Measuring and Improving Vitamin D Promotion and Prescribing to Prenatal and Postnatal Women within the North West.

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Foreword

Vitamin D is an essential nutrient for healthy bones and optimum wellbeing. This report highlights the growing concern that some sections of our population may not be generating enough natural vitamin D either through exposure to sunlight or through a sub-optimal dietary intake. In particular, expectant mothers and new born children may be at particular risk of low vitamin D levels. There are NICE guidelines in place which recommend that health professionals are to inform women of the importance of maintaining their own and their baby’s vitamin D stores, although information about vitamin D is provided at the professional’s discretion. Our audit and survey highlights the absence of vitamin D policies in place, and the need for more effort incorporating the role of vitamin D in training packages. This latter point is important given the survey findings show a relative lack of knowledge about the facts and importance of vitamin D among both midwives and health visitors.

I congratulate the team on raising awareness of this important topic and their findings. I commend this report to both PCTs and Acute Trusts to encourage them to meet the challenge of developing and implementing vitamin D policies, and expanding training opportunities for both midwives and health visitors. I look forward to a further review of progress in due course.

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1 Executive Summary

1.1 Introduction
Vitamin D is an important nutrient obtained naturally through exposure to sunlight and to a much lesser extent from our diet. Deficiency in vitamin D is not a new entity and associated conditions, such as rickets, that were thought to have been eradicated 35 years ago are now making a comeback. For individuals whose exposure to the sun is inadequate and those deemed ‘at risk’ there is a need for supplementation.

The majority of vitamin D is naturally obtained by the body through exposure to sunlight, but within a climate where sunlight is sparse, especially in the winter months; adequate exposure to sunlight is often unattainable. It is also extremely difficult to achieve adequate levels of vitamin D from diet; and individuals belonging to high risk groups require more sunlight and a higher intake of vitamin D rich food or vitamin supplements.

The steady increase of vitamin D related diseases has led to a review of guidelines and renewed messages to promote more sun exposure and supplement uptake, especially amongst pregnant women where vitamin D deficiency pre- and post-natally can have detrimental effects on the vitamin D status of the child and bone health in later childhood. In 2008, NICE issued guidelines which advised that women should be informed of the importance of maintaining their own vitamin D stores and their baby’s vitamin D stores. Information provided to pre- and post-natal women on the importance of vitamin D, the associated health implications of vitamin D deficiency, safe dosage and recommended preventative measures is provided at the health professional’s discretion. In order to translate these key messages, the training and knowledge of health professionals who have primary contact with these women may need to be addressed.

We set out to assess the policies and practice relating to the promotion and prescription of vitamin D to pregnant women within self selected health economies across the North West. This paper reports on the findings of all three parts audit involving:

1. A provider service audit to assess current vitamin D policies, personnel and support available in hospitals and community facilities for pre- and post-natal care.
2. A staff survey of the current knowledge of midwives and health visitors and practice and training needs relating to vitamin D supplementation with pre- and post-natal women.
3. An audit of case notes at participating Trust sites to determine the current local practice in assessing those women deemed at risk of vitamin D deficiency and delivering information on the importance of vitamin D to pre- and post-natal women.

1.2 Findings
The provider services audit
- Only one Acute Trust (of 8) and one Primary Care Trust (of 6) had a vitamin D policy in place.
- Four Trusts had either a team of experts available with a role relating to vitamin D or a vitamin D representative/coordinator.
- Just under half of the Trusts reported incorporating vitamin D into training packages.
- The majority of Trusts reported giving information about vitamin D to their staff.
- The majority of Trusts were also willing to implement a vitamin D policy, and indicated that it would take between four to nine months to develop, approve and implement.
The staff survey

- A total of 178 health visitors and 206 midwives across 6 PCTs and 8 Acute Trusts responded giving a response rate of 44% and 14% respectively.
- There appears to be a lack of knowledge amongst midwives and health visitors about the facts and importance of vitamin D and confidence is generally low.
- Although a higher proportion of health visitors (50%) discuss vitamin D with their clients than midwives (20%), levels are still low.
- The main reason reported by staff for not discussing vitamin D with women was a lack of knowledge.
- Although NICE guidelines advocate that health professionals recommend vitamin D supplementation, few frontline staff report receiving training in this area.

Midwifery case note audit

268 Midwifery case notes were audited

Overall we found the largest number of pregnancies occurred between 16-20 years of age. We recorded 92% of women with a calculated BMI, 26% of them had a pre pregnancy BMI of 30kg/m2 or over. Unfortunately vitamin D was only discussed with two women and literature was given to 28 women.

Vitamin D was poorly promoted at booking; we found less than 10% of the case notes noted that a vitamin D discussion had taken place. Furthermore, we found less than 50% of women received literature relating to vitamin D.

The Department of Health ask that all women are given the Pregnancy book at booking; we found that less than 20% of the case notes audited documented issuing one upon booking.

Healthy Start applications were poorly distributed, we found only 47 women received a leaflet out of a possible 268.

Health visitor case note audit

385 case notes were audited

We found more women received literature at their primary booking compared with their antenatal booking.

Health visitors managed to issue literature to 70% of women in the audit and the Birth to Five book was the most issued literature.

Discussing vitamin D was high in those Trusts with a policy and training; overall 50% of the case notes audited recorded a discussion relating to vitamin D.

The Healthy Start Scheme was poorly promoted; only 10% of women received an application form.

Where policies were in place, it was clear that midwives and health visitors were more knowledgeable regarding vitamin D, and were more likely to discuss vitamin D with women than those from Trusts which have yet to tackle this issue.

1.3 Recommendations

- Midwives and health visitors need to be educated through a stand alone or incorporated training session, which addresses both the importance of vitamin D to health and how it can be obtained: through sun exposure, vitamin supplementation, appropriate food sources, and training into how to deliver this information to all pre- and post-natal women.
- Leaflets on vitamin D uptake in pregnancy/breast feeding should be created (reviewed if already in place) and made widely available to health visitors and midwives.
- All Trusts should ensure that they have information on, and up-to-date distribution lists for Healthy Start available to health visitors and midwives.
• We would encourage those Trusts with a written vitamin D policy to share this with other trusts.
• All Trusts should start the process of developing a vitamin D policy relating to pre- and post-natal women.
• We would encourage those Trusts that have training in place and have health visitors/midwives with higher levels of confidence and/or reported higher levels of delivering vitamin D information to clients, to share their training packages with other Trusts.

Health professionals are key to the promotion of vitamin D, and there is a need to increase their awareness of ‘at-risk’ groups, symptoms and interventions available to clients, and strengthen their confidence to discuss supplementation and to identify high-risk mothers.

**Implemented changes from audit recommendations across the North West;**

**NHS Liverpool**

1. Developed a vitamin D project Team
2. Developed a marketing plan
3. All 26 children centres in Liverpool in addition to further designated health centres are distributing Health Start vitamins
4. A CQUIN to promote Health Start vitamins for mothers and children has been put in place
5. The vitamin D group in Liverpool are developing vitamin D guidelines for Merseyside
6. NHS Liverpool have are now developing a vitamin D leaflet for public use in Liverpool
7. A planed launch event for the guidelines with key stake holders in January is being organised.
8. All GPs in Liverpool have been given information and promotional material for Healthy Start

**NHS Ashton Wigan and Leigh**

1. Training on vitamin D has been provided for Health Visitors
2. Leaflets have been developed for distribution
3. An action plan to develop guidelines is underway

**NHS Manchester**

1. Developing training / awareness programme for health visitor teams to facilitate the universal supplementation during pregnancy and for one year postnatally
2. In the process of agreeing universal supplementation via all health visitor teams across the city of Manchester

**NHS Wirral**

1. Development of vitamin D policy
2. Action plan to implement vitamin D training to health visitors and children centre staff

**Wirral University Teaching Hospital**

8
1. Modified hand held notes to add a Vitamin D tick box
2. Developed and introduced online vitamin D training for midwives to complete

2 Background

2.1 What is vitamin D?
Vitamin D is an important nutrient obtained naturally through exposure to sunlight and to a much lesser extent from our diet. Calcitriol, the active form of vitamin D, prompts the intestinal absorption of calcium and phosphorus and aids re-absorption of calcium in the kidneys. Vitamin D maintains calcium levels within the body, and the ongoing process of mineralisation and demineralisation relies on vitamin D uptake. Vitamin D is fundamental to bone growth and bone remodelling where inadequate amounts of vitamin D in the body may cause brittle or misshapen bones. Insufficient vitamin D levels hinder bone mineralisation, which in turn can lead to bone diseases such as rickets in children and osteomalacia in adults[1,4].

2.2 The importance of vitamin D to maternal and foetal health
It is essential to promote the uptake of vitamin D during and post pregnancy (and ideally preconception) as the mother must supply the foetus with an adequate amount of vitamin D to ensure normal bone mineralisation during foetal growth. This in turn places a weighty burden on the mother’s own vitamin D supply, increasing the risk of vitamin D deficiencies to occur in her own store and increasing the risk of preeclampsia[5]. Research has shown that maternal vitamin D deficiency effects bone health in newborns, subsequently causing childhood rickets and other bone diseases/deformities[1] and is associated with other pathologies such as type 1 diabetes and neurological disorders[5].

