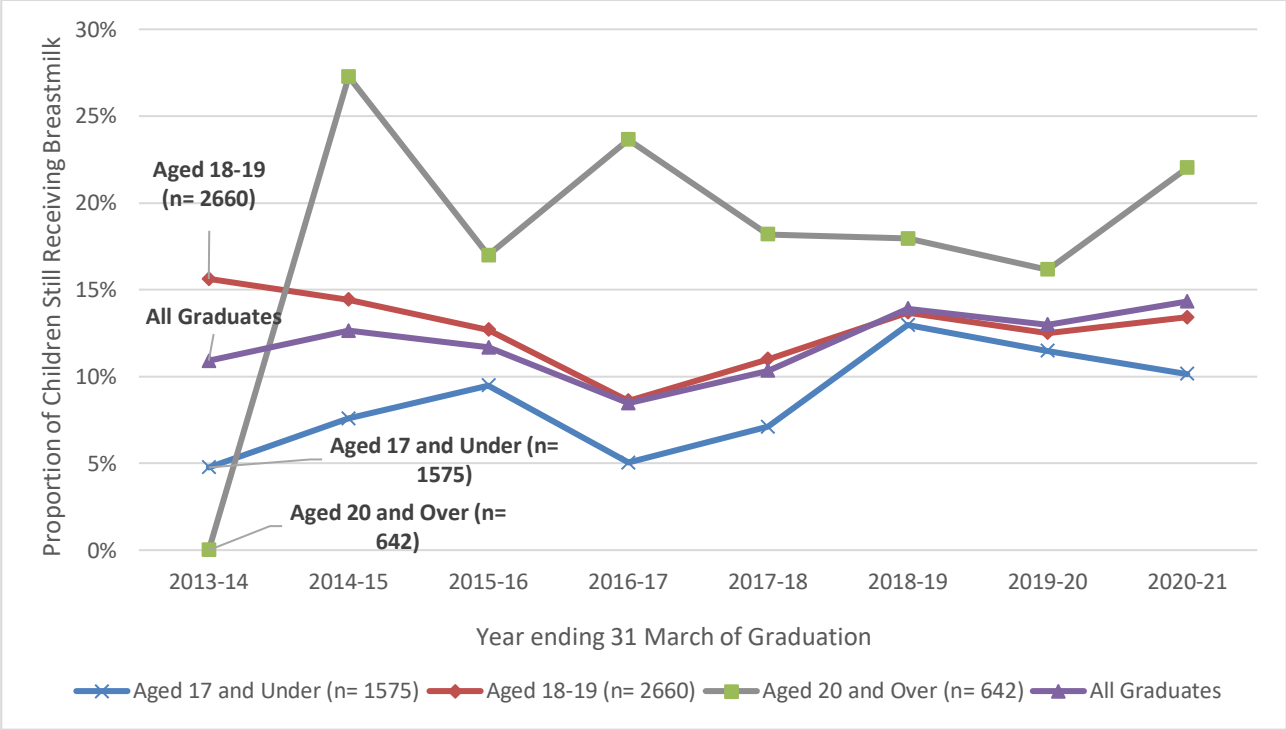
Since the commencement of FNP in Scotland, breastfeeding rates in clients that graduate from FNP have increased over time. As outlined earlier, low breastfeeding rates are influenced by a range of factors, so this shift is significant in terms of the overall effect, although it is acknowledged that rates generally remain low within this population group when compared to more affluent groups or older mothers (Chart 32).

Chart 32: Proportion of FNP graduates who breastfed at 6 weeks, 6 months, 18 months and 24 months, clients graduating before 2017 and 2019-21



Breastfeeding for longer than six months has been shown to protect babies against certain childhood diseases.[99] In Scotland as a whole, duration of breastfeeding has slightly increased in recent years. Furthmore, breastfeeding duration, which is viewed as having positive implications for longer term health of children, has also slightly increased overall in Scotland.

Chart 33: Proportion of FNP graduates breastfeeding at 6 weeks, by age of client at enrolment and year of graduation

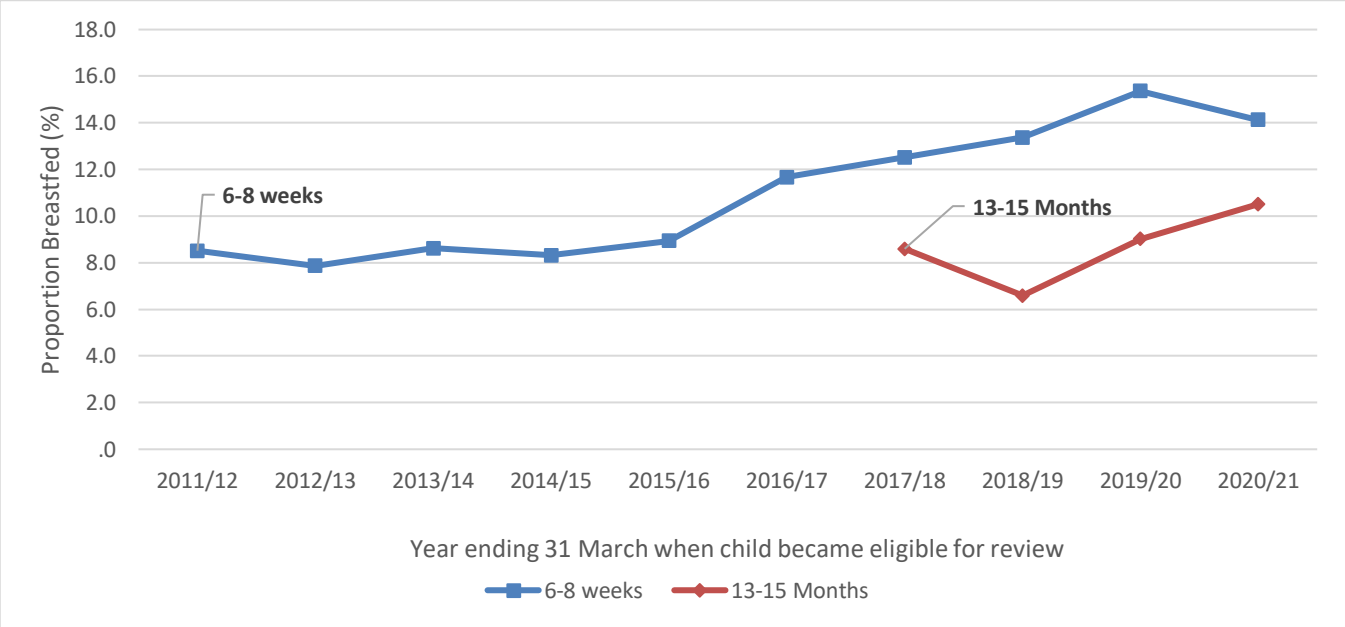


It is clear from the child health review data that the most rapid drop off in breastfeeding occurs over the first 2 weeks after birth, with a more gradual decline seen thereafter[100].

Within FNP there has been an increase in breastfeeding rates at each time-point measured and this increase has been seen across each client age group, deprivation quintile and region of Scotland. This suggests that as well as the overall increase in breastfeeding initiation in FNP clients over time, there has been an increase in maintenance of breastfeeding.

When viewing the FNP data in conjunction with the National Infant Feeding Statistics[101], the improvements in breastfeeding rates for the youngest age groups (under 20 years) is apparent and is in line with the overall rising rates of breastfeeding in Scotland nationally (Charts 34 to 36).

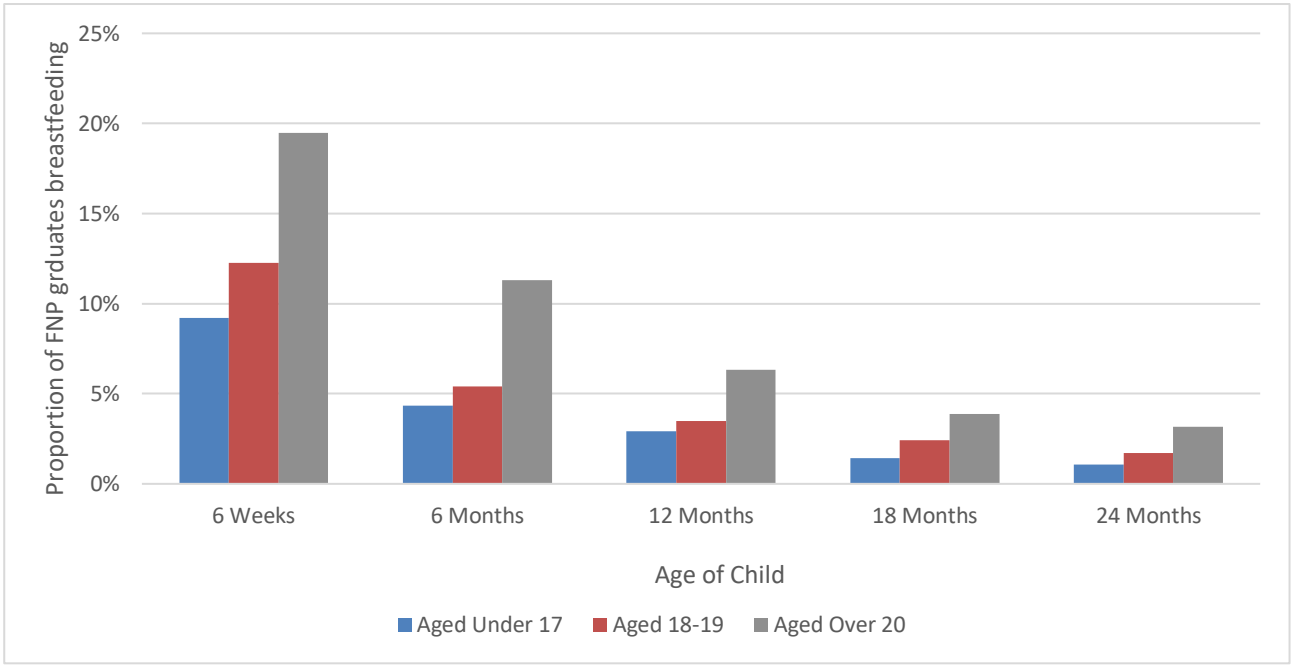
Chart 34: Proportion of all mothers in Scotland aged under 20 who breastfed at 6 week review and 13-15 month review*, by year child became eligible for review



* Data for the 13-15 month review only available from 2017/18 due to lower coverage rates in earlier years

Despite improvement across the regions and deprivation quintiles there remains a clear difference between rates in the West region, among the youngest clients and across deprivation quintiles (Charts 35 to 37).

