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The report is based on an analysis of the Starting Well Project database, undertaken by the PEACH Unit (Paediatric Epidemiology and Community Health), a department of the University of Glasgow within Yorkhill Hospital.

The content of the report has been shared and discussed within the National Implementation Team for Health For All Children 4 in Scotland.
The purpose of this report is to provide a summary of some of the key findings from an analysis of the database maintained during phase I of the Starting Well National Health Demonstration Project, from 2001 to 2004.

Towards the end of phase I of the project, it was recognised that the rich source of data within this database of 1884 families with children aged 0-3 years living in two areas of Glasgow, could be used to inform the implementation of Health for all Children 4 (Hall 4). In particular, this relates to the redesign of health visiting services under the recommendation from Hall 4 that care should be targeted to families identified as having extra needs after an initial period of assessment by the health visitor/public health nurse in the early weeks of life.

The report is of interest to policy-makers and those responsible for implementing the changes associated with Hall 4. It is also relevant for practitioners who are changing practice to implement these recommendations and for their managers.

The report should be read in context. This was a unique intervention delivered by the Starting Well Project teams who provided intensive skill mix support to two different population areas of Glasgow. The care given to these families was neither representative of universal health visiting service at that time nor was it representative of the programme now recommended under Hall 4. There are therefore limitations in generalising findings to the universal health visiting service as a whole.

However, the analysis provides a unique insight into the process of targeting care to the most vulnerable families, and the judgements health visitors make when asked at an early point in time to predict which families are likely to require most input in the proceeding months.
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BACKGROUND

Following the publication of the White Paper ‘Towards a Healthier Scotland’ in 1999 the Scottish Executive Health Department pledged £1.5million to support four national health demonstration projects to act as test beds for action and a learning resource for the rest of Scotland. Starting Well was the National Health Demonstration Project in child health, and was launched in November 2000. Phase I of the project, the subject of this report, ran until 2004. The Scottish Executive commissioned a multi-method independent evaluation of phase I of Starting Well which was led by the Public Health and Health Policy Unit, University of Glasgow.

Based on the work of David Olds and colleagues in the USA, Starting Well offered additional input to all families who had a new baby born in the project postcode areas. There were two essential components in the project: intensive home-based support and the provision of a strengthened network of community-based services for children and their parents. Families were offered support (through both professional and support worker interventions) within the context of their own homes.

The project took place in two geographic areas in Glasgow (Easterhouse in the east of the city and Govanhill, Gorbals and North Toryglen in the south). These were selected on the basis of a range of criteria, including levels of socioeconomic deprivation, cultural mix, evidence of significant child health and parental support needs, and the presence of appropriate organisational community infrastructures.

Within each area, health visitors led teams of skill mix staff, including health support workers, community nursery nurses, a community support facilitator (who worked with the teams and local services to help address the diverse community-based support needs of families) and administrative staff. In the south project area, a bilingual worker was employed to work with individual families from the black and minority ethnic community and to ensure that all project protocols were culturally sensitive.

In the areas where it was established, the project provided this intensive home visiting service as the standard provision for families with a newborn baby. The level and type of family support offered was based on a comprehensive assessment of family need, including family strengths and challenges, in conjunction with the Core Visiting Schedule. All information was contained in the Family Health Plan, the professional record maintained for each family that was created for the project in consultation with the health visitors.

Information contained within the Family Health Plan, including ratings of family need for support (the Family Needs Score - FNS) and a range of other demographic and service-based information, was recorded in a database designed specifically for the project by an independent consultant.

Starting Well offered additional input to all families who had a new baby born in the project postcode areas
The information contained in the Starting Well project database was collated from the Family Health Plan and via a contact sheet completed by all home visiting staff after every contact with the family. The data from these contact sheets were then entered into the database by project administrative staff. It is this information that has been analysed and which forms the basis of this report.