2.3 Vitamin D deficiency as a public health issue
In the UK, the population receives limited amounts of sunlight and as such, vitamin D stores can only be built up during the months of April to September, therefore we must also rely on other sources for vitamin D such as supplements and dietary intake[4]. Ethnic minority populations were traditionally recognised as ‘high risk’ groups due to their skin pigmentation and the covering of skin for religious reasons, however it is becoming increasing more of a problem in pregnant white women, even with reports of vitamin D deficiency from Southern England[6]. It has been suggested that for a fair-skinned person, 20-30 minutes of exposure to sunlight on the face and the forearms, between the hours of 10am and 3pm, 2-3 times per week, during the summer months, is sufficient to achieve healthy vitamin D levels. However, those with pigmented skin would require a 2-fold to 10-fold increase in exposure[4]. However, this advice goes against that of skin cancer campaigns and the frequently accepted view within society that any sun exposure is risky and should be avoided without adequate sun protection, a factor which may have further hindered our uptake of vitamin D over the last 10 years. Furthermore, improving vitamin D uptake through diet alone is difficult, as there are a limited number of foods which contain vitamin D, and often in very small quantities, such as oily fish, eggs and liver products, and a number of fortified foods which include margarine, breakfast cereals and powdered milk. However, during pregnancy, women are advised to limit their consumption of oily fish and avoid liver products and raw/undercooked eggs altogether[7], thereby restricting the uptake of vitamin D through natural sources of foods.

A recent UK survey found that over 50% of the adult population were insufficient in vitamin D and 16% were regarded as severely deficient during the winter and spring months[8]. A further study of pregnant women living in the Belfast area (54-55 degrees north) found that 35%, 44% and 16% were vitamin D deficient at 12, 20 and 35 weeks gestation respectively; and that over 75% of the women had insufficient vitamin D levels[9]. The study reported that deficiencies also existed in those taking daily vitamin D supplements, which reinforces current concerns that the recommended daily dose of 10 micrograms of vitamin D is not sufficient to provide an adequate amount of vitamin D[5,10]. The ‘Shine on Scotland’ campaign, founded by 16 year old schoolboy Ryan McLaughlin from Glasgow, promotes a national supplementation program of vitamin D to pregnant women and children with the aim to help reduce the incidence of multiple sclerosis (MS) and to help improve the general health of all children[11].
Vitamin D deficiency is of growing concern within the North West and this concern is backed up by research findings which indicate that an intervention to increase the uptake of vitamin D in areas where exposure to sunlight is low, and/or there is a high prevalence of low socioeconomic status and/or nutritional food intake is known to be poor\(^1\). Across England, the increase in cases of rickets\(^1\) has raised awareness of the need for training of healthcare professionals, education of patients and the prescription of vitamin D supplementation to rise up the health inequalities agenda.

### 2.4 Current policy and guidelines

The Department of Health and NICE guidelines state that women who are child bearing or breast feeding should include 10 micrograms of vitamin D in supplement form per day to maximise their vitamin D store\(^2,12\). The NICE guidelines also state that health professionals who have direct or indirect contact with pregnant and breast feeding women should be educated about the importance of vitamin D supplements, with the intention that they inform and advise the women they meet\(^2\). Professional bodies should ensure that health professionals have appropriate knowledge and skills to give advice on the nutritional needs of women, the importance of a balanced diet, and the rationale for recommending dietary supplements such as vitamin D to pregnant and breastfeeding women\(^1\).

At booking (by 10 weeks) midwives should offer every woman advice on the benefits of taking vitamin D supplements (10 micrograms per day) during pregnancy and whilst breastfeeding, highlighting its use to increase mother and baby vitamin D stores and reduce the risk of the baby developing rickets\(^3\). Midwives and health visitors should also advise all pregnant and breastfeeding women about the availability of suitable vitamin D supplements, such as the Healthy Start vitamins. Health professionals should offer the maternal Healthy Start vitamins to those who are, or may be, eligible and particular attention should be paid to those women who are at a higher risk of vitamin D deficiency\(^2\), which include:

- women of South Asian, African, Caribbean or Middle Eastern descent;
- women who have limited sunlight exposure to their skin; those who are mostly housebound or remain covered when outdoors;
- women who have a diet low in vitamin D: a diet that does not include foods such as oily fish, eggs, meat, vitamin D-fortified margarine or breakfast cereal; and women with a pre-pregnancy body mass index above 30 kg/m\(^2\).

These women in particular should be asked whether they are following the advice to take vitamin D supplements during pregnancy and while breastfeeding.

The Healthy Start scheme, launched in 2006, replaces the welfare food scheme, where eligible beneficiaries receive vouchers each week that can be used to purchase fresh fruit and vegetables, fresh milk and formula milk. Beneficiaries are also entitled to free Healthy Start multi-vitamin supplements which include the recommended daily allowance (RDA) of vitamin D. This scheme urges health professionals to:

- give health advice regarding the Healthy Start vitamins to pre- and post-natal women;
- promote nutritional awareness;
- and offer Healthy Start information and leaflets to women and families.

The NICE guidance\(^2\) also states that PCTs should promote the Healthy Start scheme and ensure adequate supplies of vitamin supplements and application forms, and community pharmacists should ensure that the Healthy Start vitamins are available to purchase by those who are not eligible to receive them free of charge.

The growing concern relating to the increase in incidence of rickets has lead to a drive by the Department of Health, local PCTs, and midwives to promote the uptake of vitamin D supplements across the North West, however it has become apparent that vitamin D uptake is inadequately promoted within the maternity care pathway, and the uptake of healthy start...
vitamin tablets is low even amongst those entitled to free supplies\textsuperscript{13}. Each PCT has provisions in place to support low income families through the Healthy Start initiative, however quarterly regional data indicate that uptake of vitamin D supplements is low. The Healthy Start scheme is only available to low income families, leaving others to buy vitamin D supplements at a cost ranging from £3.55 – £4.49 for 30 tablets from local pharmacies\textsuperscript{2}. Over the course of 9 months (or more if the mother is breast feeding), the additional cost of vitamin D supplements may result in pre- and post-natal women not taking them, especially if they have not been educated about the importance of vitamin D during pregnancy.

It is clear that improving and promoting vitamin D intake throughout pregnancy through supplementation is essential for the health of both the mother and the newborn child, particularly where bone diseases amongst the population can be prevented by increasing vitamin D uptake through exposure to sunlight and educating women about the vitamin D content in their diet\textsuperscript{14}. However, despite the NICE guidance and the growing public concern regarding vitamin D, there is little known about the current practice and policies in place across the North West to tackle the issue.

2.5 Aims and objectives
The overall aim of the audit was to measure policies and practice relating to vitamin D promotion and prescribing to pregnant women within the North West. We aimed to underline any gaps in the service and gain an insight into:

- current local vitamin D policies in place;
- current vitamin D advice given to pregnant mothers by midwives and health visitors;
- training needs of healthcare professionals; and the supply and demand of vitamin D supplements.
3 Method

3.1 Participants
The following hospitals in Greater Manchester, Merseyside and Lancashire participated in the audit:

- Central Manchester University Hospitals NHS Foundation Trust (CMFT)
- Liverpool Women's NHS Foundation Trust (LWH)
- Pennine Acute Hospitals NHS Trust (PAT)
- Stockport NHS Foundation Trust (SFT)
- Wirral University Teaching Hospital NHS Foundation Trust (WUTH)
- Wrightington, Wigan and Leigh NHS Foundation Trust (WWL)
- East Lancashire Hospitals NHS Trust (staff survey only)
- Blackburn and Darwen NHS Trust (B&D)
- Royal Bolton Hospital NHS Foundation Trust (staff survey only)

And the following Primary Care Trusts (PCTs) also participated:

- Liverpool Community Health NHS Trust (NHS LIV)
- NHS East Lancashire (NHS EL)
- NHS Ashton, Leigh and Wigan (NHS ALW)
- NHS Heywood Rochdale and Middleton (NHS HMR)
- NHS Manchester (NHS MAN)
- NHS Wirral (NHS WIR)

3.2 Data collection tools
Three proformas were developed to collect information from each site: one for senior staff to complete on behalf of the Trust: Provider Services Trust proforma, the other to be completed by midwives and health visitors: Staff survey and the case note proforma to be collected by the data collector.

The Provider Services Trust proforma (see Appendix 8.1) was developed to obtain information about current vitamin D practice and policies in place at each site, including whether there were any local guidelines, training programmes, in-house leaflets and current practice regarding the Healthy Start scheme.

The staff survey (see Appendix 8.2) was developed to measure midwives’ and health visitors’ current knowledge, practice and training needs relating to vitamin D supplements and advice to pre- and post-natal women.

An audit of case notes at participating Trust sites was carried out to determine the current local practice in assessing those women deemed at risk of vitamin D deficiency and delivering information on the importance of vitamin D with pre- and post-natal women.

3.3 Steering group
To define the audit objectives a panel of experts were invited to be on the steering group (the members of which are listed in the Acknowledgements). The group discussed existing vitamin D issues in their area and highlighted concerns regarding uptake of vitamin D amongst pre- and post-natal women and lack of healthcare professionals’ awareness of the importance of, and sources of vitamin D.

3.4 Procedure
All hospitals in Greater Manchester, Merseyside and Lancashire were contacted and asked if they would like to participate in the audit. Once recruited, senior contacts at each participating site were sent a copy of the Provider Services Trust proforma (see Appendix 8.1) by email in September 2010 and were asked to complete and return it on behalf of the Trust with any relevant policy documents or in-house leaflets attached by November 2010.

The staff survey (see Appendix 8.2) was originally developed using the online survey creator ‘surveygizmo’, which was piloted with lead contacts at each Trust. Once agreed, a link to the
online survey was sent by email to the lead contacts at each site and then forwarded on to all midwives and health visitors within their Trust. On clicking the link, staff were informed of the overall content and purpose of the survey, that it would take approximately 10 minutes to complete, that any identifiable information would be kept strictly confidential, and that it was important to answer the questions honestly and without referring to other sources. The survey was split into 4 sections; demographics, knowledge of vitamin D, current practice and training in vitamin D, and the role of the Healthy Start scheme. On completion of the survey, respondents were asked to share any comments about the survey or the subject matter in general; they were fed back the answers to the knowledge questions, and directed to other online sources of information. This allowed the survey to also become a training exercise in itself.