Chart 35: Proportion of FNP graduates breastfeeding* at each time-point, by age of client at enrolment



* Breastfeeding includes exclusive breastfeeding and mixed feeding (formula and breastmilk)

Chart 36: Proportion of FNP graduates breastfeeding* at each time-point, by Region of Scotland

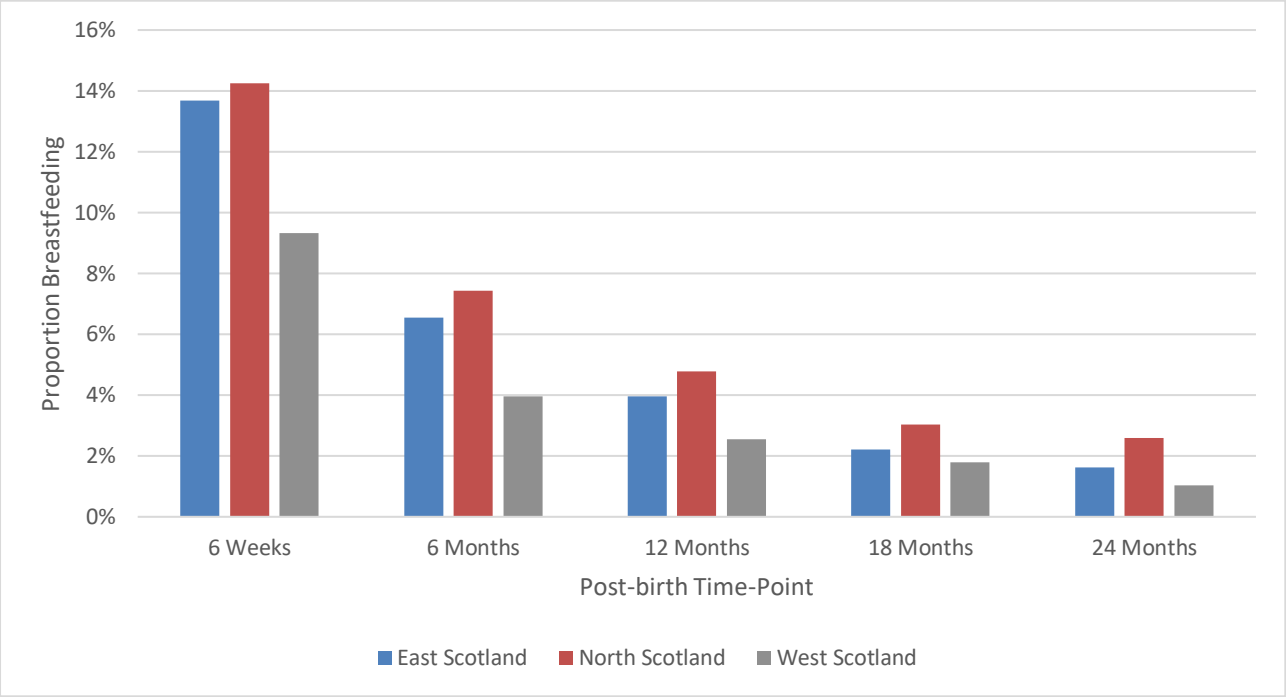
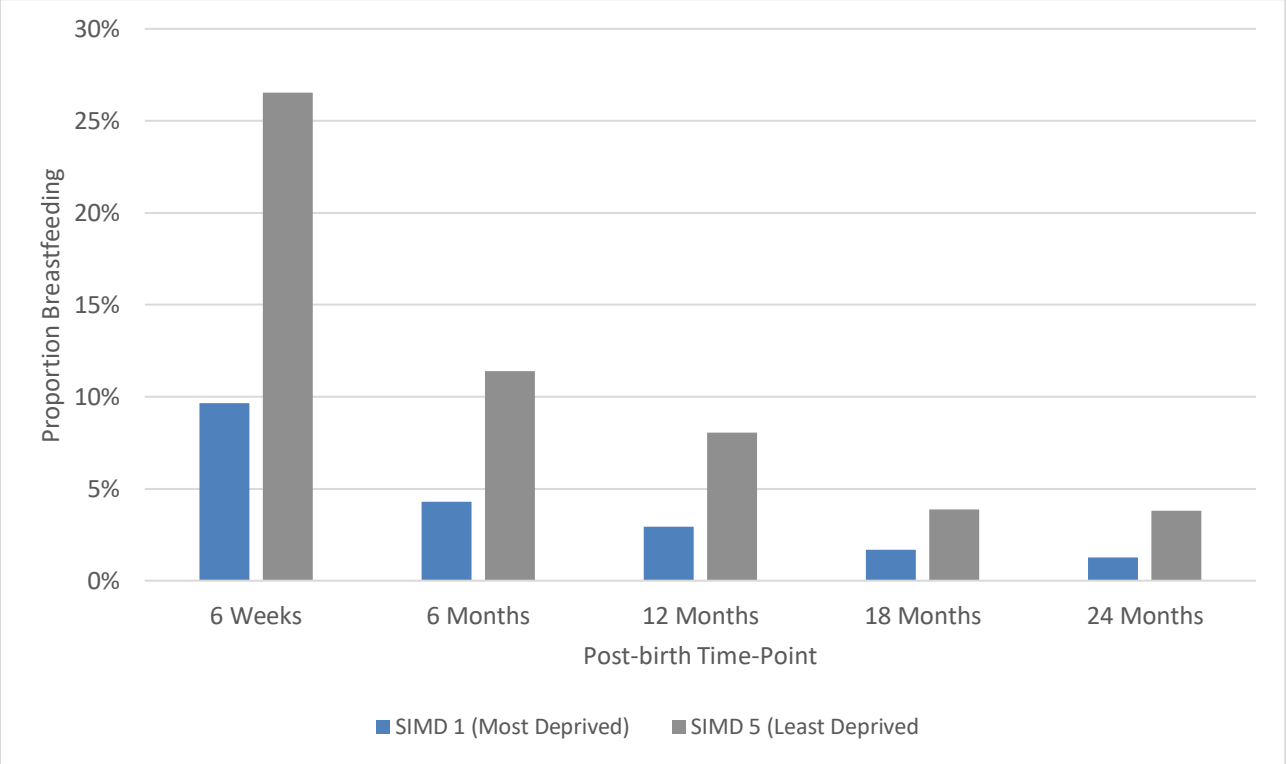


Chart 37: Proportion of FNP graduates breastfeeding at each time-point, by SIMD Deprivation Quintile

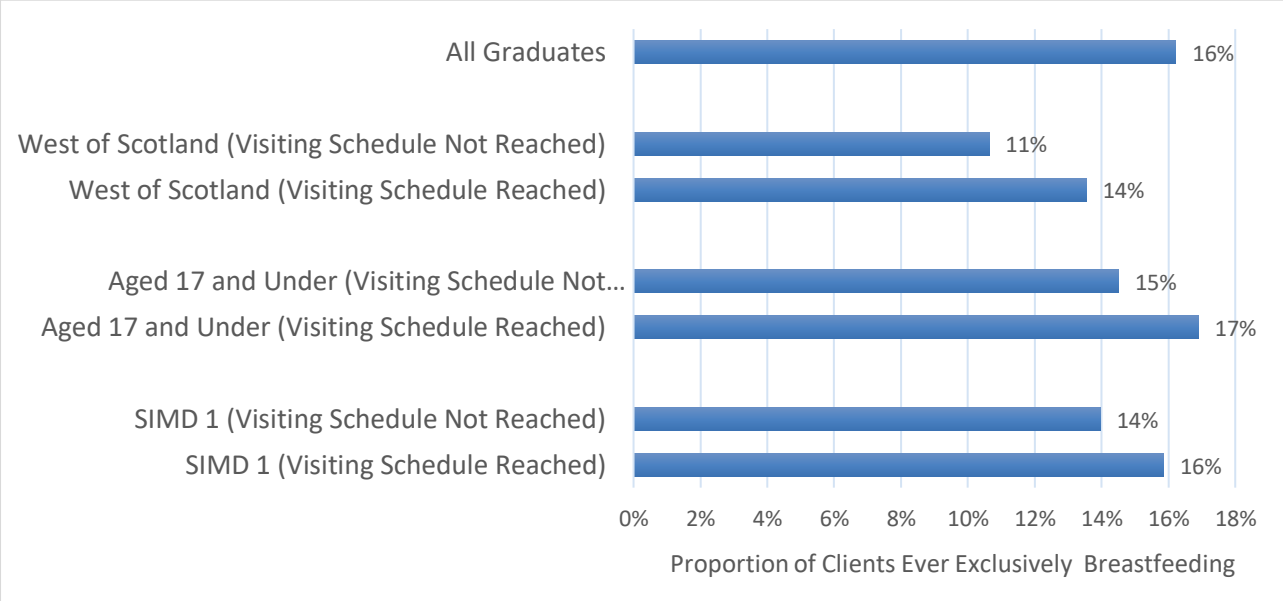


After the birth, around the time when the child is 6 weeks old, clients are asked whether their child had ever been exclusively breastfed, as opposed to mixed breastfed and formula-fed. Overall, 16% of all clients who went on to graduate stated they had breastfed exclusively. Again, clients from the West of Scotland (12%) were less likely to have exclusively breastfed as were those from the most deprived areas (SIMD 1)(15%). However, despite younger clients being less likely to breastfeed overall, exclusive breastfeeding rates were similar amongst all client age groups. As with overall breastfeeding initiation rates, exclusive breastfeeding was higher amongst those that were breastfed as a baby (27%), when compared to those that were not (12%).

Clients graduating from FNP in more recent years (2019-21) were slightly more likely to have ever exclusively breastfed (17%), when compared to those graduating prior to 2019 (16%).

As with overall breastfeeding initiation, exclusive breastfeeding was higher amongst clients who had received the benchmark number of visits during pregnancy, as per the standard visiting schedule. Almost one in five (19%) clients who had received the benchmark number of visits reported having ever exclusively breastfed, as compared to 14% of those who had not received the benchmark number of visits (Chart 38).

Chart 38: Proportion of graduates who ever exclusively breastfed, by whether or not benchmark number of visits were received during pregnancy



Evidence from other studies within FNP has been mixed in terms of findings on breastfeeding rates. An early pilot study in England found breastfeeding initiation was higher in FNP than the national rate for same age group (FNP = 63%, UK under 20s=53%)[102]. However in the later RCT in England, while more pregnant participants in FNP expressed an intention to breast feed, there was no difference in the proportion of participants in the FNP arm that initiated breastfeeding compared to those that did not receive FNP, nor in the duration of breast feeding reported at six months by participants.

However, in the Dutch trial findings indicated that significantly more women in the FNP group were still breastfeeding their baby at six months post–birth compared to those that did not receive FNP.[103]

Child Development

Early child development is influenced by both biological factors (such as being born premature) and environmental factors (such as the parenting babies and children receive and the opportunities for play and exploration). Identification and prevention of early child development concerns are important as there is a strong association with long-term health, educational, and wider social difficulties, although this is not pre-determined.

Detecting developmental problems early provides the best opportunity to support babies, children and families to improve outcomes. There is good evidence that parenting support and enriched early learning opportunities can improve outcomes for children with, or at risk of, developmental delay.[104]

All children in Scotland are offered a series of reviews as part of the CHSP which includes an assessment of children's development at 13-15 months, 27-30 months and 4-5 years[105]. The Ages and Stages Questionnaire (ASQ:3)[106] is the developmental screening tool used in Scotland to assess child health. It is the single validated tool within the Universal Health Visiting Pathway[107] and is also used in FNP. In addition to the local clinical patient record, the child's development is captured on local and national CHSP data reporting system across Scotland.

Family Nurses use a combination of supporting parents to complete ASQ:3, clinical assesment and professional judgement to determine whether an area of a child's development is of concern or not, and this is measured across five domains – communication/speech and language[xx], fine motor, gross motor, problem solving and personal/social development. For each domain, there is a cut-off score, and a child scoring below this indicates a possible developmental concern. The ages at which ASQ:3 has typically been measured in FNP are 4 months, 8 months[xxi], 14 months, and 20 months, however the coverage of data captured in the FNP data system varies widely between these age groups.

Child Development at 4 months

Overall, the majority of children (80%) of clients who went on to graduate from FNP had ASQ:3 data recorded for the 4 month time-point (4,064 children). Of the children assessed, the majority (94.6%) did not have a score indicating a developmental concern[xxii]. Just over 1 in 20 (5.4%) children had a score indicating a developmental concern for at least one of the five ASQ:3 domains at 4 months. The domains for which children most frequently had

[xx] For the domains the term communication is generally used for children aged under 18 months and speech and language for children over 18 months to measure development in communication skills.

[xxi] The timing of the 8 month review has changed over the course of the delivery of FNP. At initiation there was a 10 month review, however this was changed to take place at 8 months to better align with the Health Visiting Pathway child health reviews.

[xxii] A developmental concern is indicated by a score falling below the relevant ASQ:3 threshold score for a particular time-point and domain.

a concern recorded at 4 months were gross motor (2.8%) and problem solving (2.6%), followed by fine motor (1.4%), personal/social (0.9%) and communication (0.7%) (Chart 43).