The database included a range of information on families, babies and service provision. The main categories of information recorded were:

- make-up of the family unit
- details of the baby's date of birth, sex, birth weight, gestation
- environmental factors for the baby, including parental employment, partner resident in home, and smoking for both parents at six snapshots (recruitment i.e. first contact with project, six months, one year, eighteen months, two years and three years)
- ethnicity
- Edinburgh Postnatal Depression Scale (EPDS) recording
- infant feeding method during first postnatal year
- Triple P (parenting education) profile
- FNS
- information on contacts between team and family, including place and type
- referrals made for family, including to where and reason
- goals agreed between the family and the health visitor
- record of significant events

Analysis focused on some key issues that were considered would be of value to those involved in planning the effective utilisation of the health visiting resource, as outlined in Hall 4, in order to provide more support to those identified as most vulnerable. Three specific questions were identified:

1. How did the need identified by the health visitors relate to other markers of vulnerability within the families visited?
2. Were health visitors able to target care to the most vulnerable families?
3. Did the health visitors ratings (FNS) accurately predict which families would need most input?

Variables included in the Starting Well database that were considered likely to predict or relate strongly to need for health visitor input were identified and those found to be relatively complete and useable after data cleaning and combination were used. These factors fall into the following categories:

- Baby: gestation; multiple birth; infant feeding; number of siblings
- Family: mother's age; family unmarshed; either parent accommodated by local authority as a child; parental smoking; father or other relative also resident with the child; ethnicity
- Agencies: involvement with social work services; criminal justice; paediatric health
- Environment: south or east project area; deprivation level - Scottish Index of Multiple Deprivation SIMD
- Assessments: FNS; EPDS

The database included a range of information on families, babies and service provision
Assessment of need by health visitors (using the FNS) and the actual service received by families (contact rates) were then related to these factors. As a criterion indicating increased need, referrals to social work services were also linked (see Figure 1).

**Figure 1:** How did predictors of need relate to assessment of risk and engagement with services?

<table>
<thead>
<tr>
<th>Predictors of Need</th>
<th>Contacts</th>
<th>Referral to</th>
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<tbody>
<tr>
<td>Gestation</td>
<td>Contacts</td>
<td>Social work services</td>
</tr>
<tr>
<td>Multiple birth</td>
<td>Contacts</td>
<td>Social work services</td>
</tr>
<tr>
<td>Feeding</td>
<td>Contacts</td>
<td>Social work services</td>
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<tr>
<td>Siblings</td>
<td>Contacts</td>
<td>Social work services</td>
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<tr>
<td>Others/relatives resident</td>
<td>Contacts</td>
<td>Social work services</td>
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<tr>
<td>Deprivation (SIMD)</td>
<td>HV assessment risk</td>
<td>Social work services</td>
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<tr>
<td>Mothers age</td>
<td>HV assessment risk</td>
<td>Social work services</td>
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<tr>
<td>Family unemployed</td>
<td>HV assessment risk</td>
<td>Social work services</td>
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<tr>
<td>In care as child</td>
<td>HV assessment risk</td>
<td>Social work services</td>
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<tr>
<td>Smoking</td>
<td>HV assessment risk</td>
<td>Social work services</td>
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<tr>
<td>Edinburgh Postnatal Depression Scale</td>
<td>HV assessment risk</td>
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<td>Social work services/criminal justice</td>
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<td>Paediatric health</td>
<td>HV assessment risk</td>
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The analysis produced a range of demographic details regarding the families who received a service from the Starting Well Project. There were 1884 families, with 90% having only one baby born during the period from 2001 to 2004 that the database covers. All the following statistics relate to this 90% of families at the point where they had their only or first Starting Well baby. This included twin births if they were the first Starting Well babies in the family, but not the 10% of families who had more than one baby born in the three-year period of data analysed, as it was not possible to establish for these families which contacts related to which child.

**Population composition**

Nineteen per cent of families were of black or minority ethnic (BME) origin, nearly all residing in the south area of the project. The majority were of South Asian (Pakistani or Indian Sikh) origin. For the purpose of this report, these families will be referred to as 'South Asian'. Three-quarters of South Asian mothers did not have English as their first language and 27% were recorded as requiring a translator. The median age of mothers at their child's birth was 27 years. Seventeen per cent of mothers were aged 20 years or less, and 11% were over 35 years of age.

**Family size**

Just over half of the mothers (51%) had their first babies during the project period and 49% of families already had at least one child, born prior to Starting Well. Of these, 54% had one other child, 27% had two other children and 19% had three or more previous children. When figures are considered by ethnic origin, 16% South Asian mothers had three or more previous children compared with only 8% of mothers from the indigenous population.