The survey links were also sent out in September 2010. However, as the deadline approached (November 2010), it became apparent that despite frequent reminders, the response rate was particularly poor across the participating organisations. Therefore, a hard copy was developed and sent out to lead contacts at each site to disseminate to staff. Each copy included a pre-paid envelope for the respondent to complete and return the survey in their own time. However, this meant that the survey was no longer seen as a training exercise as the answers to the knowledge questions could not be given at the end of the survey. Alternatively, respondents could remove the back sheet for their own information which included directions to other sources and contact information of the project coordinator to request the answers to the knowledge questions by email if they so wish.

An audit of 100 case notes at each participating site followed the staff survey proforma. The randomised case note audit evaluated current vitamin D practice in assessing those women who were considered at risk of vitamin D deficiency and of delivering information on the importance of vitamin D to prenatal and postnatal women. The audit used case notes from October 2009 to March 2010 (i.e. over the winter months when vitamin D advice is particularly important due to low sunlight levels).

3.5 Data analysis
The data obtained from the provider services Trust proforma was analysed descriptively and summarised into individual sections by Trust, and further summarised into a table to compare services across Acute Trusts and PCTs.

The data from the survey was analysed using descriptive statistics and presented using charts to show percentages for each item by job role (midwives/health visitors), by individual PCTs and by individual Acute Trusts.

A total score for the knowledge section was calculated for each respondent by giving one point for every correct response. This made a total score for the knowledge section 16. Individual scores were then collated and an average percentage was calculated for each Acute Trust/PCT.

Due to the variance in responses to the question requesting the identification of 5 food sources that are rich in vitamin D, responses had to be grouped into categories for analytical purposes. For example, some respondents listed a number of different dairy produce, while others simply stated ‘dairy products’, therefore it was difficult to distinguish which items were correct. If the respondent listed a series of dairy products with at least one correct item these were then collated into one group (‘dairy produce’) and only counted as one correct identification.
4 Findings

4.1 Current Trust vitamin D policies and practice

Each Acute Trust and Primary Care Trust (PCT) completed the Provider services Trust proforma to establish whether vitamin D policies and practices were in place. Figure 1.1 contains a summary of the findings from each Trust. More detailed individual summaries can be found in Appendix 8.3.

Figure 1: Summary of current Trust policy and practice findings

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<th>Vitamin D team</th>
<th>Vitamin D representative/coordinator</th>
<th>Vitamin D information given to midwives/health visitors</th>
<th>Vitamin D In-house leaflet</th>
<th>Vitamin D Training available</th>
<th>List of Healthy Start vitamin distributors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Trusts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMFT</td>
<td>✓</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>LWH</td>
<td>X</td>
<td>✓</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>PAT</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>X</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>SFT</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>X</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>WUTH</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>X</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>WWL</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>X</td>
<td>✓</td>
<td>?</td>
</tr>
<tr>
<td>PCTs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NHS ALW</td>
<td>X</td>
<td>?</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>NHS EL</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>NHS HMR</td>
<td>✓</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>NHS LIV</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>NHS MAN</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>NHS WIR</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>NHS B&amp;D</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

“?” indicates that information was missing
4.2 Staff survey

4.2.1 Response rate
A total of 178 health visitors (HV) and 206 midwives (MW) across 6 PCTs and 8 Acute Trusts participated in the vitamin D survey. Figures 2 and 3 present the number of respondents and the percentage of health visitors and midwives that responded from each Trust.

Figure 2: Survey responses from PCTs

<table>
<thead>
<tr>
<th>PCT</th>
<th>No of responses</th>
<th>Total no. of HV</th>
<th>% of total HV</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHS ALW</td>
<td>21</td>
<td>80</td>
<td>26%</td>
</tr>
<tr>
<td>NHS EL</td>
<td>43</td>
<td>75</td>
<td>57%</td>
</tr>
<tr>
<td>NHS HMR</td>
<td>27</td>
<td>50</td>
<td>54%</td>
</tr>
<tr>
<td>NHS LIV</td>
<td>27</td>
<td>75</td>
<td>36%</td>
</tr>
<tr>
<td>NHS MAN</td>
<td>18</td>
<td>79</td>
<td>23%</td>
</tr>
<tr>
<td>NHS WIR</td>
<td>42</td>
<td>52</td>
<td>81%</td>
</tr>
<tr>
<td>NHS B&amp;D</td>
<td>11</td>
<td>39</td>
<td>28%</td>
</tr>
<tr>
<td>Total</td>
<td>189</td>
<td>450</td>
<td>42%</td>
</tr>
</tbody>
</table>

Figure 3: Survey responses from Acute Trusts

<table>
<thead>
<tr>
<th>Acute Trust</th>
<th>No. of responses</th>
<th>Total no. of MW</th>
<th>% of total MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMFT</td>
<td>58</td>
<td>214</td>
<td>27%</td>
</tr>
<tr>
<td>ELHT</td>
<td>7</td>
<td>unknown</td>
<td>-</td>
</tr>
<tr>
<td>LWH</td>
<td>30</td>
<td>303</td>
<td>10%</td>
</tr>
<tr>
<td>PAT</td>
<td>48</td>
<td>400</td>
<td>12%</td>
</tr>
<tr>
<td>RBH</td>
<td>14</td>
<td>unknown</td>
<td>-</td>
</tr>
<tr>
<td>SFT</td>
<td>25</td>
<td>158</td>
<td>16%</td>
</tr>
<tr>
<td>WUTH</td>
<td>15</td>
<td>158</td>
<td>9%</td>
</tr>
<tr>
<td>WWL</td>
<td>11</td>
<td>117</td>
<td>9%</td>
</tr>
<tr>
<td>Total</td>
<td>208</td>
<td>1350*</td>
<td>14%*</td>
</tr>
</tbody>
</table>

*Total/percentage of midwives does not include data from ELHT and RBH.

We had a response rate of 44% for health visitors across the 6 PCTs, and 14% for midwives across 6 of the 8 Acute Trusts.

4.2.2 Knowledge of vitamin D
Respondents were asked a small number of questions pertaining to their knowledge regarding vitamin D that covered recommended daily allowances for pre- and post-natal women, sources of vitamin D, its purpose, and risk factors and symptoms of vitamin D deficiency (see appendix 8.2 for list of actual questions). The following figures present the findings regarding knowledge of vitamin D in midwives and health visitors.

When asked to state the recommended daily allowance of vitamin D for pre- and post-natal women, approximately a third of both health visitors and midwives answered correctly (Fig 4). The majority of health visitors and midwives appeared to be unaware of the percentage of vitamin D which is obtained from the sun (Fig 4). However, the majority were aware of vitamin D’s role in the absorption of calcium, but not for phosphorous (Fig 4).
Respondents were asked to list 5 food types (unprompted) that they would recommend to clients to increase their vitamin D uptake. Figure 5 below shows the number of correctly identified food types for health visitors and midwives.

Figure 6 shows those food types that were correctly and incorrectly identified as vitamin D rich foods by midwives and health visitors. Oily fish was the most correctly identified food type (70% of health visitors and 56% of midwives); followed by dairy produce, eggs, breakfast cereals and meat. However, 22% of health visitors and 12% of midwives incorrectly identified green vegetables as a source of vitamin D, and a small number incorrectly identified fruit, bread, and other vegetables as sources of vitamin D.
Respondents were asked to identify symptoms or risk factors that would indicate a client may be at risk for vitamin D deficiency from a list of seven options. All 7 were risk factors or symptoms of vitamin D deficiency. Figure 7 shows the number of risk factors/symptoms correctly identified by midwives and health visitors.

The findings indicate that there is little difference in the knowledge of midwives and health visitors in this sample, with more than 60% in both groups able to identify 3 or more risk factors or symptoms. Figure 8 shows which risk factors/symptoms were the most commonly identified. The most commonly identified risk factor was limited exposure to sunlight with almost 90% of both...
health visitors and midwives correctly identifying it. This can be compared with 20% and 29% of health visitors and midwives respectively who correctly identified obesity as a risk factor for vitamin D deficiency.

**Figure 8: Most commonly identified risk factors/symptoms of vitamin D deficiency by midwives and health visitors**

<table>
<thead>
<tr>
<th>Risk Factor/Symptom</th>
<th>% of HV</th>
<th>% of MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited exposure to sunlight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pigmented skin (non-white ethnicity)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gastrointestinal disorders/conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muscle pain/weakness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strict vegetarian diet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiparity (short spacing between pregnancies)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obesity (a BMI of 30 or more)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don’t know</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

**4.2.3 Vitamin D training and Practice**

Respondents were questioned about the role of vitamin D in their current practice and what training they had received (if any) regarding vitamin D.

When asked whether vitamin D was discussed in practice with clients, it appeared that this was more likely to be the case with health visitors rather than midwives (Fig 9). Almost half (47%) of health visitors reported that they discuss vitamin D with ‘all’ or ‘most’ clients, compared to 22% of midwives.

**Figure 9: Proportion of clients vitamin D is discussed with between midwives and health visitors**

<table>
<thead>
<tr>
<th>% of HV</th>
<th>% of MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>27%</td>
<td>27%</td>
</tr>
<tr>
<td>10%</td>
<td>13%</td>
</tr>
<tr>
<td>10%</td>
<td>9%</td>
</tr>
</tbody>
</table>
Those who stated that they did not discuss vitamin D with ‘all’ clients were asked what their reasons were for not doing so. These are detailed in Figure 10 below.

Figure 10: Reasons for not discussing vitamin D amongst midwives and health visitors who reported not discussing with ‘all’ clients

Lack of knowledge about vitamin D was the most reported reason for not discussing vitamin D with clients, followed by the client not presenting with any risk factors, lack of confidence in discussing vitamin D, not having enough time to discuss it, not viewing vitamin D as part of their role, and the client not having asked about it. More midwives than health visitors selected that it was not part of their role as a reason for not discussing vitamin D with clients (18% vs. 5% respectively). Other reasons for not discussing vitamin D with all clients included:

- they were unaware of the need to discuss vitamin D;
- the information was available in the literature given to clients;
- conflicting advice;
- cost issues for those not eligible for Healthy Start vitamins;
- and some reported forgetting to discuss it.