The proportion of children with at least one concern noted at 4 months was consistent geographically, across time and across deprivation quintiles. There was a slightly higher proportion of children with at least one concern at 4 months for children of clients aged 20 and older (7.7%), compared to clients aged under 20 (5.1%).

Child Development at 8 months

Within FNP, ASQ:3 is now measured at 8 months (to better align with the Health Visiting Pathway Child Health Reviews), however in some cases this data was previously captured at 10 months rather than 8 months. As such, the migration of data to the Turas FNP system has been problematic due to the differing time points.

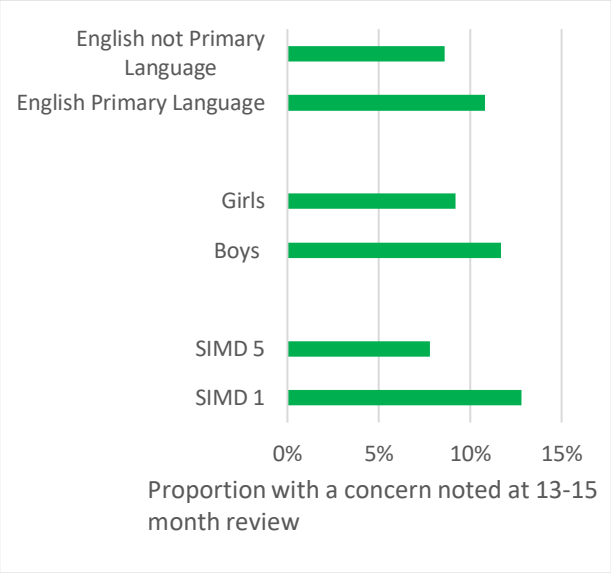
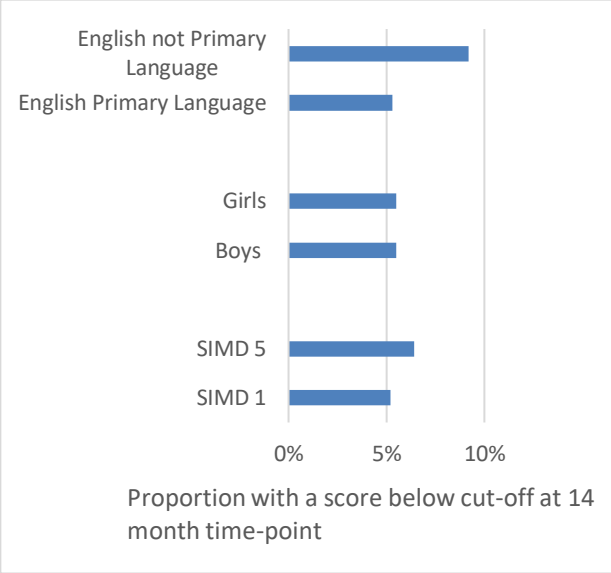
Overall, just under one in four children (23%) of clients who went on to graduate from FNP have ASQ:3 data recorded at 8 months (1163 children). Of the children assessed at 8 months, the majority (90.2%) did not have a developmental concern. However, (9.8%) had a concern noted for at least one of the five ASQ:3 domains.

Child Development at 14 months

At 14 months, two thirds (67%) of children of clients who went on to graduate from FNP had ASQ:3 data recorded (3,428 children). Of the children assessed the majority did not have a developmental concern recorded (94.5%). One in twenty (5.5%) had a developmental concern noted for at least one of the five ASQ:3 domains. At 14 months gross motor skills was the domain with the most children having a concern recorded (4.4%), while fine motor skills (1.1%), problem solving (1.2%), personal/social (0.5%) and communication (1.0%) domains each had a relatively low proportion with a concern.

When observing the CHSP data captured nationally for all children at the 13-15 month child health reviews between 2017/18 and 2019/20, overall coverage was 70%, with an increase in uptake over time. The most common domain in which developmental concerns were recorded was gross motor (5.8%), followed by speech, language and communication (4.2%), problem solving (2.9%), fine motor (2.8%), and personal/ social (2.2%). This is similar to the FNP ASQ:3 data in respect to gross motor concerns being the most common at this time-point, however there is a notably higher prevalence of speech, language and communication concerns noted in the nationally captured CHSP data than was observed in the FNP ASQ:3 data.

In the CHSP data captured nationally at 13-15 month child health reviews between 2017/18 to 2019/20, there was a higher proportion of children with a concern recorded across any domain in SIMD 1 (12.8%), than SIMD 5 (7.8%), and a higher proportion of boys (11.7%) with a concern than girls (9.2%) (Chart 39).

Chart 39: Proportion of Children with a developmental concern noted in any domain at **National 13-15 month Child Health Reviews**	**Chart 40:** Proportion of **Children in FNP** with an ASQ:3 score falling below cutoff in any domain at 14 month time-point
	

Contrary to data captured in 13-15 month reviews, in the FNP ASQ:3 data, there was a similar rate of concerns recorded for children in SIMD 1 (5.2%) and SIMD 5 (6.4%) and amongst boys (5.5%) and girls (5.5%) (Chart 40). There was also a higher proportion of concerns amongst the children of clients who spoke a language other than English at intake (9.2%) in the FNP data, but this difference was not observed in 13-15 month reviews captured in the CHSP for children who lived in households where English was not the main language spoken.

Child Development at 20 months

At 20 months almost two thirds (63%) of children of clients who went on to graduate from FNP had ASQ:3 data recorded (3,119 children). Of the children assessed, the majority did not have a developmental concern noted (88.5%). However, of the 11.5% that did have a developmental concern, this was most likely to be for communication than any other domain (8.0%). This was followed by personal social (3.6%), fine motor skills (2.9%), gross motor skills (2.4%), and problem solving (1.1%)
The proportion of children with at least one developmental concern at 20 months was consistent geographically, across deprivation quintiles and between boys and girls.

Again, the proportion with at least one concern was also higher amongst children of mothers who did not speak English as their primary language (13.6%). Children of mothers aged 20 and over at enrolment were also slightly more likely to have a concern noted (13.7%) than those whose mothers were aged 18-19 (11.1%) or 17 and under (11.4%) at enrolment.

At the 20 month review a slightly higher proportion of children of clients graduating between 2019-21 (13.1%) had a developmental conccern noted, compared with those graduating prior to 2017 (9.3%). This was particularly the case for children of clients who graduated in the most recent year (2020-21), for whom 14.4% had a concern at this time-point. There was also an increase in the proportion of children with a concern at 20 months in each individual domain, apart from personal-social, with a particular increase in the communication domain (Chart 41).

Chart 41: Proportion of children in FNP with an ASQ:3 score falling below cutoff in each domain at 20 months, by year of graduation

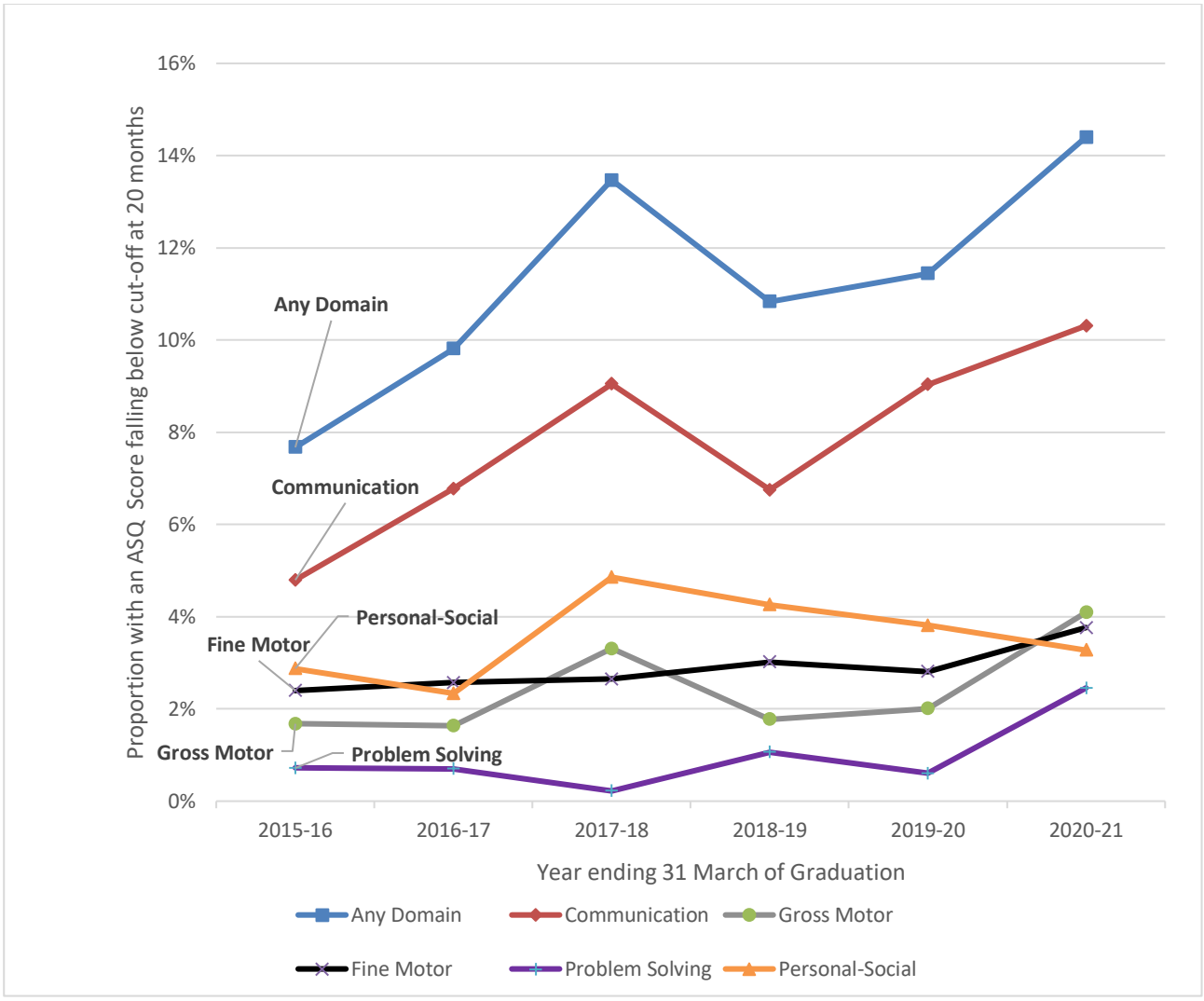
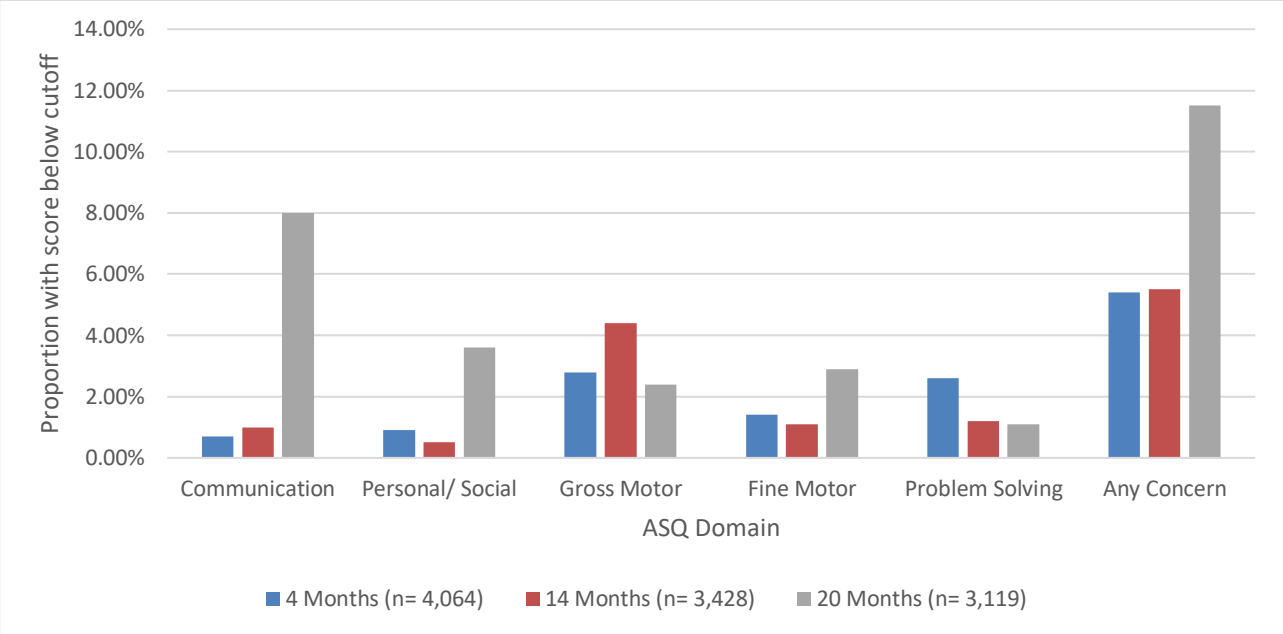