**Birth weight of babies**

The majority of babies were born at full term (93%). The mean birthweight for babies was 3.26 kg, which is slightly lower than the Scottish average of 3.38 kg for singleton births. Overall 7% of births were recorded as preterm; only 3% of South Asian mothers had preterm babies.
Breastfeeding rates
Only 44% of mothers were breastfeeding their baby at birth (compared with the Scottish national average in 2000 of 63%), with only 25% still breastfeeding at 6 weeks. South Asian mothers were more likely to breastfeed initially (75% vs 37%) and at all other ages recorded (Figure 2).

Figure 2: Breastfeeding rates in Starting Well families, by ethnicity and compared with Scotland as a whole

Levels of deprivation
Over half of the families lived in areas identified by the SIMD as the most deprived 10% (decile) in the country and only 3% of families lived in areas of below average deprivation. The east area had a higher proportion of families in the most deprived SIMD decile, at 80% compared with 35% of families in the south area (Figure 3).

Just over half of the mothers had their first babies during the project period
**Figure 3:** Number of Starting Well families living in different SIMD deciles

![Graph showing the number of families living in different SIMD deciles.](image)

**Relatives resident in home**

Seventy-one per cent of all parents were living together at the time of, or just after the birth of the baby, with 13% of mothers living with a relative or other adult but not with a partner, and 6% of mothers living alone. South Asian mothers were more likely to be living with their partner (90% vs. 75%), but no more likely to also be living with relatives (Figure 4).

**Figure 4:** With whom did the Starting Well children live?

![Pie chart showing the distribution of relatives living with Starting Well children.](image)

**Employment within families**

Overall, 35% of the Starting Well families had no wage earner, 31% had one, and in 28% both parents were in some form of paid employment. Within the South Asian population, the mothers were less likely to be employed (16% vs. 42%), but more of their partners were likely to be employed (64% vs. 49%).

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Involvement with social work services
Five per cent of families were already involved with social work services and/or criminal justice at the time of recruitment to the project and approximately 3% of mothers and 3% of fathers had been in the care of the local authority while they were children. Families from South Asian backgrounds were less likely to already be involved with other agencies.

Postnatal depression
The project followed the Peri-natal Mental Health Care Pathway that was being piloted within parts of Glasgow at that time. This proposed that mothers should be offered the opportunity to discuss their mood levels with the health visitor on two defined occasions using the EPDS as a tool.9

Overall, only 49% of mothers actually had an EPDS recorded in their Family Health Plan. South Asian mothers were less likely to have a score recorded than other mothers (with only 16% recorded compared to 56%), although, when recorded, their scores did not differ from other mothers. This may relate to cultural factors and also maternal language skills, since only 8% of those who required interpreters had an EPDS recorded.

There was a difference between the east and the south project areas in the proportion of mothers with an EPDS recorded that was not all accounted for by ethnicity, since in the south only 29% of the non-Asian population had an EPDS recorded, compared with 80% in the east.

Of all the EPDS scores recorded, 31% of mothers had a score greater than 12 at some point, indicating the potential for postnatal depression at a level that would warrant further assessment. This is high compared to a recent population study that also routinely collected EPDS data in which scores of over 12 were detected in 12% of the sample10. However in that study the proportion of women offered EPDS was higher than the Starting Well sample.

Over half of the families lived in areas identified by the SIMD as the most deprived decile in the country...
This section focuses on information on how assessment of family need was defined within Starting Well and on the data regarding allocation of families to a support need category by the health visitors.

The FNS was a tool designed by the project to be used by the health visitors to provide a measure of the family need for support. It comprised a three-point Likert scale on which a score of FNS2 indicated a requirement for standard project care, as defined by the Core Visiting Schedule. The Core Visiting Schedule was a framework devised internally by the project to guide the frequency and content of contacts with families, with standard level of support providing around 14 contacts within the first year following the birth of a new baby (for further detail see reference to NHS Health Scotland website). A score of FNS1 indicated less than standard project care and FNS3 indicated more than standard project care.

The FNS was based on professional assessment and discussion with families, recorded by the family health visitor following initial assessment and updated according to changing circumstances within the family. Therefore each family could have more than one FNS recorded over the time period, depending on their changing circumstances.

Analysis of the data indicated that only 13% of families were initially rated FNS3 (greater then average need), however, 28% were rated FNS3 at some point. Fifteen percent of families were rated FNS1 (less than average need) at some point, with 4% only ever rated FNS1. Of interest was that the majority of families, 60%, were only ever rated FNS2.