Those who reported discussing vitamin D with clients were asked what resources they referred to (if any) when discussing vitamin D (Fig 11). The Pregnancy/Birth-to-5 Book was the resource most likely to be used by midwives (58%), whereas health visitors were more likely to use an in-house vitamin D leaflet (47%).
Those who reported discussing vitamin D were asked to rate their confidence in speaking with clients on a scale from 1 to 5, with '1' being "very unconfident" and '5' being "very confident" (Fig 12). A total of 42% of health visitors reported being "confident" or "very confident" in discussing vitamin D, compared to 29% of midwives. The majority of midwives (33%) reported feeling "neither" confident or unconfident in discussing vitamin D.

In addition, only 29% of health visitors and 13% of midwives reported having come across the DH leaflet\textsuperscript{15}. Only 24% of health visitors and 11% of midwives reported having received training in vitamin D, yet 79% of health visitors and 78% of midwives thought it would be "useful" or "very useful" to have further training in this area.
4.2.4 Healthy Start

Respondents were asked about the role of the Healthy Start scheme within their current practice. When asked whether they discuss the Healthy Start scheme with clients (Fig 13), 76% of health visitors reported discussing Healthy Start with ‘all’ or ‘most’ clients, compared to 37% of midwives. Furthermore, only 1% of health visitors compared to 33% of midwives reported not discussing Healthy Start with any clients, however we suspect this may be due to the differing roles in midwifery, as highlighted in Figure 14.

Figure 13: Proportion of clients Healthy Start is discussed with by midwives and health visitors

Those midwives and health visitors who reported not discussing Healthy Start with all clients were then asked for their reasons; these are presented in Figure 14.

Figure 14: Reasons for not discussing Healthy Start amongst midwives and health visitors who report not discussing with ‘all’ clients

The most frequently stated reason by health visitors was that the clients were not eligible to receive Healthy Start (67%), followed by their not being enough time to discuss the issue.
(16%), or that the client had not asked about it (12%). The most frequent reason given by midwives was that it was not seen as part of their role (37%), that the client was not eligible for Healthy Start (29%), lack of knowledge of Healthy Start (23%) and not having enough time to discuss (16%).

Midwives and health visitors were also asked about other practice issues relating to Healthy Start (Fig 15). When asked whether they were aware of the Healthy Start scheme being supported where the respondent was based, 92% of health visitors said ‘yes’ compared to only 66% of midwives. Approximately a quarter (23%) of midwives reported that they did not know whether Healthy Start was supported at their Trust, suggesting that in some cases knowledge of the Healthy Start scheme at a local level is lacking. Health visitors generally agreed that their base ensured adequate supplies of Healthy Start application forms (87%) and leaflets (85%), but this was less of the case with Healthy Start vitamins (65%). A similar pattern emerged for midwives but to a lesser degree, as it is clear that not all midwives would deal with the application process for Healthy Start. 57% of health visitors and 21% of midwives reported having a list of local Healthy Start vitamin distributors to refer clients to; and when asked about confidence in directing clients to Healthy Start distributors, 81% of health visitors were confident compared to only 39% of midwives.

Figure 15: Healthy Start (HS) support, resource availability and distribution
4.3 Staff survey findings by PCT

The following section details the findings from health visitors across the 6 participating PCTs. PCT names have been abbreviated, and a full list of abbreviations can be found in Appendix 8.4.1.

4.3.1 Knowledge results

Total scores were calculated for the knowledge section and the average scores for each PCT are shown in Figure 16. Health visitors at NHS HMR scored the highest with 59%, closely followed by NHS EL with 55%. NHS ALW had the lowest average score, with 24% of the knowledge questions correctly answered.

*Unless otherwise stated, the colours used to represent each PCT within Figure 16 will continue throughout the remainder of this section.*

Figure 16: Total vitamin D knowledge scores by PCT

More than 60% of the health visitors at NHS HMR correctly identified the recommended daily allowance (RDA) of vitamin D for pre- and post-natal women in the UK as 10micrograms/day, followed by 50% at NHS MAN. None of the health visitors at NHS ALW identified the correct RDA. More than 50% of the health visitors at NHS EL correctly stated that more than 90% of our vitamin D supply is obtained from the sun, under 50% of health visitors at NHS Blackburn and Darwen identified the correct percentage of vitamin D from the sun compared to only 5% at NHS LIV. Almost 80% of health visitors at the majority of the PCTs were aware that vitamin D helps the body absorb calcium, but the majority of health visitors at each PCT were unaware of vitamin D’s involvement in the absorption of phosphorous (see appendix 8.5.1, Fig 28).

Health visitors were asked to list up to five food sources that they would recommend to clients to increase their vitamin D uptake. Figure 17 shows the number of foods correctly identified by the health visitors at each PCT. NHS EL and NHS HMR had the highest percentage of health visitors who were able to identify five vitamin D rich food sources. However, 71% of the health visitors at NHS ALW could only correctly identify one food source or none at all.
Amongst the correctly identified food types, oily fish was the most common (more than 80% at NHS HMR and NHS EL) followed by dairy products, eggs and breakfast cereals. However, it must be noted that not all dairy products contain vitamin D, and that it is usually only present in some fortified spreads, margarines and in some yoghurt products, and the client needs to be made aware to check the label on products to confirm vitamin D fortification. Amongst the incorrectly identified food types, the majority of those identified were only in small amounts with the exception of ‘green vegetables’, where nearly 40% of those at NHS ALW incorrectly identified this as a vitamin D rich food source (See appendix 8.5.1, Fig 29).

Health visitors were asked to identify symptoms or risk factors which may identify a client as being deficient in vitamin D from a list. All of the listed symptoms and risk factors may identify a client as being deficient in vitamin D. Figure 18 shows the number of correctly identified symptoms/risk factors from the health visitors at each PCT. A total of 17% of the health visitors at NHS EL identified all 7 symptoms/risk factors, and more than 30% of the health visitors at NHS HMR correctly identified 6 or more of the symptoms/risk factors. NHS ALW had the highest percentage of health visitors (28%) who did not identify any of the symptoms/risk factors associated with vitamin D deficiency.
The most frequently identified risk factor/symptom by health visitors was "limited exposure to sunlight", correctly identified by more than 80% amongst 5 of the 6 PCTs, followed by pigmented skin, muscle pain/weakness, and strict vegetarian diet. The remaining risk factors/symptoms (gastrointestinal disorders/conditions, multiparity/short spacing between pregnancy, and obesity) were identified by less than 50% of health visitors at each of PCT, with the exception of ‘multiparity’ at NHS EL (identified by 53%), and 29% of health visitors at NHS ALW were unable to identify any risk factors/symptoms stating that they ‘don’t know’ (see Appendix 8.5.1, Fig 30).

4.3.2 Vitamin D practice
The second part of the survey looked at current vitamin D practice and training amongst the health visitors at each PCT.

Firstly, health visitors were asked whether vitamin D was something that they discussed with clients. Figure 19 presents their responses. A total of 90% of health visitors at NHS BD reported discussing vitamin D with all clients, and more than 50% of health visitors at NHS HMR, NHS EL and NHS MAN reported discussing vitamin D with all or most of their clients. In contrast, nearly 57% of health visitors at NHS ALW reported not discussing vitamin D with any clients.

Secondly, those health visitors that did not discuss vitamin D with ‘all’ their clients were asked what their reasons were for this. Overall, knowledge of vitamin D was the most common reason, especially for the health visitors at NHS ALW (60%) and NHS WIR (51%). The client not presenting with any of the risk factors was the main reason for not discussing vitamin D at NHS MAN (60%). The client having not asked about it was a frequently reported reason at NHS EL (31%) and NHS WIR (27%), and not having enough time to discuss it was frequently reported at NHS EL (31%) and NHS LIV (27%). Confidence appeared to be a particular issue at NHS WIR (30%); and finally some health visitors at NHS EL (15%), NHS ALW (10%) and NHS WIR (8%) did not see it as part of their role (see appendix 8.5.1, Fig 31).

Those health visitors that reported discussing vitamin D with clients were asked whether they refer to any resources to aid their discussion. The most popular response was The Pregnancy/Birth-to-5 book (between 37% and 53% across all PCTs), followed by an in-house
leaflet, which appears particularly popular at NHS EL, with nearly 79% reporting using an in-house leaflet (see appendix 8.5.1, Fig 32).

Health visitors from each PCT were asked how confident they felt in advising clients about vitamin D (Fig 20). The health visitors at NHS B&D appear to feel the most confident with 73% stating that they felt “confident” or “very confident”. The health visitors at NHS ALW appeared least confident, with 46% reporting feeling “unconfident” or “very unconfident”.

**Figure 20: Confidence in discussing vitamin D with clients amongst health visitors by PCT**

Health visitors at each PCT were asked whether they had ever come across the Department of Health’s vitamin D leaflet specifically for health professionals. 56% of health visitors at NHS HMR reported that they recognised it, followed by 43% of health visitors at NHS WIR. However, less than 10% of health visitors at NHS ALW and NHS LIV reported having come across the leaflet (see Appendix 8.5.1, Fig 33).

Health visitors were also asked if they had undergone any training which incorporated vitamin D supplementation for pre- and post-natal women. 70% of health visitors at NHS EL reported having received training, but low levels of training (<26%) were reported at the remaining PCT’s, with no health visitors at NHS ALW or NHS WIR reporting that they had received any training in vitamin D supplementation (see Appendix 8.5.1, Fig 33).