Chart 42: Proportion of children in FNP with an ASQ:3 score falling below cutoff in each domain and time-point



COVID-19 pandemic and Child Development

The findings above noting an increase in the proportion of children with a developmental concern at 20 months in 2020/21 are consistent with other findings more broadly in terms of developmental concerns recorded during the COVID-19 pandmic. For example, in Scotland overall there has been evidence of an increase in developmental concerns at the 13-15 month and 27-30 months review point during the pandemic. The proportion of children with a developmental concern recorded during 2021 increased to 11.3% at the 13-15 month review (up from a pre-pandemic baseline of 9.6%) (Chart 43) and to 17.0% at the 27-30 month review (up from a prepandemic baseline of 14.6%) (Chart 44)[108].

Chart 43: Proportion of Children in Scotland with a developmental concern recorded at their 13-15 month review, January 2020 – December 2021

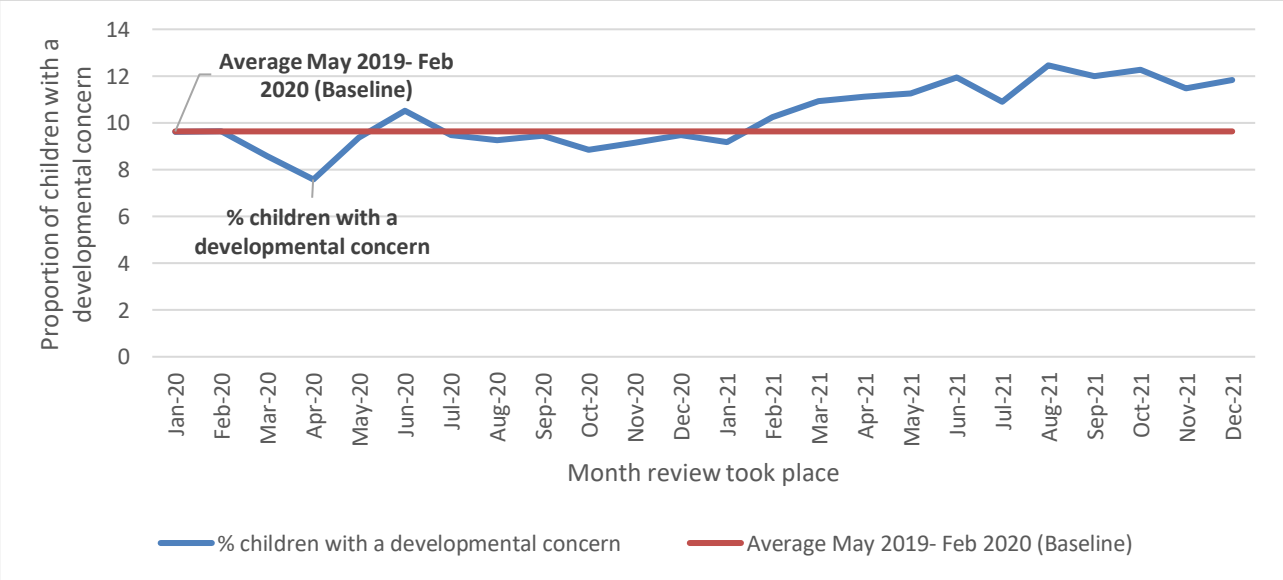
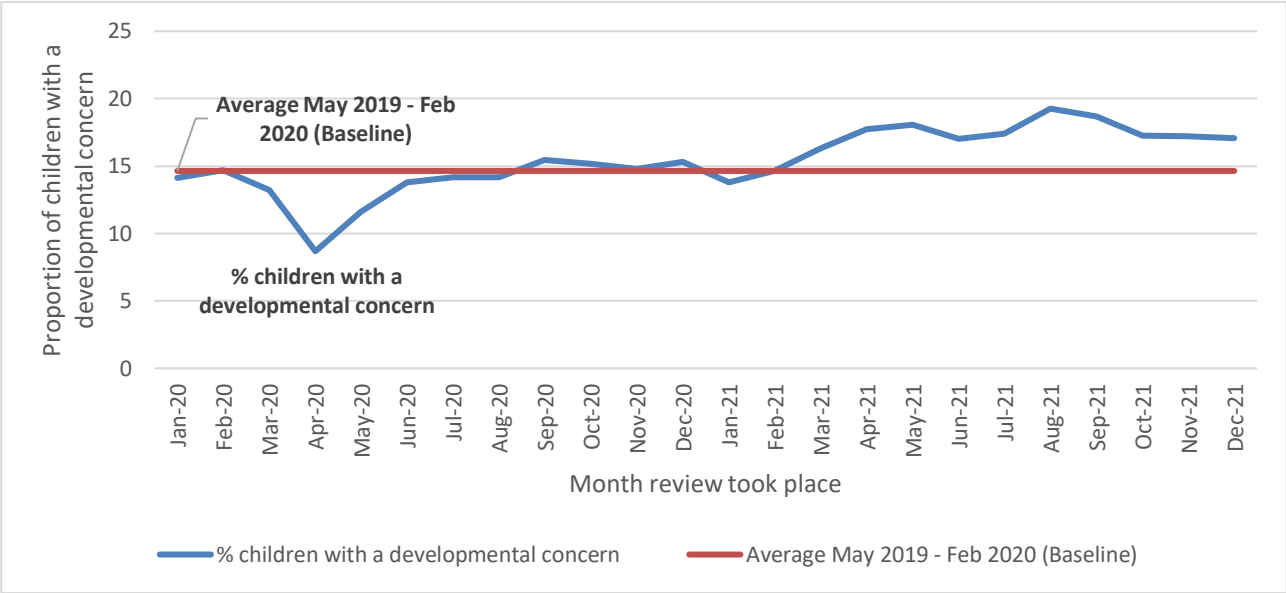


Chart 44: Proportion of children in Scotland with a developmental concern recorded at their 27-30 month review, January 2020 – December 2021



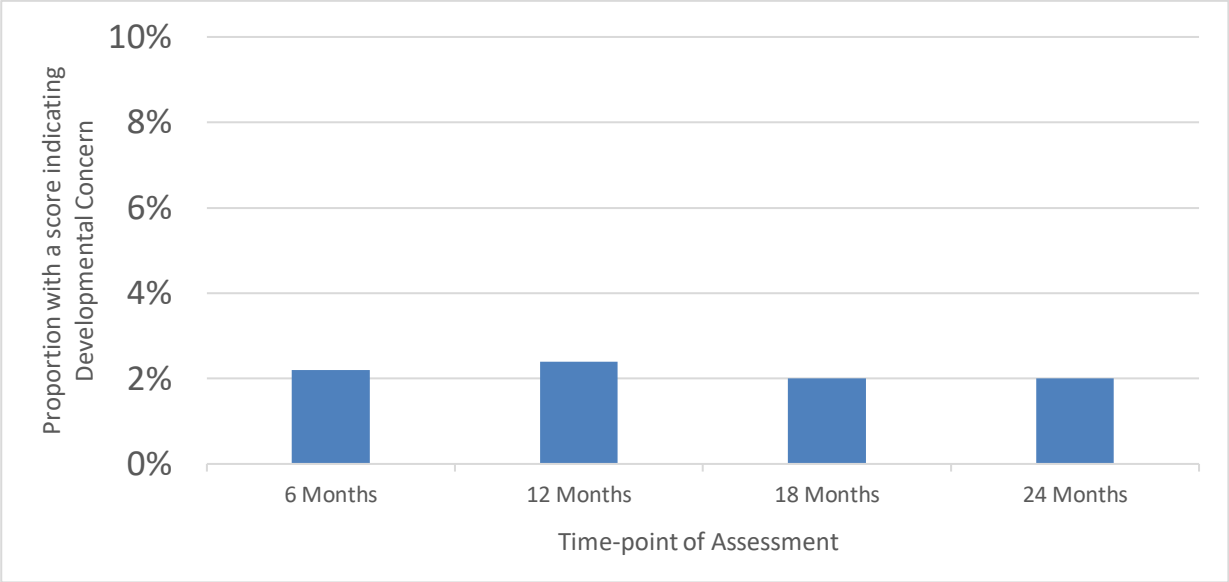
Child Development Social and Emotional Measures

The Ages and Stages Questionnaire: Social-Emotional (ASQ:SE) is another tool used in FNP which specifically measures 7 areas of social-emotional development of the child: self-regulation, compliance, social-communication, adaptive functioning, autonomy, affect, and interaction with people. This includes how well the child can regulate their emotions, understand the emotions of others and their general level of empathy. This tool can be used to help parents to identify their child's strengths and areas of problem behaviours, which can help support decisions regarding referrals for additional support.

In FNP, ASQ:SE is completed at 6 months, 12 months, 18 months and 24 months. While this tool can be used in health visiting it is not routinely completed at certain time points like it is in FNP, which means there is no national data to compare to. Of the children of clients who went on to graduate from FNP, there was a higher and more consistent proportion of valid data recorded for ASQ:SE assessments than for ASQ:3 assessments, with 85-89% having valid ASQ:SE data recorded on the FNP data system.