Figure 5 indicates the time taken to identify the level of need (FNS rating) for families. Most families who had any FNS recorded had this recorded for the first time within 13 weeks. In comparison, for those families rated as high need (FNS3) only 50% of those ever rated FNS3 had been recorded as such by 13 weeks and it took over 39 weeks to have almost 80% of them identified for the first time.

The data analysis does not allow interpretation of the reasons behind the allocation of FNS ratings, which may provide insight into any shift from early perceived need to eventual level of contact received by families.

Figure 5: Percentage who had FNS recorded by each age and of those rated FNS3 for first time
This section provides some information around the services delivered by the project staff and the level of support provided to families. Most babies (90%) were visited for six months or more, with 11% visited to beyond the age of three years, depending on when they joined or left the project.

According to the Core Visiting Schedule, standard project care consisted of 14 to 15 contacts/visits within the first year of the baby’s life. The overall mean level of contacts for families at FNS2 in the first year was similar to this however; 20% of all families received 22 or more contacts in the first year. These latter families will be referred to as high-contact families.

Most contacts between the Starting Well staff and families were planned (70%) or opportunistic (26%), with few initiated by the client (1%). The majority took place in the family home (55%), although 18% of contacts were by telephone. Staff recorded 15% of visits as failed attempts at contact. Home contacts were more common for younger babies, with telephone and community setting contacts increasing with age (Figure 6).

Figure 6: Setting of successful contacts by age (excludes 20% failed contacts or missing data)

![Graph showing the percentage of successful contacts by age and setting](image)

Seventy six per cent of all families had one or more referrals resulting from 17% of total contacts with the project team. The services to which referrals were made most frequently were health (38%) and community services (34%). The physical health of the child made up 21% of all reasons for referrals, with material assistance, childcare support and social support constituting 13%, 12% and 10% of reasons for referrals respectively. Families from South Asian backgrounds were less likely to be referred to other agencies, with the exception of the housing department. Referrals for families scored FNS3 were higher to all services than for families in FNS1 or 2 categories.
1 How did the need identified by the health visitors relate to other markers of vulnerability within the families visited?

A rating of FNS3 strongly related to the sorts of factors, contained within the project database, that could potentially be considered as constituting vulnerability, such as involvement with social work services or criminal justice, a high EPDS, multiple birth and no income (see Figure 1).

2 Were health visitors able to target care to the most vulnerable families?

There was clear evidence of targeting. Families assessed as having a high level of need (FNS3) received approximately twice as many visits as those rated FNS 1 or 2 over all age ranges (Figure 7).

Figure 7: Number of contacts by FNS rating

The chart shows the numbers of contacts by all of the skill mix project staff to families according to the age of the child and as indicated by the FNS given to the family. The mean number of contacts within each of the age bands appears as the horizontal line within the box.

It is worth restating here that families rated FNS1 or FNS2 still had around 14 contacts in the first year following the birth of the baby. This enabled health visitors to continually review their assessment of need, whether or not the actual recorded FNS was adjusted to reflect this. The first FNS score recorded was the best overall predictor of contact rates. Largely the same range of variables predicted contacts as had predicted the rating of the need for support, as listed in Figure 1.

Families initially rated FNS3 were eight times more likely to be referred to the Department for Work and Pensions and five times more likely to be referred to social work services compared to those rated FNS1. Indeed 40% of all those initially rated FNS3 were referred to social work services.
Did the health visitors rating (FNS) accurately predict which families would need most input?

A range of findings suggested that at the time of the initial FNS rating it was not easy to predict which families would need extra input. Firstly, of the 28% of Starting Well families rated as having a high need for support (FNS3) at some point, only half were recognised in the early weeks (see Figure 5). Of the 20% of families who did receive more than 22 contacts, two-thirds were not rated FNS3 initially.

Although those identified as having high need had higher contact rates, in fact only half went on to receive more than 22 contacts in the first year or, in other words, turned out to actually need or want a high level of support.

Additionally, although families rated FNS3 were much more likely to be referred to social work services, referrals were also made for 12% of those rated FNS2 and 8% of those rated FNS1. Under the Starting Well visiting programme these families still received around 14 contacts in that first year, which enabled their needs for support to be identified, despite not being initially assessed as high need.