All health visitors were asked whether they thought training in vitamin D would be useful on a scale of ‘1’ (‘not at all useful’) to ‘5’ (‘very useful’). More than 70% at each PCT thought that training would be ‘very useful’ or ‘useful’, and very few health visitors reported that they would not find training in this area useful (see Appendix 8.5.1, Fig 34).

### 4.3.3 Healthy Start

The final section of the survey focussed on the role of the Healthy Start scheme. The majority of health visitors reported that they discussed the Healthy Start scheme with all clients, with 50% or more at NHS EL, NHS WIR and NHS MAN (Fig 21). Very few health visitors reported that they discussed Healthy Start with "few" or "no clients" at each PCT (<12%).
The majority of health visitors reported that the reason for not discussing Healthy Start with all clients was the client not being eligible for the Healthy Start scheme, this was the highest response for NHS WIR (68%), NHS HMR (76%) and NHS ALW (67%). Not having enough time to discuss the Healthy Start scheme was most frequently reported at NHS MAN (44%) and the client not having asked about Healthy Start were seen as other reasons for not discussing it, particularly at NHS ALW (20%). A small number of respondents from NHS EL (11%) and NHS WIR (11%) reported lack of knowledge, and 21% at NHS EL viewed discussing Healthy Start as not part of their role (see Appendix 8.5.1, Fig 35). NHS B&D reported discussing Healthy Start with 91% of their clients.

Further questions were asked about support and availability of aspects of the Healthy Start scheme. The majority of health visitors reported that Healthy Start was supported at their base, and that Healthy Start applications and leaflets were readily available in their place of work at all PCTs. The availability of Healthy Start vitamin supplements at their place of work was highly reported at NHS EL (93%) but was much lower at the remaining Trusts (38-67%). The majority of health visitors at each PCT were also confident in directing clients to a Healthy Start distribution point, but the percentage of health visitors reporting having access to a list of Healthy Start distributors in their area was much lower, particularly NHS ALW (38%) and NHS MAN (48%) (see Appendix 8.5.1, Fig 36).
4.4 Staff survey findings by Acute Trust

The following section details findings from midwives at the 8 participating Acute Trusts. However, it must be noted that there were very few respondents from ELHT (n=7). Acute Trust names have been abbreviated, and a full list of abbreviations can be found in Appendix 8.4.2.

4.4.1 Knowledge findings

Total scores were calculated for the knowledge section and the average score for each Acute Trust are shown in Figure 22 below. Despite the very low response rate from ELHT (n=7), they had the highest average knowledge score (54%), followed by WUTH (52%), RBH (47%) and CMFT (46%). The lowest average percentage score was from WWL, with an average of 34% of questions correctly answered by midwives at their Trust.

*Unless otherwise stated, the colours used to represent each Acute Trust within the following figures will continue throughout the remainder of this section.*

![Figure 22: Total vitamin D knowledge scores by Acute Trust](image)

A total of 60% of the midwives at WUTH correctly identified the recommended daily allowance (RDA) of vitamin D for pre- and post-natal women in the UK as 10 micrograms/day, followed by 50% at SFT, compared to only 25% of midwives at PAT. Less than 20% of the midwives at each of the Acute Trusts knew that more than 90% of our vitamin D supply is obtained from the sun, and none of the midwives knew this at WWL. Between 68% (SFT) and 87% (WUTH) of midwives at all the Acute Trusts were aware that vitamin D helps the body absorb calcium, but the majority of midwives at each Acute Trust were unaware of vitamin D’s involvement in the absorption of phosphorous (>71%) (see Appendix 8.5.2, Fig 37).

Midwives were asked to list up to five food sources (unprompted) that they would recommend to clients to increase their vitamin D uptake. Figure 23 below shows the number of foods correctly identified by the midwives at each Acute Trust. ELHT had the highest percentage of midwives who were able to identify five vitamin D rich food sources (14%). However, 48% of midwives at SFT were only able to identify one or none at all.
Amongst the correctly identified food types, oily fish was the most common (more than 60% at RBH, ELHT, WWL and WUTH, but only 37% at LWH), followed by dairy products (more than 60% at ELHT and WUTH, but only 21% at RBH), eggs (79% at RBH, but only 28% at SFT) and breakfast cereals (60% at WUTH, but only 9% at WWL). However, it must be noted that not all dairy products contain vitamin D, and that it is usually only present in some fortified spreads, margarines and in some yoghurt products, and the client needs to be made aware to check the label on products to confirm vitamin D fortification. ‘Green veg’ topped the list of incorrectly identified vitamin D rich foods (21% at PAT), closely followed by ‘fruit’ (20% at LWH) and ‘bread’ (33% at WUTH) (see Appendix 8.5.2, Fig 38).

Midwives were asked to identify symptoms or risk factors which may identify a client as being deficient in vitamin D from a list. All of the listed symptoms and risk factors may identify a client as being deficient in vitamin D. Figure 24 shows the number of correctly identified symptoms/risk factors from the midwives at each Acute Trust. Just over 10% of midwives at ELHT and CMFT were able to identify all 7 risk factors/symptoms, with the majority able to identify 3. SFT had the highest percentage of midwives (16%) who could not identify any of the symptoms/risk factors associated with vitamin D deficiency.

Figure 23: No. of correctly identified food types by Acute Trust

Figure 24: No. of correctly identified risk factors/symptoms of vitamin D deficiency by Acute Trust
The most popular choice was, “limited exposure to sunlight”, correctly identified by more than 70% of midwives at each Trust, followed by pigmented skin (ranging from 36% at WWL to 71% at RBH, and gastrointestinal disorders (averaging between 40% and 50% at most Trusts. The remaining risk factors/symptoms were identified by less than 50% of midwives at each Acute Trust, and 16% of midwives at SFT were unable to identify any risk factors/symptoms stating that they ‘don’t know’ (see Appendix 8.5.2, Fig 39).

### 4.4.2 Vitamin D practice

The second part of the survey looked at current vitamin D practice and training amongst the midwives’ at each Trust.

Firstly, midwives’ were asked whether vitamin D was something that they discussed with clients. Figure 25 presents their responses. 85% of midwives’ at ELHT reported discussing vitamin D with “all” or “most” clients, followed by 60% at WUTH. In contrast, 86% of midwives at RBH reported not discussing vitamin D with any clients.

**Figure 25: Proportion of clients vitamin D is discussed with by Acute Trust**

Secondly, those midwives’ that did not discuss vitamin D with all their clients were asked what the reasons were for this. Overall, knowledge of vitamin D was the most frequently cited reason, especially for the midwives at WWL (40%) and PAT (44%). Over half (57%) of the midwives at RBH and 50% of the midwives at ELHT did not view discussing vitamin D as part of their role, however due to the small numbers of responses from both these Trusts this may not be representative. Between 10% and 20% of midwives that did not discuss vitamin D with all clients from the remaining Trusts reported not perceiving it as part of their role. Confidence appeared to be an issue at CMFT with 30%, and 36% of midwives at WUTH thought they did not have enough time to discuss vitamin D with clients (see Appendix 8.5.2, Fig 38).

Those midwives that reported discussing vitamin D with clients were asked whether they referred to any resources to aid discussion. The most common response was The Pregnancy/Birth-to-5 book with 30% to 40% at the majority of Trusts, followed by using the internet, which appeared most popular at WUTH (47%), and an in-house leaflet reported to be used by 71% of the midwives at ELHT (see Appendix 8.5.2, Fig 41).

Midwives from each Trust were asked how confident they felt in advising clients about vitamin D (Fig 26). The midwives at ELHT appear to feel the most confident, with more than 80% stating that they felt “confident” or “very confident”, compared to the midwives at CMFT, WWL and RBH with more than 30% feeling “unconfident” or “very unconfident”.

30
Midwives’ at each Trust were asked about whether they had ever come across the Department of Health’s vitamin D leaflet specifically for health professionals\textsuperscript{15}. A total of 73\% of midwives’ at WUTH reported that they recognised it. However, less than 10\% of midwives’ at CMFT, LWH, SFT, and none of the midwives at RBH, reported having come across the leaflet (see Appendix 8.5.2, Fig 42).

Midwives’ were also asked if they had undergone any training which incorporated vitamin D supplementation for pre- and post-natal women. Over half (57\%) of midwives at ELHT reported having received training, but low levels of training were reported amongst the midwives’ at the remaining Trusts (between 5\% at CMFT and 20\% at SFT) (see Appendix 8.5.2, Fig 42).

All midwives’ were asked whether they thought training in vitamin D would be useful on a scale of “1” (“not at all useful”) to “5”, (“very useful”). 88\% of midwives at CMFT, and more than 70\% of midwives at remaining Trusts, thought training would be “very useful” or “useful”. Very few midwives reported that they would find training in this area “not useful” (see Appendix 8.5.2, Fig 43).

4.4.3 Healthy Start
The final section of the survey focussed on the role of the Healthy Start scheme. Firstly we asked all the midwives’ whether they discuss the Healthy Start scheme with clients (Fig 27).
71% of midwives at ELHT reported that they discussed the Healthy Start scheme with ‘all’ clients, and 67% of midwives at WUTH reported that they discussed Healthy Start with ‘all’ or ‘most’ clients. However, in the remaining Trusts, less than 40% discussed Healthy Start with all clients, and large proportions of midwives reported that they did not discuss Healthy Start with any clients (71% at RBH to 13% at WUTH).

A large proportion of midwives reported that the reason for not discussing Healthy Start with all clients was that it was not seen as part of their role; this was most evident at RBH, where 64% of respondents felt this was not part of their role. The client being not eligible for the Healthy Start scheme was a frequent response at WUTH (67%). A lack of knowledge and not having enough time to discuss the Healthy Start scheme was most frequently reported at WWL (38% and 25% respectively), and a small number of respondents reported reasons such as the "client had not asked about it", or they felt uncomfortable bringing up the subject of Healthy Start with clients (see Appendix 8.5.2, Fig 44).