There was also a relatively low proportion of children with a score indicating a developmental concern indicated for each time-point of ASQ:SE assessment. 2.2% of children had a score indicating a concern in social-emotional development at 6 months, 2.4% at 12 months, 2.0% at 18 months and 2.0% at 24 months (Chart 45). This was also largely consistent across demographic groups, geographical areas and over time

Chart 45: Proportion of children in FNP with an ASQ:SE indicating a developmental concern, at 6 months, 12 months, 18 months and 24 months



Immunisations, Hospital Attendances and Admissions

Immunisations

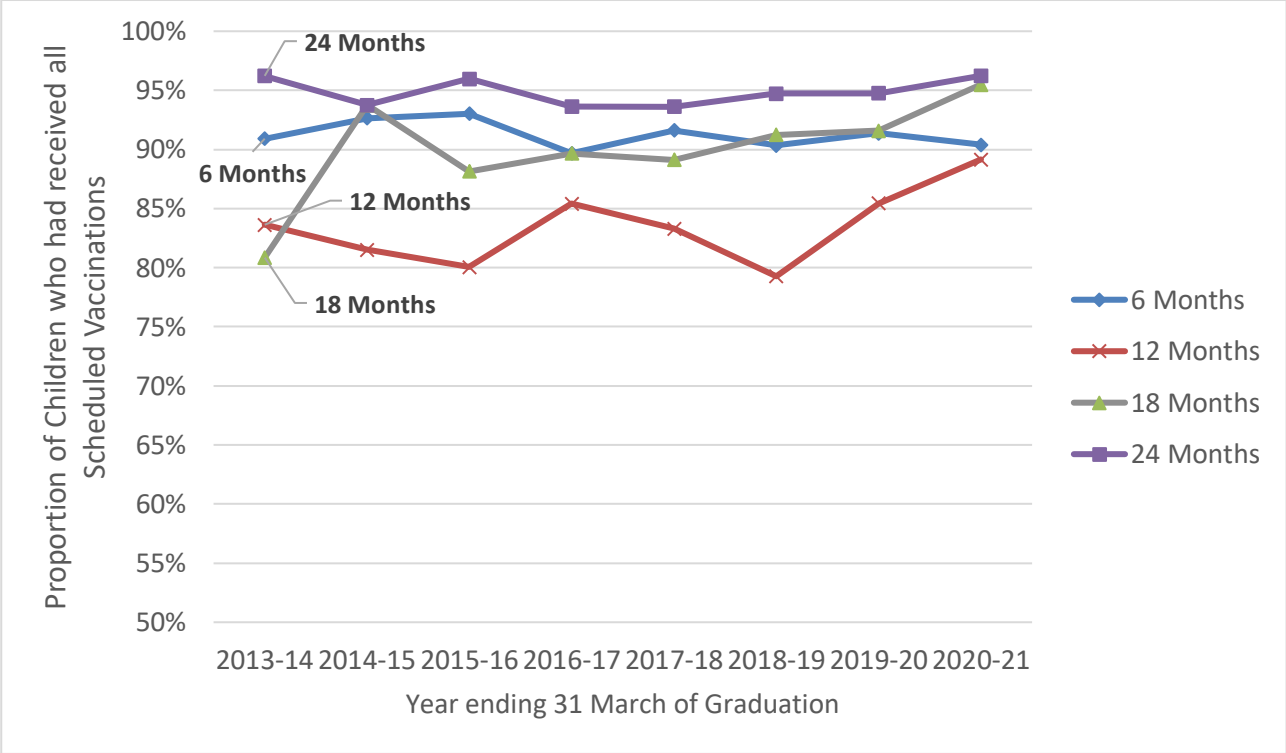
The routine immunisation programme for children and young people in Scotland includes a series of vaccinations at 8 weeks, 12 weeks, 16 weeks, 12 to 13 months and two years old. Annex 3 provides a summary of the vaccines offered at each time point up to two years old and the diseases they protect children against.
Public Health Scotland's quarterly and annual Childhood Immunisation Statistics publications provide information on the proportion of children receiving scheduled immunisations by 12 months old and 24 months old. The latest publication of these statistics reported that, in the year ending 31 March 2021, immunisations offered between birth and 12 months old had uptake rates of between 94.2% and 97.1%, and that immunisations offered between birth and 24 months old had uptake rates of between 94.5% and 97.3%. At a national level, uptake rates appear to have remained consistently high across the immunisations offered and across the time period within which FNP has been offered in Scotland, with rates typically exceeding 95%[109].

In FNP, data is captured on whether or not a child has received all scheduled vaccinations by 6 months, 12 months, 18 months and 24 months old.

As shown in Chart 14, the proportion of children in FNP who had received all scheduled vaccinations at the 6, 12, 18 and 24 month timepoints varied. Children were least likely to have received all scheduled vaccinations at the 12 month time-point, however there is a known issue with this data in that vaccinations are often completed at 13 months and the data at 12 months can often experience a data lag.

Vaccine uptake by 6 months and 18 months was consistently around or just above 90% across most years of FNP. Children were most likely to have received all scheduled immunisations by 24 months old – with uptake typically exceeding 95%, in line with national uptake rates. This suggests that most of the small group of children who had not received particular immunisations at earlier time-points had caught up with their immunisations by 2 years old (Chart 46).

Chart 46: Proportion of children receiving all scheduled immunisations at each time-point recorded, by year of graduation from FNP



Although there was no substantial geographical variation between regions of Scotland when comparing the likelihood of children having received all scheduled immunisations by 24 months, there were some differences across demographic groups. At 6 months, 18 months and 24 months, there is a correlation between maternal age and the likelihood of children recieiving all scheduled immunisations. Children of FNP clients who were aged 17 and under at enrolment were less likely to have received all scheduled immunisations than children of mothers aged 18-19, who were in turn less likely than children whose mothers were aged 20 and over.

Children of clients who did not speak English as their primary language were less likely to have received all scheduled immunisations by 6 months and 18 months. Children from more deprived areas were slightly less likely to have received all scheduled immunisations at each time-point, but only notably so at 12 months. (Table 10).

Table 10: Proportion of children receiving all scheduled immunisations at each time-point recorded, by client demographics

Time-point	6 Months	12 Months	18 Months	24 Months
All Graduates	**91%**	**84%**	**91%**	**95%**
English Primary Language	91%	84%	92%	97%
English not Primary Language	87%	82%	83%	94%
Aged Under 17	87%	83%	90%	95%
Aged 18-19	93%	84%	91%	95%
Aged 20 and over	95%	86%	94%	96%
SIMD Quintile 1 (Most Deprived)	90%	83%	91%	94%
SIMD Quintile 5 (Least Deprived)	92%	90%	93%	97%

Neonatal Unit Admissions

Every year, over 100,000 babies in the UK are cared for in neonatal units because they have either been born prematurely (before 37 weeks of pregnancy), or full term (after 37 weeks) but require additional care. This means that around 1 in 7 (14%) babies born in the UK are admitted to a neonatal unit each year. The majority of babies who receive neonatal care are born full term. In 2016, of the 100,762 babies who received neonatal care in England, Scotland and Wales, only 1.2 per cent were born before 25 weeks[110].

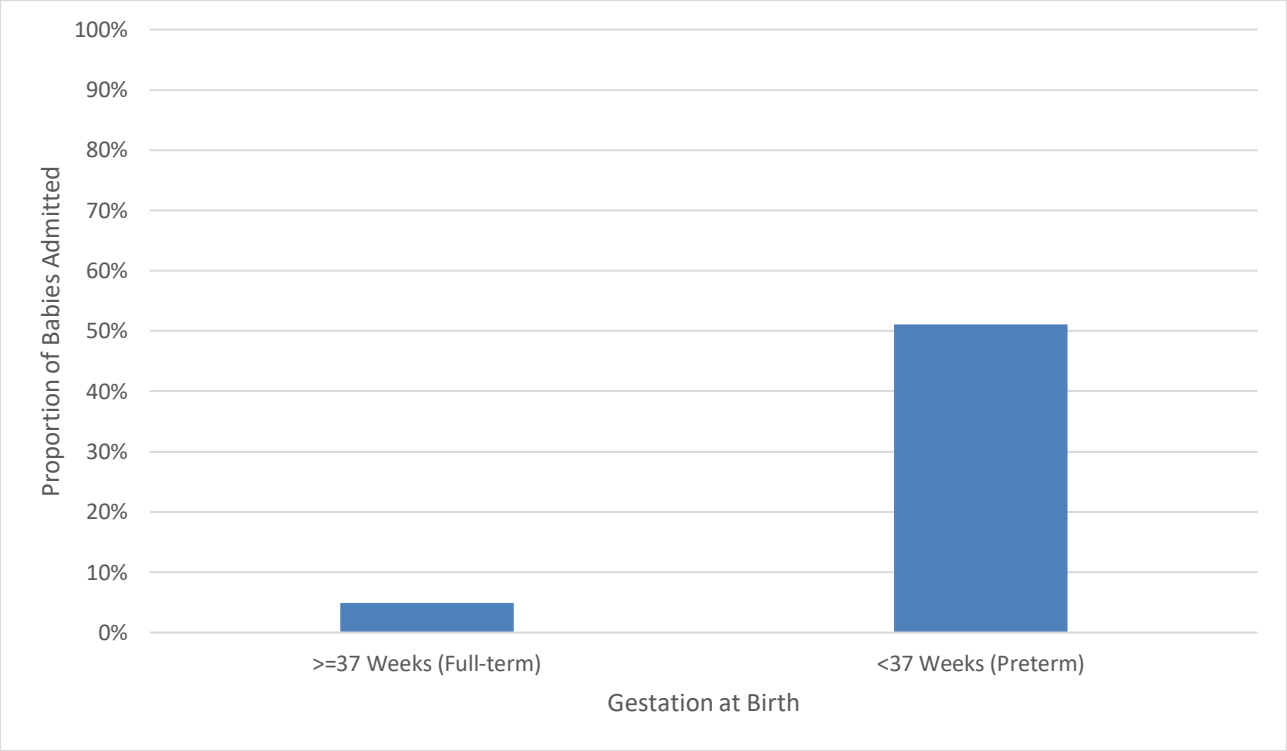
Overall in Scotland around 9-12% of all babies were admitted to neonatal unit or special care baby units (SCBU) between 2008 and 2021. Babies born to mothers living in the most deprived areas were around 3% more likely to be admitted than those in the least deprived areas[111].

In FNP, data about admission to neonatal or SCBU is collected at 6 weeks post-birth. Overall, 430 babies had been admitted to a neonatal unit or SCBU, representing 9% of babies born during FNP programme delivery.

There was a much higher proportion of preterm babies (gestation under 37 weeks) who were admitted to a neonatal unit. Over half of preterm births (51%), compared to just one in twenty full-term births (5%) were admitted. Despite less than one in ten babies being born preterm (9%), they represented almost half of neonatal unit and SCBU admissions (49%) (Chart 47).

The proportion of babies overall who were admitted to a neonatal unit or SCBU was largely consistent across demographic groups, deprivation quintiles geographically and over time, and this was the case for both preterm and full-term births.

Chart 47: Proportion of preterm and full-term babies who were admitted to a Neonatal Unit or Special Care Baby Unit



Hospital Attendances and Admissions

Overall few children are admitted to hospital in their earliest years, however for those that are studies have shown that the risk of accidents and hospital admissions decreased with increasing maternal age. For instance, analysis of the Millenium Cohort data showed that at nine months, the risk of a child with a 20 year old mother having an accident was 9.5%; this fell to 6.1% for a mother of 40. This decline continued for three and five year olds[112]. Similarly, at nine months, the risk of a child with a 20 year old mother being hospitalised was 16% which fell to 10.7% for a mother of 40. This trend continued to three year olds, but was not statistically significant for five year olds[113].

Accident and Emergency Attendances

FNP clients were asked at 6 months, 12 months, 18 months and 24 months post-birth whether their child had attended Accident and Emergency (A&E) at any time in the previous 6 months (Chart 48).