South Asian families were less likely to be at either end of the FNS scale, with 90% rated as requiring standard project care (FNS2). They had on average slightly more contacts than the indigenous population families (16 vs 15 in the first year) and were more likely to fall into the high contact group (25% compared with 20% of the total population). South Asian families generally had few of the identified predictive factors for high contact, as shown in Figure 1, so that compared to others with similar risk factors, they had much higher levels of contact.

The other group who tended to have unpredicted high needs (i.e. having high contact levels but not rated FNS3) were parents who had been in the care of the local authority as a child themselves. This group of families had higher contact rates than the remaining population (36% compared with 20%) but two-thirds of them were not initially classified as being high need. This was possibly because information regarding the care history of parents may not have been known at the point of first FNS rating.
Eight risk factors were identified as being either common or strong predictors of contact rates (Figure 8). These ranged from relatively rare factors such as involvement with criminal justice and social work services which was associated with more than five times increased odds of needing high contact rates, to living within the most deprived SIMD decile which was associated with a less than one and a half times increased odds of needing high contact, but applied to 65% of the families.

**Figure 8:** Prevalence and strength of association with contact rate of eight risk factors

A family could be defined as being in need of high levels of support if it had any of these risk factors. If the seven factors excluding SIMD were used to indicate need for support, 60% of Starting Well families would be defined as high need. This would identify 90% families referred to social work and 80% of those who had high levels of contact. If living in the most deprived SIMD decile was also used as a risk factor, 81% of Starting Well families would be defined as high need, but this would identify 98% families referred to social work and 93% high-contact families (Figure 9).

**Figure 9:** Proportion of all families with high contact rates (>22 in first year) or referral to social work services in families with no risk factors
In general, the families in Starting Well appeared to be representative of families living in deprived urban areas. There were many families with high levels of vulnerability but also others with limited need for support. The South Asian families within the project had lower overt markers of vulnerability, but many experienced language barriers and thus those with extra needs were often not initially recognised.

On the basis of the available evidence, it appears that health visitors were generally well able to identify families with high levels of support needs and that this was closely related to the sociodemographic status of the family. However, the identification of family vulnerability and need for high level of support was only achieved over time, with just under half of the vulnerable families identified on initial recording of FNS. In terms of the identification of families who had need for minimal support (FNS1) this was more easily achieved by the time of initial FNS recording.

Health visitors showed a strong capacity to target care in that contact rates varied greatly from family to family and were strongly related to markers of vulnerability. Those families identified as having a greater than average need did receive increased contacts and were more likely to be referred on to other agencies. This suggests that more intensive service provision followed from the identification of need and that health visitors appropriately offered personal and wider systems support. However, two-thirds of the families with high contact rates were not initially rated as having high levels of need for support. This was particularly true for families from the minority ethnic community and families where a parent had been in the care of the local authority as a child.

The timescale required to adequately identify families with high support needs was not highlighted in Starting Well since the project set out to offer a programme of regular contacts to every family as routine input identified through the Core Visiting Schedule. However, from the evidence of the analysis discussed here, this timescale may be a potential problem if regular visiting for those initially deemed to have low need were to be limited after the early weeks. Even with generally enhanced levels of visiting in the early months, only 35% of families in Starting Well who ended up having high contact levels, defined here as over 22 contacts in the first year, were identified as requiring high levels of support initially. Following this analysis, it may be suggested that as a high-risk population, the majority of families living in inner city or urban areas should qualify for ‘additional input’ rather than the ‘core programme’ to allow adequate establishment of relationships and comprehensive assessment of need.
The data from the Starting Well Project provides a description of families raising children in areas of high deprivation. They may not reflect the wider needs of the whole population of Scotland, but are likely to be representative of families in deprived urban areas.

The findings relating to health visitor prediction of need suggest that assessment only in the early weeks would not be sufficient to ensure that the majority of vulnerable families in deprived urban areas were identified and managed appropriately. Starting Well clearly identified that it takes time to build relationships with families, and that this is required before the development of a full assessment and understanding of family need. However, if additional input were offered on the basis of simple risk factors, as indicated within this report, the most vulnerable families would be identified. In deprived areas this would mean a majority of families would initially need to be offered additional input.

Website: www.healthscotland.com
Information on Starting Well is located under www.healthscotland.com/resources/networks/early-years/starting.aspx

...it takes time to build relationships with families