The majority of midwives reported that Healthy Start is supported at their base, with the exception of LWH where 47% agreed to this statement. The awareness of the availability of Healthy Start application forms and leaflets were reported by the majority at most Trusts, with the exception of midwives at WWL, LWH and RBH (<45% and <36% respectively). The awareness of the availability of Healthy Start vitamin supplements at place of work was highly reported at ELHT (71%), but was much lower at the remaining Trusts (between 14% at CMFT and 27% at PAT and WWL). Confidence in directing clients to a Healthy Start distribution point, and having a list of Healthy Start distributors was more frequently reported at ELHT (57%) and WUTH (53%), but was much less amongst the remaining Trusts (between 7% at RBH and 27% at PAT) (see Appendix 8.5.2, Fig 45).
4.5 Overall case note results

4.5.1 Overall midwives

Figure 28: Categorised age of clients

<table>
<thead>
<tr>
<th>Hospital Trust</th>
<th>16-20</th>
<th>21-25</th>
<th>26-29</th>
<th>30-34</th>
<th>Above 35</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMFT</td>
<td>7</td>
<td>7</td>
<td>15</td>
<td>7</td>
<td>15</td>
<td>51</td>
</tr>
<tr>
<td>PAT</td>
<td>7</td>
<td>15</td>
<td>16</td>
<td>23</td>
<td>7</td>
<td>68</td>
</tr>
<tr>
<td>LW</td>
<td>6</td>
<td>11</td>
<td>9</td>
<td>11</td>
<td>13</td>
<td>50</td>
</tr>
<tr>
<td>SFT</td>
<td>3</td>
<td>10</td>
<td>12</td>
<td>8</td>
<td>8</td>
<td>41</td>
</tr>
<tr>
<td>WT</td>
<td>6</td>
<td>11</td>
<td>12</td>
<td>10</td>
<td>10</td>
<td>49</td>
</tr>
<tr>
<td>Grand Total</td>
<td>29</td>
<td>54</td>
<td>64</td>
<td>59</td>
<td>53</td>
<td>259</td>
</tr>
</tbody>
</table>

The highest numbers of audited case notes were from Pennine Acute Trust; the Trust is compromised of 4 sites. Overall the highest proportions of 16-20 year olds and above 35 year olds were from CMFT, SFT had low number of 16-20 year olds (3 clients).

Figure 29: percentage of literature distributed amongst different grouped ages

| Age Group | TRUE | %
|-----------|------|---
| 16-20     | 48   |   |
| 21-25     | 41   |   |
| 26-29     | 39   |   |
| 30-34     | 36   |   |
| Above 35  | 36   |   |

Literature was distributed to 48% of 16-20 year olds, this group received the highest number of Health Start leaflets but less then 50% of 16-20 year olds were introduced to the scheme. The highest numbers of Pregnancy books distributed were amongst women belonging to 30-34 year old category; 11 out of 59 received the book.

Figure 30: Ethnic population of audited case notes.

A diverse ethnic population (47%) amongst case notes audited from central Manchester can be seen. The audit depicts a predominately British white case note population in Liverpool, Stockport and Wigan.
Pennine Acute Trust portrays an affluent ethnic population this is due to a combination of cases notes audited in 4 hospital sites across Greater Manchester and that pockets of large Asian communities are found in parts of Oldham and Rochdale and Bury.

**Figure 31: Has the clients BMI been calculated**

<table>
<thead>
<tr>
<th>FALSE</th>
<th>TRUE</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>246</td>
<td>268</td>
</tr>
</tbody>
</table>

We found 92% of women in this audit had their BMI calculated by their midwife.

**Figure 32: Pre-pregnancy BMI above 30 kg/m2**

<table>
<thead>
<tr>
<th>Hospital Trust</th>
<th>TRUE</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMFT</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>LW</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>SFT</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>WT</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>PAT</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Grand Total</td>
<td>64</td>
<td>64</td>
</tr>
</tbody>
</table>

Of the 246 women who had their BMI calculated, we found 64 (26%) women with a pre pregnancy BMI above 30kg/m2.

28 women received literature relating to vitamin D; unfortunately vitamin D was only discussed with two of these women.

**Figure 33: Vitamin D discussions and distribution of literature**

Vitamin D promotion was poor amongst all hospital; the audit indicated vitamin D discussions were rare and inconsistent in each trust. SFT did not discuss vitamin D with any of their clients in the audit. Less than 50% of the women in this audit received literature.
Although 61% of women were booked within the recommended time frame according to the NHS pathway less than 20% received a vitamin D discussion. NICE guidelines state that vitamin D should be discussed during the booking appointment to improve the health of the baby and mother. The audit shows less than 10% of the women booked between 8-12 weeks had a vitamin D discussion.

Figure 35: Literature distribution amongst trusts

Over 80% of women from central Manchester received literature, they are the only Trust to have a vitamin D policy in place. Liverpool Women’s Hospital failed to distribute literature to their clients, the only women that received literature was given a pregnancy book. Across 4 sites Pennine Acute Trust only issued literature to 20% of their clients.
Overall literature distribution was low; the Health Start leaflet was the most distributed type of literature, however less than 20% of clients received one. NICE guidance and the Department of Health recommends that all expectant mothers are issued with the “The Pregnancy Book”, we found less than 20% were issued with one.
4.5.2 Overall Health Visitor case note audit

Figure 37: Categorised age of clients

<table>
<thead>
<tr>
<th>NHS PCT Trust</th>
<th>16-20</th>
<th>21-25</th>
<th>26-29</th>
<th>30-34</th>
<th>Above 35</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>BD</td>
<td>2</td>
<td>15</td>
<td>25</td>
<td>39</td>
<td>16</td>
<td>97</td>
</tr>
<tr>
<td>CM</td>
<td>11</td>
<td>21</td>
<td>33</td>
<td>23</td>
<td>11</td>
<td>99</td>
</tr>
<tr>
<td>EL</td>
<td>6</td>
<td>23</td>
<td>21</td>
<td>20</td>
<td>10</td>
<td>80</td>
</tr>
<tr>
<td>LP</td>
<td>17</td>
<td>10</td>
<td>21</td>
<td>12</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>WN</td>
<td>3</td>
<td>15</td>
<td>17</td>
<td>7</td>
<td>7</td>
<td>49</td>
</tr>
<tr>
<td>Grand Total</td>
<td>22</td>
<td>91</td>
<td>106</td>
<td>110</td>
<td>56</td>
<td>385</td>
</tr>
</tbody>
</table>

NHS Liverpool did not record any pregnancies in women between 16-20 years; 50% of the women in the 16-20 year old group were from NHS Manchester. The East Lancashire audit did not record any pregnancies in women younger than 19 years old. Women in this group all received literature informing them of vitamin D uptake. Vitamin D was promoted in all women grouped between 30-34 years old and above 35 years old. Results from NHS Liverpool highlighted a high number of pregnancies in women above 35 years old, the risk of depleted vitamin D stores in these women is high as calcium stores are comprised by the increasing demands on the mother.

Figure 38: Ethnic population of audited case notes

In areas such as Wigan and Liverpool we found more than 70% of the case notes audited were from British white women. Overall 74% of all white British women in the audit did not receive verbal advice regarding vitamin D supplementation. In both Wigan and Liverpool results from the staff survey and the service evaluation audit illustrated poor vitamin D promotion, such results warrant further work to increase the awareness of vitamin D in all ethnic groups.
Ashton Wigan and Leigh reported two clients with a family history of bone disease, Central Manchester recorded 4 clients with an associated medical condition, 1 client reported being a celiac and the remaining 3 clients reported having family history of bone disease, a vitamin D discussion advising them to supplement was not noted in their notes. We found 7 women with a medical condition at NHS Blackburn and Darwen; all these women received literature and a discussion.

Figure 40: Representation of Vitamin D uptakes

<table>
<thead>
<tr>
<th>PCT</th>
<th>FALSE</th>
<th>TRUE</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM</td>
<td>93</td>
<td>6</td>
<td>99</td>
</tr>
<tr>
<td>EL</td>
<td>89</td>
<td>6</td>
<td>89</td>
</tr>
<tr>
<td>LP</td>
<td>59</td>
<td>1</td>
<td>60</td>
</tr>
<tr>
<td>WN</td>
<td>50</td>
<td>7</td>
<td>57</td>
</tr>
<tr>
<td>Grand Total</td>
<td>291</td>
<td>7</td>
<td>398</td>
</tr>
</tbody>
</table>

Central Manchester reported 6 women taking postnatal vitamin D supplements; all women were from an ethnic background and were given literature relating to vitamin D, 5 of the 6 women received verbal advice.

Results from East Lancashire and Liverpool showed none of the women supplemented with vitamin D / Healthy Start vitamins during pregnancy or after. The table demonstrates vitamin D uptake was low amongst all women during pregnancy and after birth in all participating Trusts.
Overall health visitors were better at issuing literature relating to vitamin D than discussing vitamin D during appointments, we found over 70% of the case notes audited documented literature was given. Health visitors at NHS Blackburn and Darwen and NHS East Lancashire gave literature to over 90% of the women they saw.

The Birth to Five book was the most popular piece of literature distributed amongst health visitors, distribution of Healthy Start application forms was poor, the audit revealed less than 10% of the case notes audited documented a Healthy Start application form issued.
5 Pharmacy Audit

The pharmacy audit was carried out to give an insight of vitamin D promotion amongst local community pharmacists. A small number of pharmacists within areas of participating Primary Care Trusts were asked to participate in the audit. The audit found Vitamin D awareness was low in all stores thus highlighting the need for pharmacists to work alongside community providers to increase how vitamin D is promoted locally. If pharmacists are willing to promote vitamin D and Healthy Start vitamins in store, prompts such as posters and leaflets will remind women visiting to buy supplements. Community clinics are primary distribution points for Healthy Start vitamins, the variation in their opening hours leads to access and availability problems which are known to limit vitamin purchases and voucher exchanges. Although the demand for vitamin D is low, stocking Healthy Start vitamins in commercial pharmacies across the North West would increase accessibility and raise awareness.