In total, 672 children (13%) had attended A&E between birth and 12 months old. There was a higher proportion of children of clients who spoke English as a primary language at intake (14%) who had attended than those who did not (5%). There was a slightly higher proportion of children from the least deprived areas (SIMD 5) (18%) who had attended A&E up to 12 months old than other deprivation quintiles (13%). There was also a slightly higher proportion of children of clients aged 17 and under (15%) who had attended A&E when compared to those aged 18-19 (13%) and 20 and over (12%). The proportion of

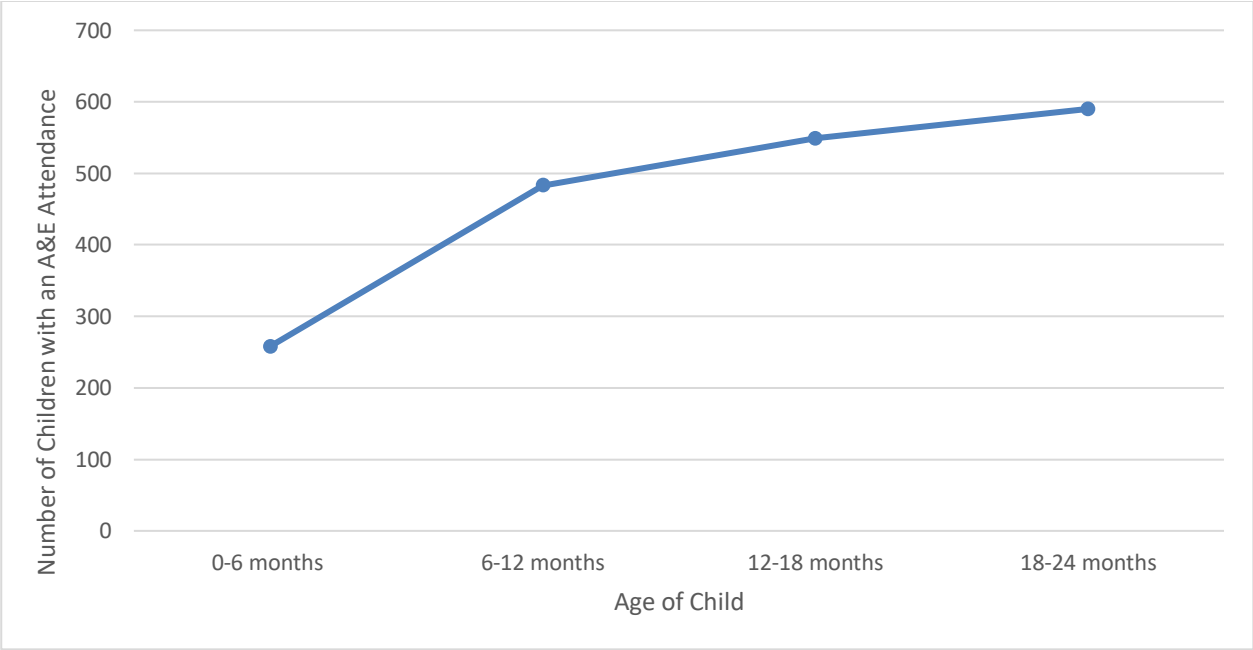
children attending A&E up to 12 months old was broadly similar across regions of Scotland and over time.

In total, 981 children (20%) had attended A&E between 12 months and 24 months old. There was a higher proportion of children of client's who spoke English as a primary language at intake (20%) who had attended than those who did not (7%). The proportion of children attending A&E between 12 and 24 months old was broadly similar across regions of Scotland, deprivation quintiles, client age groups and over time.

When viewing the total number of children who had attended A&E at any time between birth and 24 months old, 1423 children (28%) had attended. There was a higher proportion of children of clients who spoke English as a primary language at intake (29%) who had attended than those who did not (12%). There was a slightly higher proportion of those from the least deprived areas (32%) who had attended than those from the most deprived areas (28%). Children of clients aged under 20 (29%) were slightly more likely to have had an attendance than those aged 20 and over (25%). The proportion of children attending A&E up to 12 months old was broadly similar across regions of Scotland and over time.

The findings above are similar to those found in the Growing Up in Scotland study, which found that accidents requiring medical attention were relatively uncommon at 10 months, but doubled in the following year (from 10% to 23%)[114].

Chart 48: Number of children who had an A&E attendance recorded, by post-birth time-point



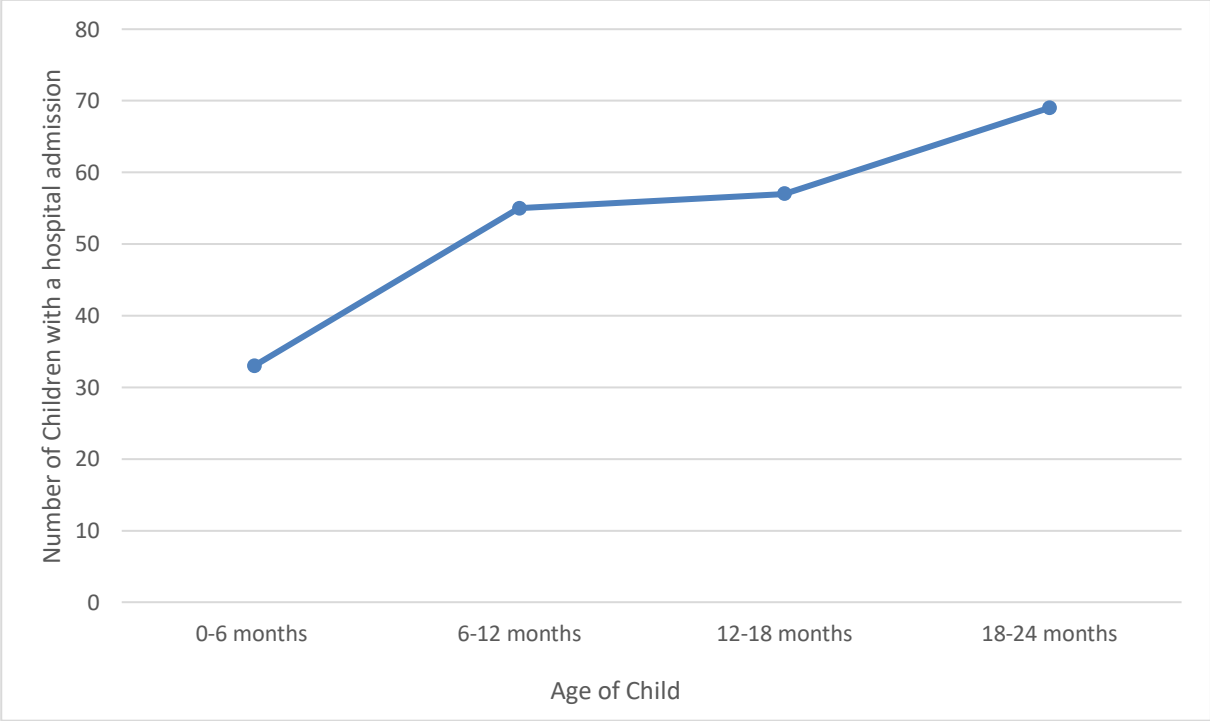
Hospital Admissions

FNP clients were also asked at 6 months, 12 months, 18 months and 24 months post-birth whether their child had been admitted to hospital at any time in the previous 6 months (Chart 49).

Other than Neonatal Unit and SCBU admissions noted above, 33 children had a hospital admission recorded between birth and 6 months old. This increased at subsequent time-points, to 55 children being admitted between 6 and 12 months old, 57 being admitted between 12 and 18 months old, and 69 being admitted between 18 and 24 months old (Chart 49).

Overall, 3.8% (N=192) children had a hospital admission recorded between birth and 24 months. The rate of children with a hospital admission recorded appears to be similar across client age groups, deprivation quintiles, geographically, and over time. However, as with A&E attendances, there appeared to be a lower rate of hospital admission amongst children of mothers who did not speak English as a first language at intake.

Chart 49: Number of children who had a hospital admission recorded, by 24 months post-birth (6 month intervals)



Conclusion

This report has demonstrated that the majority of young parents that enter FNP have had significant complex challenges, with varying impacts on their lives. These experiences can impact on individual social, emotional and physical wellbeing, which can lead to inequalities of outcomes. FNP clients are young first time mothers, many of whom have experienced anxiety and depression (63%), social deprivation, parental separation and a high proportion have been care experienced or on the child protection register (22%). The prevalence of abuse and neglect, mental health issues, homelessness and poverty are found to be much more prevalent in the FNP client group than in the general population, which provides some insight into the competing demands faced by these young mothers as they enter their journey to parenthood and the support that family nurses seek to empower these young mothers to engage with, if needed.

Despite the challenges, FNP clients demonstrate determination to improve their lives and that of their children by voluntarily participating in FNP as a long term intervention, **with the majority of clients completing the programme and graduating (80%).** The commitment of clients and their partners to have regular home visits from a Family Nurse for two and a half years should not be underestimated.

Alongside their new parenting journey, FNP clients also take up or return to education and employment with those in work or education post-birth increasing across all age groups, SIMD quintiles and regions: from 20% in work and/ or education at 6 months post-birth to 40% at 24 months post birth. However, this is still lower than the proportion in work or education at enrolment onto the programme in pregnancy.

The FNP programme has been shown to have been well implemented across Scotland, maintaining adherence to almost all of the benchmarks. Enrolment and graduation rates remain high despite a shift in the profile, over time, of young women who become pregnant and go on to give birth to their child. The majority of client visits reach the benchmark of 60 minutes per visit and there are some findings that indicate longer visits for those that may need it. The data from FNP does evidence some of the changes seen in the Scottish Birth Data, with fewer young people maintaining their pregnancy to birth, and those that do largely being from the most deprived areas of Scotland.

Wider evidence demonstrates that behaviours such as smoking and drug and alcohol use are influenced by wider social environments and relationships. These behaviours are apparent among the FNP clients, however, **there is a reduction in smoking rates at 36 weeks gestation and 12 months post-birth, although this is not always maintained**.

The data shows an **improvement over time in breastfeeding initiation and duration of feeding among younger mothers, evidenced in the FNP data but also echoed in national data in recent years**, with young mothers showing the largest proportional increase in feeding rates at first visit and 6-8 weeks post birth.

Levels of concerns about child development within FNP are low. Similar to the findings of the Building Blocks trials in England, **fewer FNP children have a concern recorded about communcation/speech and language at 14 months (1.0%) compared to the national CHSP data (4.2%) at 13-15 months.**

There are also improvements to be made to the delivery of FNP however. There is variation in the point of gestation of clients at enrolment. Not all clients receive the optimal number of visits as outlined in the standard visiting schedule. Given that programme dosage has been shown in this report to be linked to outcomes, ensuring programme delivery continues to be monitored and improved going forward is essential to understanding the programme overall and delivering the best possible service for FNP families.

This report is the beginning of the reflective process of the implementation of FNP in Scotland. Consideration of data often leads to further questions; there is a need to understand more about the outcomes and impact of FNP. A deeper analysis into some aspects to more fully understand the contributing factors alongside a fuller understanding from clients themselves will be undertaken in due course. As the programme continues to be developed the role of data in measuring the outcomes alongside the lived experiences of FNP clients and the workforce will be vital. Effectively capturing and analysing data will be essential in ensuring that the programme continues to be delivered with quality within a culture of learning, adaptation and improvement. Furthermore, as the children of FNP grow and develop it is important to consider how the longer term impacts of FNP can be better understood.

Annex 1

FNP Scotland Core Model Elements

Core Model Elements (CME) 1: Client participates voluntarily in the Family Nurse Partnership (FNP) programme

Definition:
Family Nurse Partnership (FNP) clients participate voluntarily in the program. In all situations, clients must be enabled to understand that they are participating in the programme voluntarily and that they may withdraw from the program at any time. Written materials, including pamphlets setting out the voluntary nature of the programme and/or signed consent should be used to support this.

Core Model Elements (CME) 2: Client is a first-time mother who can receive the programme

Definition:
First-time mother is either a nulliparous woman (i.e. has experienced no previous live births) or has never parented a child before. Women who have experienced a neonatal death, have had a child removed from their care immediately after birth, or had their first baby adopted immediately after birth would therefore be eligible for inclusion in the programme.

Core Model Elements (CME) 3: Client meets socioeconomic disadvantage criteria at intake

Definition:
In broad terms “socio-economic disadvantage” means living on a low income compared to others in Scotland, with little or no accumulated wealth, leading to greater material deprivation, restricting the ability to access basic goods and services. Socio-economic disadvantage can be experienced in both places and communities of interest, leading to further negative outcomes such as social exclusion (Scottish Government 2018).

Core Model Elements (CME) 4: Client is enrolled in the programme early in her pregnancy and receives her first home visit no later than the 28th week of pregnancy.

Definition:
A client is considered to be enrolled when they receive their first FNP visit and any necessary consent forms have been signed. Prior to this, FNP nurses may undertake pre-enrolment visits to assess a woman’s eligibility explain the programme to the prospective client and invite them to participate. The 28th week of pregnancy is defined as no more than 28 weeks and 6 days of gestation.

Core Model Elements (CME) 5: Each client is assigned an identified FNP nurse who establishes a therapeutic relationship through individual FNP home visits

Definition:
The process of developing and maintaining relationships is central to nursing professional practice. A specific type of relationship, the therapeutic relationship, is developed between the assigned FNP nurse and the client through the one-to-one home visits that occur over the duration of the programme. The overarching core competency for a FNP nurse is: The ability to support and maintain a therapeutic relationship with each client and use FNP programme methods to enable necessary changes in understanding, capabilities, and behaviours; ensuring the mother is able to nurture, develop and protect her child and herself from harm.

Core Model Elements (CME) 6: Client is visited face-to-face in the home, or occasionally in another setting (mutually determined by the Family nurse and client), when this is not possible.

Definition:
The programme is delivered in the client's home, which is defined as the place where she is currently residing and/or to which she feels an emotional connection. Her home can be a shelter, refuge, mother & baby home or a situation in which she is temporarily living with family or friends for the majority of the time. Meeting with the client in this kind of living arrangement should be considered as meeting with her in her home.

Core Model Elements (CME) 7: Client is visited throughout her pregnancy and the first two years of her child's life in accordance with the current standard FNP visit schedule or an alternative visit schedule agreed upon between the client and nurse.

Definition:
The client (and boyfriend, partner, and/or family when appropriate) is visited throughout her pregnancy and the first two years of her child's life. A schedule of visits with proposed content has been developed for the programme to: match the expected stage of programme delivery and public health issues; schedule assessments for maternal, or child health and development; build the therapeutic relationship; and support achievement of three program goals.

The standard schedule of visits is established as:

- Four weekly visits upon initial enrolment prenatally, then every other week until delivery
- Six weekly visits after infant birth, followed by visits every other week until the baby is 21 months of age
- Monthly visits from 21 through 24 months of age.

An Alternate Visit Schedule is defined as any planned visit schedule other than noted in the standard schedule. The mothers and children enrolled in FNP deserve the support that can be provided throughout the full length of the programme. It is also often the case that a client's circumstances and needs will alter over the course of the programme, becoming more, as well as less, acute over time. Therefore, it is expected that the programme will continue until the child's second birthday for all clients regardless of visit schedule.

Core Model Elements (CME) 8: FNP nurses and supervisors are registered nurses or midwives with a minimum education at degree level

Definition:
FNP requires that a registered nurse or registered midwife deliver the program. Similarly, all FNP supervisors must also be registered nurses/midwives. A registered nurse/midwife is someone recognised as professionally licensed or regulated in either or both of these professional roles according to the policies of the FNP host country. All FNP nurses (defined as a registered nurse or midwife for the remainder of this document) should hold a minimum education at degree level in nursing /midwifery. FNP nurses are usually hired by the implementing agency/site, which will have its own recruitment rules and processes. It is expected that license holders/National Units in each country will assure themselves that this process results in the employment of FNP nurses and supervisors with a valid registered professional license (nurse or midwife), baccalaureate/bachelor's degree, and the desired skills, knowledge and abilities required to successful deliver the FNP program. In addition to these academic qualifications, nurses must have personal qualities, values, and beliefs that will ensure that she is a good fit with the spirit of FNP.

Core Model Elements (CME) 9: FNP nurses and supervisors develop the core FNP competencies by completing the required FNP educational curricula and participating in on-going learning activities

Definition:
FNP educational curricula (for FNP nurses and supervisors) are devised by Clinical Leads in each country, and agreed with their International FNP consultant, based on the International guidance. In countries where a variance has been granted to incorporate a 'family partnership worker', 'community mediator' or similar role, an FNP specific educational curriculum will need to be developed by the country for this role. See guidance document *Nurse-Family Partnership Core Competencies*

FNP education curriculum should incorporate:

Conceptual and intellectual knowledge regarding the program theories, research base, conceptual model and use of Core Model Elements and quality improvement in replication.

Sense-making i.e. reflection on the programme model in relation to the learner's own experience and nursing practice foundations, consideration of the application of the model in practice and development of a coherent clinical model of practice, integrating the various inter-related elements [e.g. the programme domains, use of dyadic assessment, PIPE, Motivational Interviewing skills, and the Strengths and Risks Framework

Skills development. This is a significant part of the FNP education programme and needs to be intentional using multi-staged, multi-faceted and multi-modal methods. This learning is best done face to face with opportunities for demonstration, practice and feedback.

Core Model Elements (CME) 10: FNP nurses, using professional knowledge, judgment and skill, utilise the Visit Guidelines; individualising them to the strengths & risks of each family, and apportioning time appropriately across the six programme domains.

Definition:
The purpose of the FNP visit guidelines is to maintain consistency in implementing the FNP model, to ensure that comprehensive information and essential information is introduced to clients and to support reflection and goal setting with clients. They provide the flexibility needed to meet the clients' needs and desires as well as programme goals. In addition, they provide the framework that helps FNP nurses and clients avoid focusing on the day-to-day challenges the client may be facing and instead focus on potential solutions and introduce other issues of relevance and importance through an agenda matching process.

The guidelines also introduce content that supports clients in developing the knowledge, skills and self efficacy to achieve the three FNP programme goals of:

- Improved pregnancy outcomes through the practice of good health-related behaviours
- Improved child health and development
- Improved economic self-sufficiency

Core Model Elements (CME) 11: FNP nurses and supervisors apply the theoretical framework that underpins the programme (self-efficacy, human ecology, and attachment theories) to guide their clinical work and achievement of the three FNP goals.

Definition:
The underlying theories are the basis for the FNP Programme. The clinical methods that are presented in the education sessions and promoted in the FNP Visit-to-Visit Guidelines are an expression of these theories.

Core Model Elements (CME) 12: Each FNP team has an assigned FNP Supervisor who leads and manages the team and provides nurses with regular reflective supervision

Definition:
A full time FNP supervisor can lead a team of no more than eight FNP nurses and a team data manger/administrator. The minimum team size is four FNP nurses with a half time (0.5wte) supervisor. It is important that FNP team members are supported by FNP supervisors who understand the requirements and expectations of the role and the programme model and for this reason it is recommended that nurse supervisors have a very small caseload of FNP clients. Arrangements should be made for supervisors to reflect on their role and FNP with a qualified person that understands reflective practice and has an adequate understanding of the FNP model. The individual providing reflective supervision to the FNP supervisor is ideally in a position at the same level or higher to the organisation agency - it cannot be provided by FNP nurses.

Core Model Elements (CME) 13: FNP teams, implementing agencies, and national units collect/and utilise data to: guide programme implementation, inform continuous quality improvement, demonstrate programme fidelity, assess indicative client outcomes, and guide clinical practice/reflective supervision.

Definition:
FNP nurses collect information for four distinct purposes:
1. To support and guide clinical practice
2. To assess and guide programme implementation through documentation of the FNP services received by clients
3. To measure achievement of core programme goals
4. To inform reflective supervision and support quality improvements

Information is recorded on data collection forms, which are recorded into the Turas FNP information system. Data collected is analysed and reports are generated for individual clients, nurses and teams. In addition, this data can be used by the Scottish Government analytical research team (contingent upon adherence to required permissions for release of data), alongside other data, to inform the evaluation of the implementation of FNP in Scotland.

Core Model Elements (CME) 14: High quality FNP implementation is developed and sustained through national and local organised support

Definition:
Organised support should include national strategic, operational and clinical leadership (as set out in the licensing requirements) as well as local site support for implementation and on-going quality improvement

Local site support for FNP includes:

Ensuring that local community leaders and agencies working in the field provide guidance regarding the introduction and maintenance of the programme within the site context. This is usually organised through a local FNP Advisory Board[1] or other formal service network
Ensuring that the necessary infrastructure and resources for the team, including office equipment, printed guideline materials and other resources, mobile phones, lap tops etc., are made available

Additional Approved Model Element (AAME) (1): Delivery of the Scottish Child Health programme (pre-school) – child health reviews

Definition:
The children of clients enrolled on the Family Nurse Partnership (FNP) programme should receive the child health reviews as part of the Scottish Child Health Surveillance Programme (Pre-School).

Across Scotland, the role of the named person is supported through the Getting it Right for Every Child (GIRFEC) approach in responding to the wellbeing needs of children and young people and improving outcomes. The named person is a clear point of contact that provides direct support or will help access relevant services. For children within the FNP programme, Family Nurses are the named person until programme completion, and at which point this transfers to the Health Visitor.

Annex 2

FNP Scotland - Complexities profiling tool (Final v2 26/03/18) **Client ID:**

Postcode _____ **SIMD Area** ____ **Age at enrolment** ____ **Stage of Programme** ____

Please use this checklist to profile your client, and their partner.

- Tick as many boxes as apply, even if there is overlap between them.
- Profile your client as they were at the time they enrolled on the programme i.e. at the point you started working together (it may be you need to draw on things you only found out once you had started working together, in order to provide this picture).
- Where you don't know, just leave blanks.
- Did your client have a partner at the time they joined the programme: Yes ❑ No ❑ D/K ❑

Personal Health – Client; Partner	**Client**	**Partner**
Anxiety or other Mental Health issues		
Registered disabled		
Learning disability		
Long term health issues (e.g. diabetes, crohn's)		
Alcohol misuse		
Substance misuse		
High or low BMI		
Contact with Services – Client; Partner	**Client**	**Partner**
LAC (ever)		
CAMHS (ever)		
On Child Protection Register (ever)		
Involvement with Social Services		
Involvement with Criminal Justice System		
Irregular/ limited/ no school attendance		
Client's Life Course	**Client**	**-**

Entered FNP under 16 years of age		
Any previous pregnancy		
Experience of Childhood Sexual Exploitation		
Experience of sexual assault		
Experience of sexual abuse		
Experience of physical abuse (other)		
Experience of emotional abuse		
Experience of physical neglect		
Experience of emotional neglect		
Experience of poor parenting (other, self reported, non specific)		
Experience of self harm		
Experience of attempted suicide		
Experience of Intimate Partner Violence		
Experience of bullying		
Carer for dependant other(s)		
Social isolation / limited networks		
Not in work, education or training		
Low income		
Low job stability (e.g. zero hours/temp contract)		
Poor/ unsuitable housing		
Experience of homelessness		
Living in area of deprivation		
Client's parents' circumstances	**Client**	**-**
Parental separation		
Death of client's mother/ father/ main attachment		

Parental substance misuse		
Parental alcohol misuse		
Parental Mental Health issues		
Client's mother treated violently		
Family member incarcerated		
Family known to Social Services		

Annex 3

Routine immunisation programme for children in Scotland up to age 2[115]

When to Immunise	Diseases Protected Against	Vaccine given
8 weeks old	Diphtheria, tetanus, pertussis (whooping cough), polio, Haemophilus influenzae type b (Hib) and hepatitis B (HepB)	Six-in-one (DTaP/IPV/Hib/HepB) (Infanrix hexa or Vaxelis)
	Rotavirus	Rotavirus(Rotarix)
	Meningitis B (MenB)	MenB (Bexsero)
12 weeks old	Diphtheria, tetanus, whooping cough, polio, Hib and HepB	Six-in-one (DTaP/IPV/Hib/HepB) (Infanrix hexa or Vaxelis)
	Rotavirus	Rotavirus(Rotarix)
	Pneumococcal disease	Pneumococcal (Prevenar 13)
16 weeks old	Diphtheria, tetanus, whooping cough, polio, Hib and HepB	Six-in-one (DTaP/IPV/Hib/HepB) (Infanrix hexa or Vaxelis
	Meningitis B (MenB)	MenB (Bexsero)
Between 12 and 13 Months old – within a month of first birthday	Hib and meningitis C (MenC)	Hib/MenC(Menitorix)
	Pneumococcal disease	Pneumococcal (Prevenar 13)
	Measles, mumps and rubella (German measles)	MMR (Priorix or MMR VaxPRO)
	Meningitis B (MenB)	MenB (Bexsero)
Every year from age 2 until the end of secondary school	Influenza (flu)	Flu nasal spray(Fluenz Tetra)