Figure 43: Type of vitamin D stocked

<table>
<thead>
<tr>
<th>Type of vitamin D stocked</th>
<th>Number of pharmacies stocking the supplement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy Start Vitamin Supplements</td>
<td>1</td>
</tr>
<tr>
<td>Chewable calcium and Vitamin D</td>
<td>4</td>
</tr>
<tr>
<td>Pregnacare</td>
<td>5</td>
</tr>
<tr>
<td>Sanatogen</td>
<td>1</td>
</tr>
</tbody>
</table>

We found pharmacists were reluctant to stock adult Healthy Start supplements for many reasons. Pregnacare was the most shelved supplement; costing £4.69 for 30 units compared to the Healthy Start supplements (shelf life of 2 years) at 91p for 56 units when sold to non-beneficiaries. Pharmacists gave having a short shelf-life as their primary reason for not stocking Healthy Start children’s vitamin drops; as a result they stocked alternative drops.

Figure 44: Vitamin D demand

<table>
<thead>
<tr>
<th>In the last 3 months increase in demand</th>
<th>Number of pharmacies that observed a change</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the last 3 months decrease in demand</td>
<td>0</td>
</tr>
<tr>
<td>In the last 3 months no change</td>
<td>6</td>
</tr>
</tbody>
</table>

Pharmacists reported no changes to the demand of vitamin D; they advised they were approached by pre or postnatal women regarding vitamin D supplements less than once a week.

Figure 45: Recommending vitamin D to women who enquire about taking supplements during pregnancy

<table>
<thead>
<tr>
<th>Number of pharmacies who observed a change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommend to some women</td>
</tr>
<tr>
<td>Recommend to all women</td>
</tr>
<tr>
<td>Do not recommend to any women</td>
</tr>
</tbody>
</table>

Pharmacists advised they would recommend Vitamin D if they were approached by women, one pharmacist reported not advising women to supplement. Advising women is key to
promoting vitamin D, therefore it is essential pharmacists are updated with all guidance and changes so that the advice they give is current and in line with advice given during appointments.

**Figure 46: Stocking Healthy Start vitamins**

<table>
<thead>
<tr>
<th>Reasons for not promoting Healthy Start</th>
<th>Number of pharmacies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of demand</td>
<td>4</td>
</tr>
<tr>
<td>Unaware of availability</td>
<td>2</td>
</tr>
<tr>
<td>Shelf life</td>
<td>1</td>
</tr>
<tr>
<td>Other; Head office decision</td>
<td>1</td>
</tr>
<tr>
<td>Other; Not on company planogram</td>
<td>1</td>
</tr>
</tbody>
</table>

When pharmacists were asked why they did not stock Healthy Start vitamins more than 50% said there was a lack of demand for them in the community and they felt it was not necessary for them to stock them if they were rarely approached for them.

The main audit indicated that women were uninformed of the implications associated with not supplementing, because they were not told about vitamin D during appointments. As a consequence vitamin D uptake was poor, we found very few women supplemented prenatally and postnataally. Vitamin D was stocked by one pharmacy; this pharmacy used leaflets and posters to increase the awareness of the Healthy Start Scheme.

Other reasons for not stocking and promoting Healthy Start Vitamins were; overall decision to stock was a head office decision and shelves were stocked according to company shop floor plan.
6 Discussion and Conclusion

6.1 Discussion

Our provider services audit looked at individual Trust policies as a whole to determine what practices were in place amongst selected Acute Trusts and PCTs. Only one Acute Trust (Central Manchester University Hospitals (CMFT)) and one Primary Care Trust (NHS East Lancashire (NHS EL)) reported having a vitamin D policy in place. Four Trusts had either a team of experts available with a role relating to vitamin D or a vitamin D representative/coordinator (Liverpool Women’s (LWH); NHS EL; Liverpool Community Health (NHS LIV); and NHS Manchester (NHS MAN)). Just under half of the Trusts reported incorporating vitamin D into training packages (Acute Trusts: Pennine Acute Hospitals (PAT), Wirral University Teaching Hospital (WUTH), Wrightington, Wigan and Leigh (WWL); PCTs: NHS Ashton, Leigh and Wigan (NHS ALW); and NHS EL). However, the majority of Trusts did report giving information about vitamin D to their staff (Acute Trusts: all except LWH; and the following PCTs did not provide information for staff: NHS ALW, NHS MAN, and NHS Wirral (NHS WIR)).

It should be noted that there was a substantial difference in reported vitamin D policies, practice and personnel evident between PCTs. In particular, NHS Blackburn and Darwen reported having every aspect relating to vitamin D in place such as training and information for health professionals, leaflets for clients and up to date documentation to record Healthy Start uptake. However, we found the remaining PCTs reported having between one to three of the potential policies, practice and personnel in place. It is clear that, as they have all these tools in place, both the clients and health visitors at NHS Blackburn and Darwen have benefitted; 72% of health visitors at NHS Blackburn and Darwen reported having the confidence to advise their clients about vitamin D compared to health visitors from other trusts. 90% of the women seen by NHS Blackburn and Darwen health visitors received a discussion relating to vitamin D. NHS ALW appeared to have health visitors with the least amount of knowledge and confidence around vitamin D, which was reflected in the finding that over half reported they never discussed vitamin D with clients. However, over 70% thought that training would be “useful” or “very useful”, indicating that there is potential to improve vitamin D practice amongst NHS ALW’s health visitors if they are provided with appropriate support.

A substantial percentage of midwives at several Trusts (LWH, PAT, Royal Bolton Hospital (RBH), Stockport (SFT) and WWL) reported never discussing vitamin D with clients; we found over 80% reported never discussing vitamin D with their clients at RBH. Alongside NHS ALW, many midwives at RBH would find training “useful” or “very useful”.

The findings from the staff survey suggest that there is a lack of knowledge amongst midwives and health visitors about the importance and facts surrounding vitamin D. Very few midwives and health visitors within this audit were aware that more than 90% of our vitamin D supply is obtained from sunlight and less than 10% is derived from food sources. The audit also revealed that less than 40% midwives and health visitors overall were able to identify the correct recommended daily allowance (RDA) for the supplementation of vitamin D for pregnant women (10 micrograms/day); but there was considerable variation between Trusts, with none of the midwives at NHS ALW correctly identifying the RDA, to over 60% correct at NHS HMR and 60% of health visitors correct at NHS WWL. A high percentage of health visitors and midwives were aware of vitamin D’s role in the absorption of calcium, but less than 20% were aware of its role to help absorb phosphate. The majority of midwives and health visitors were able to correctly identify 2-3 vitamin D rich food sources such as oily fish and eggs, but there were also many who identified food sources which contain no vitamin D such as green vegetables and fruit. However, due to the variance in responses to the question requesting the identification of five food sources that were rich in vitamin D, responses had to be grouped into categories for analytical purposes. It must be noted that, although ‘dairy produce’ is presented as a correct response by the midwives and health visitors, not all dairy produce is a source of vitamin D. Only dairy products such as milk, yoghurt and margarine
that have been fortified contain vitamin D and often this is only in very small amounts. Therefore, midwives and health visitors who recommend dairy products as a source of vitamin D, need to make their clients aware that they should check the nutritional information to confirm fortification.

Furthermore, **most midwives and health visitors were able to identify only 2-3 out of 7 of the risk factors/symptoms of vitamin D deficiency, with obesity being the least recognised risk factor.** Very few health visitors, and an even lower proportion of midwives, reported having received any information or training in vitamin D, and confidence in discussing the issue with clients was generally low overall. To translate information and key messages effectively, midwives and health visitors should be knowledgeable and confident in discussing vitamin D, however the results suggest that many midwives and health visitors across the North West are currently not up to date with the facts around vitamin D and therefore training around the implications of low circulating vitamin D would be welcomed.

The training and practice section of the staff survey indicated that a higher proportion of health visitors than midwives discuss vitamin D with their clients. Of those midwives that indicated they did not discuss vitamin D with their client, their main reasons were lack of knowledge, the client not presenting with any risk factors, lack of confidence and not viewing it as part of their role. Similar reasons for not discussing vitamin D with clients were also given by health visitors; but far fewer felt that it was not part of their role (>15% of midwives compared to 5% of health visitors). These findings are explained by the varied roles undertaken by midwives; some midwives do not deal with clients at antenatal bookings, they do not work in the community, they have little client contact, or they only deal with intrapartum or postnatal care.

The Healthy Start scheme supports many women, children and families across the UK. The scheme allows beneficiaries to receive free vitamins and exchange vouchers for infant formula milk, frozen and fresh vegetables and fruit. Over 70% of health visitors reported promoting the scheme to all or most of their clients, of those that did not promote the scheme over 60% reported this was due to the client not being eligible for Healthy Start. Time and not being asked about the scheme were also documented as reasons for not promoting the scheme, both highlighting the need to revisit the length of each appointment and the need to use a criterion tool to prompt a discussion regarding vitamin D. Responses from midwives indicated a gap in local knowledge; 23% of midwives were unsure if the scheme was supported by their Trust and 37% believed promoting the scheme was not part of their role. Although new NICE guidelines advocate health professionals to recommend vitamin D supplementation, interventions to do so have not been implemented with frontline staff.

Each Trust has a duty to deliver advice, support and access to information on vitamin D, informing women of the risks associated to their baby and themselves. When supported with the resources to endorse Healthy Start, the audit illustrated that health visitors were well informed of the scheme and confident in promoting it, with over 60% provided with distribution lists and over 80% having application forms and leaflets at hand. However midwives felt they were not provided with enough information on Healthy Start and only 20% said they had access to a distribution list.