References

[1] Early childhood development | UNICEF
[2] Wolffe, A.P., Matzke, M.A. 1999, October 15. Epigenetics: regulation through repression. Science, 286(5439):481-6.
[3] Bowlby**,** J. (1988). A secure base: Parent child attachment and healthy human development
[4] Effective interventions and strategies for improving early child development (bmj.com)
[5] Adverse Childhood Experiences (ACEs) and Trauma - Scottish Government Website
[6] Health Inequalities and the Social Determinants of Health - Royal College of Nursing Policy Briefing #01/12 January 2012
[7] The Science of Early Childhood Development - Harvard
[8] Trebeck,K, Baker A, Being Bold: Building Budgets for Children's Wellbeing
[9] Family Nurse Partnership | EIF Guidebook
[10] Family Nurse Partnership in Scotland: revaluation report
[11] Getting it right for every child (GIRFEC)
[12] Pregnancy and Parenthood in Young People Strategy
[13] Child poverty - Poverty and social justice
[14] The-Promise - Independent Care Review In Scotland
[15] Adverse Childhood Experiences (ACEs) and Trauma
[16] Convention on the Rights of the Child
[17] Evaluation of the Family Nurse Partnership programme in NHS Lothian, Scotland: Summary of key learning and implications
[18] Nurse-Family Partnership – Helping First-Time Parents Succeed
[19] FNP Scotland Education Strategy
[20] Nursing 2030 Vision - The Chief Nursing Officer's long term strategy to shape the future of the nursing workforce.
[21] Scotland's Wellbeing: The Impact of COVID-19 | National Performance Framework
[22] Coronavirus (COVID-19) Family Nurse Partnership insights: evaluation report
[23] Martin, C, Marryat, L, Miller, M, Ormston, R and Gordon, J (2011) *The evaluation of the Family Nurse Partnership programme in Scotland: phase 1 report - intake and early pregnancy*, Edinburgh: Scottish Government
[24] The Experiences of Mothers Aged Under 20: Analysis of Data From the Growing up in Scotland Study
[25] Summary Statistics for Attainment and Initial Leaver Destinations, No. 3: 2021 Edition
[26] Pregnancy and Parenthood in Young People Strategy - gov.scot (www.gov.scot)
[27] Social Exclusion Unit (1999) Teenage Pregnancy, presented to the Parliament by the Prime Minister by command of her Majesty. Teenage Pregnancy Report
[28] Crawford, Cribb & Kelly (2013) Teenage Pregnancy in England. Centre for Analysis of Youth Transitions (CAYT) Impact Study: Report No. 6
[29] Sedgh, Finer & Singh (2015). Adolescent Pregnancy, Birth, and Abortion Rates Across Countries: Levels and Recent Trends. The Journal of Adolescent Health. Adolescent Pregnancy, Birth, and Abortion Rates Across Countries: Levels and Recent Trends
[30] Teenage pregnancies - Year of conception, ending 31 December 2019 - Teenage pregnancies - Publications - Public Health Scotland
[31] Births in Scotland - Data from Public Health Scotland
[32] Ibid

[33] Teenage Pregnancies - Data From Public Health Scotland
[34] The Experiences of Mothers Aged Under 20: Analysis of Data From the Growing up in Scotland Study
[35] Births in Scottish hospitals - Year ending 31 March 2021 - Publications - Public Health Scotland
[36] Scotland's Census Data
[37] Summary Statistics for Attainment and Initial Leaver Destinations, No. 3: 2021 Edition
[38] Ibid
[39] Family Nurse Partnership in Scotland: revaluation report
[40] Mental Health statistics: FOI release
[41] Imamura, M, Tucker, J, Hannaford, P. (2007) Factors associated with teenage pregnancy in the European Union countries: A systematic review. European Journal of Public Health 17: 630–636.
[42] Hobcraft, J, Kiernan, K (2001) Childhood poverty, early motherhood and adult social exclusion. British Journal of Sociology 52: 495–517.
[43] Letourneau, NL, Stewart, MJ, Barnfather, AK (2004) Adolescent mothers: Support needs, resources, and support-education interventions. Journal of Adolescent Health 35: 509–525.
[44] Wardle, J, Jarvis, MJ, Steggles, N. (2003) Socioeconomic disparities in cancer-risk behaviors in adolescence: Baseline results from the Health and Behaviour in Teenagers Study (HABITS). Preventive Medicine 36: 721–730.
[45] Evans, J, Slowley, M (2010) Not the end of the story. Supporting teenage mothers back into education.
[46] Births in Scotland - Statistics Publication Public Health Scotland
[47] UK Perinatal Surveillance Report 2019 - Data on Perinatal Outcomes in the UK
[48] Mental Health Foundation (2013) Young mums together: promoting young mothers' wellbeing.
[49] Family Nurse Partnership | EIF Guidebook
[50] Ibid
[51] Primary Factors of Low Birth Weight Infants
[52] Cnattingius S. The epidemiology of smoking during pregnancy: Smoking prevalence, maternal characteristics, and pregnancy outcomes. 2004; 6(Suppl 2):S125–S140.
[53] Scotland: women smoking during pregnancy 2000-2021 | Statista
[54] European Perinatal Health Report 2015
[55] Births in Scotland - Statistics Publication Public Health Scotland
[56] World Health Organization WHO recommendations for the prevention and management of tobacco use and second-hand smoke exposure in pregnancy.
[57] Riaz M, Lewis S, Naughton F, Ussher M. Predictors of smoking cessation during pregnancy: a systematic review and meta-analysis. *Addiction.* 2018;113(4)
[58] Evaluating the Family Nurse Partnership Programme in England: The Building Blocks Randomised Controlled Trial (cardiff.ac.uk)
[59] Forray A, Merry B, Lin H, et al. : Perinatal substance use: a prospective evaluation of abstinence and relapse. Drug Alcohol Dependency. 2015;150:147–155.
[60] Research - Substance use during pregnancy
[61] Ibid

[62] Bauld L, Graham H, Sinclair L, et al. Barriers to and facilitators of smoking cessation in pregnancy and following childbirth: Literature review and qualitative study. Health Technol Assess. 2017;21(36):v–xix. 1–158. doi: 10.3310/hta21360
[63] Barriers to and facilitators of smoking cessation in pregnancy and following childbirth: literature review and qualitative study
[64] Taylor DJ. Alcohol consumption and outcomes of pregnancy. Statement No. 5, Royal College of Obstetricians and Gynaecologists, London, 2006. Alcohol in Pregnancy
[65] Gray R and Henderson J. Review of the Fetal Effects of Prenatal Alcohol Exposure: Report to the Department of Health 2006. Oxford: University of Oxford; 2006. Alcohol in Pregnancy Report
[66] Popova S, Lange S, Shield K et al. Comorbidity of fetal alcohol spectrum disorder: a systematic review and meta-analysis. Lancet 2016; 387: 978–87. Lancet - Fetal Alcohol Syndrome
[67] Alcohol consumption: advice on low risk drinking - GOV.UK (www.gov.uk)
[68] Scottish maternal and infant nutrition survey 2017
[69] Tackling Inequalities in the Early Years - Growing Up in Scotland
[70] Health harm - Data from ScotPHO
[71] Ibid
[72] Thiel de Bocanegra H, Chang R, Howell M, Darney P. Inter-pregnancy intervals: impact of postpartum contraceptive effectiveness and coverage. American Journal of Obstetrics Gynecology 2014 Apr; 210(4):311.e1–8.
[73] Families and Intimate and Sexual Relationships - CONUNDRUM - University of Glasgow
[74] Health Behaviours Data ScotPHO
[75] Cameron, S., Glasier, A., Chen, Z., Johnstone, A., Dunlop, C. and Heller, R. (2012), Effect of contraception provided at termination of pregnancy and incidence of subsequent termination of pregnancy. BJOG: An International Journal of Obstetrics & Gynecology, 119: 1074-1080.
[76] Early subsequent pregnancy among economically disadvantaged teenage mothers
[77] Pregnancy and Parenthood in Young People Strategy - Scottish Government
[78] Pregnancy and parenthood in young people: strategy update
[79] The Experiences of Mothers Aged Under 20: Analysis of Data From the Growing up in Scotland Study
[80] Ibid
[81] Ibid
[82] InBrief: The Science of Early Childhood Development - Harvard
What is early intervention? - Early Intervention Foundation
[83] The Experiences of Mothers Aged Under 20: Analysis of Data From the Growing up in Scotland Study
[84] Ibid
[85] Pulver LS, Guest-Warnick G, Stoddard GJ, Byington CL, Young PC. Weight for gestational age affects the mortality of late preterm infants. Pediatrics 2009; 123: e1072-7.
[86] Global health estimates 2015: deaths by cause, age, sex, by country and by region, 2000–2015. Geneva: WHO; 2016.
[87] Kolasa KM, Weismiller DG. Nutrition during pregnancy. American Family Physician. 1997 July;56(1):205-12, 216-8. PMID: 9225676.

[88] Yang S, Platt RW, Kramer MS. Variation in child cognitive ability by week of gestation among healthy term births. *American Journal of Epidemiology.* 2010;171(4):399–406. doi: 10.1093/aje/kwp413
[89] Dunkel Schetter C, Tanner L. Anxiety, depression and stress in pregnancy: implications for mothers, children, research, and practice. .
[90] Births in Scottish hospitals - Year ending 31 March 2021 - Public Health Scotland
[91] Ibid
[92] Evaluating the Family Nurse Partnership Programme in England: The Building Blocks Randomised Controlled Trial (cardiff.ac.uk)
[93] Infant feeding statistics - Financial year 2020 to 2021 - Public Health Scotland
[94] Ibid
[95] Lawton et al (2012) Employing an extended Theory of Planned Behaviour to predict breastfeeding intention, initiation, and maintenance in White British and South-Asian mothers living in Bradford. British Journal of Health Psychology 2012; 17: 854-71.
[96] DiGirolamo et al (2005) Intention or experience? Predictors of continued breastfeeding. Health Education Behaviours 2005; 32: 208-26. Cited in Rollins et al (2016)
[97] Kervin et al (2010) Types and timing of breastfeeding support and its impact on mothers' behaviours. Journal of Paediatric Child Health 2010; 46: 85-91. Cited in Rollins et al (2016)
[98] Ibid
[99] *Bener A et al. Does prolonged breastfeeding reduce the risk for childhood leukemia and lymphomas? Minerva Pediatric 2008;60(2):155-161.*
[100] Ibid
[101] Ibid
[102] Barnes, J et al (2009) Nurse-Family Partnership Programme: Implementation in England – Second Year in 10 Pilot Sites: the infancy period. London DCSF. FNP England Implementation Report
[103] Effects of nurse home visitation on cigarette smoking, pregnancy outcomes and breastfeeding: a randomized controlled trial
[104] Early child development - Scotland 2019/20 - Public Health Scotland
[105] Child Health Surveliance Programme -Pre-School -Clinical-Guidelines
[106] About ASQ - Ages and Stages
[107] Universal Health Visiting Pathway in Scotland: pre-birth to pre-school
[108] COVID-19 wider impacts (shinyapps.io)
[109] Childhood immunisation statistics Scotland - Quarter and year ending 31 December 2021 - Public Health Scotland
[110] Statistics about neonatal care
[111] Ibid
[112] Better language development and fewer hospital admissions for children of older mothers
[113] Ibid
[114]Growing up in Scotland: health inequalities in the early years
[115] Routine immunisation programme for children and young people

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