Our findings suggest a need to educate midwives and health visitors through a stand alone or incorporated training sessions. Health professionals are key to the promotion of vitamin D, and there is a need to increase their awareness of ‘at-risk’ groups, symptoms and interventions available to clients, and strengthen their confidence to discuss supplementation and to pinpoint high risk mothers. Once the mother has been informed about the common manifestations of vitamin D deficiency, it is then her decision to take up the Healthy Start scheme or buy vitamin D supplements.

Where policies are in place, it is clear that midwives and health visitors are more knowledgeable regarding vitamin D, and discussing vitamin D in practice is more apparent compared to those Trusts which are yet to tackle this issue. To ensure pre- and post-natal women are receiving care that supports their health needs, good communication between health professionals and their clients is imperative. Tailored care to incorporate cultural,
medical and other issues should uniformly exist to cater for everyone’s individual needs. The responsibility to avoid inconsistency in the messages communicated to clients falls to the Trust or PCT – they should ensure evidence-based training and materials are available that address both the importance of vitamin D to health and how it can be obtained (sun exposure, vitamin supplementation, and appropriate food sources). The main reason for not discussing vitamin D with clients was lack of knowledge.

Both the staff audit and case note audit showed the need to promote the optimal dietary vitamin D intake. The responsibility to increase awareness amongst mothers is placed with health professionals of maternity and community care and therefore it is not acceptable to ignore the need to ensure all health professionals advising expectant and postnatal women are trained and informed of information relating to vitamin D.

We found in many instances vitamin D was not discussed with women who were most at risk. Some midwives and health visitors were unaware of risk factors affecting vitamin D absorption and others could only identify one or two. A lack of confidence, conflicting information, no training and time were a few reasons amongst several listed for having poor knowledge of vitamin D and not discussing it with women.

We found many trusts did not have any vitamin D training in place or a vitamin D policy leaving midwives and health visitors unsure what to discuss and protocol to follow. It is particularly important that pregnant women supplement with vitamin D to prevent congenital rickets and other associated health outcomes such as preeclampsia and gestational diabetes. The audit strongly suggests those trusts that do not have a vitamin D policy or training in place, to look to trusts with already established vitamin D protocols, results from these trusts evidently showed vitamin D is promoted well, over 80% of the women seen at these trusts received advice, literature and healthy start vitamins or leaflet.

Pharmacy audit

The lack of vitamin D uptake across community’s hindered pharmacy input to promote vitamin D. One pharmacist, did not advise pregnant women about vitamin D, illustrating the lack of awareness and the need to involve pharmacists. The importance of vitamin D is well documented in research but the health repercussions to mother and baby are not fully known in wider society. If pharmacists were fully aware of the importance of vitamin D they may feel confident and obliged to inform women entering their store. Store promotion via posters and leaflets would reinforce the vitamin D information given at prenatal or primary appointments and provide a subtle reminder to all women to supplement. Findings indicated the demand for vitamin D was low in local communities and therefore pharmacists found no reason to stock vitamins with a short self-life and very little uptake. Whilst recognizing pharmacy input is subjective to local demands, pharmacy support is fundamental in promoting Vitamin D to women in the community.

Therefore we suggest co-operation from large pharmacy chains and supermarket pharmacies to stock Healthy Start vitamins to amplify access points for women and in turn increase the number of Healthy Start vitamins sold or vouchers exchanged. By implementing this change women will be able to exchange all their vouchers under one roof and women wanting to buy Healthy Start Vitamins are able to at a smaller cost.

6.2 Study limitations

- Only a small sample of midwives took part in the survey, therefore it is difficult to conclude that the findings are representative to individual Acute Trusts.

- The lack of response to the online survey (staff not accessing emails etc), meant that paper copies were sent out which did not have the advantage of providing educational material (answers to knowledge test).

- Since carrying out the provider services audit Trusts may have began to implement new vitamin D policies and may therefore have already acted on some of the recommendations made in this report.
6.3 Recommendations

- Midwives and health visitors need to be educated through a stand alone or incorporated training session which addresses both the importance of vitamin D to health and how it can be obtained: through sun exposure, vitamin supplementation, and appropriate food sources, and training into how to deliver this information to all pre- and post-natal women.
- Leaflets on vitamin D uptake in pregnancy/breast feeding should be created (reviewed if already in place) and made widely available to health visitors and midwives.
- All Trusts should ensure that they have information on, and up-to-date distribution lists for Healthy Start available to health visitors and midwives.
- All Trusts should start the process of developing a vitamin D policy relating to pre- and post-natal women.
- We would encourage those Trusts with a written vitamin D policy to share this with other Trusts.
- We would encourage those Trusts that have training in place and have health visitors/midwives with higher levels of confidence and/or reported higher levels of delivering vitamin D information to clients, to share their training packages with other Trusts.

6.4 Conclusion

The ongoing message to protect skin from sunlight for the prevention of cancer has left people unwilling to expose themselves to UV rays without the use of sun screen protection. This health campaign has not accounted for the need of sun exposure to increase vitamin D stores for the absorption of calcium and phosphate. Cohort studies have shown strong associations between vitamin D concentrations and a wide spectrum of health problems including colon cancer, fractures and multiple sclerosis. The overall findings from the audit suggest that vitamin D awareness is poor due to lack of knowledge, training and limitations to promote it; participating Trust sites have minimal infrastructure in place to promote the uptake of vitamin D. In order to tackle this issue, Trusts need to establish or re-evaluate their vitamin D policies so that pregnant women and new mothers can receive the correct information and make informed choices regarding vitamin D supplementation. However, there are a few Trusts included in this audit who have established a vitamin D policy or who have a policy in the making and are up-to-date with what can be done for pregnant women in the current economical climate. It would be useful for other Trusts who may not have a policy established or are in the process of implementing one to learn from these key sites.
7 Acknowledgements

We would like to thank all the following for their contributions:

<table>
<thead>
<tr>
<th>Name</th>
<th>Position and Additional Information</th>
<th>Organization and Location</th>
</tr>
</thead>
<tbody>
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<td>Consultant Epidemiologist</td>
<td>Epidemiology Department</td>
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<tr>
<td></td>
<td></td>
<td>Stockport NHS Foundation Trust</td>
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<tr>
<td>Steven Knuckey</td>
<td>Research and Projects Lead</td>
<td>Epidemiology Department</td>
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<td></td>
<td></td>
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<td>Hanna Alan</td>
<td>Public Health Development Manager</td>
<td>NHS Blackburn with Darwen</td>
</tr>
<tr>
<td>Alexandra Hammond</td>
<td>Infant Feeding Coordinator for East Lancashire</td>
<td>Lancashire Care NHS Foundation Trust</td>
</tr>
<tr>
<td>Eileen C Stringer (Mrs)</td>
<td>Consultant Midwife in Public Health</td>
<td>Rochdale Infirmary</td>
</tr>
<tr>
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<td>Maternity Risk Manager and Lead Midwife for Audit</td>
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</tr>
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</tr>
<tr>
<td></td>
<td></td>
<td>HEALTHCARE</td>
</tr>
<tr>
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</tr>
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<td>GP Tutor</td>
<td>Manchester</td>
</tr>
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<td>East Cheshire NHS Foundation Trust</td>
</tr>
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<td>Sue Kardahji</td>
<td>Regional Infant feeding Coordinator</td>
<td>Department of Health - North West</td>
</tr>
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<td>Julie Pickles</td>
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<td>Dr Clare Tower</td>
<td>Clinical Lecturer/ Subspecialty Trainee in Maternal and Foetal Medicine</td>
<td>Maternal and Foetal Health research Centre</td>
</tr>
</tbody>
</table>
References

1 Allgrove J (2004); Is nutritional rickets returning? Archives of disease in childhood 89: 669-701.


11 Shine on Scotland. See http://shineonscotland.org.uk.


15 Department of Health (2009) Vitamin D: An essential nutrient for all... but who is at risk for vitamin D deficiency? Important information for healthcare professionals.

## Appendix

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8.1 Provider services proformas
The following two proformas were used to collect information from each participating Trust regarding current vitamin D policies in place.

8.1.1 PCT Provider services proforma

PCT Provider Services Proforma (September 2010)

The following survey forms part of a regional provider services audit into vitamin D promotion and practice with prenatal and postnatal women. Selected PCTs across the North West have been asked to complete the following survey to establish current practice and policies in place for the supplementation of vitamin D to prenatal and postnatal women.

This form can be completed in Microsoft Word. The shaded areas indicate where free text can be added, or a box can be ticked. Please complete and return the questionnaires and attach any additional documents by email or post before 31st October 2010.

<table>
<thead>
<tr>
<th>PCT name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of trusts within PCT:</td>
</tr>
<tr>
<td>No. of Children’s centres within PCT:</td>
</tr>
<tr>
<td>No. of Midwives/Health Visitors:</td>
</tr>
</tbody>
</table>

### Vitamin D Policy and Protocols

1. Does the PCT have a written vitamin D policy?  
<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
</tr>
</thead>
</table>
   If “YES” (please attach a copy)  
   (i) Is it publicised?  
   | Y | N |
   (ii) Is it audited?  
   | Y | N |
   (iii) Does it include a staff training policy?  
   | Y | N |
   (iv) When was your vitamin D policy implemented? (DD/MM/YYYY)  
   | Y | N |
   If “NO”:  
   (v) Would you consider implementing a vitamin D policy at your PCT?  
   | Y | N |
   (vi) How long would it take for your PCT to implement a new vitamin D policy?  
   | 4-6 months | 6-9 months | 9-12 months | 12 months + | Don't know |
   | Y | N |
   (vii) Please state the process and who needs to be consulted for a policy to be implemented at your PCT:  
   | Y | N |

### Vitamin D Management and Training

2. Do you have a vitamin D team?  
   | Y | N |
   If “YES”, please detail the composition of the team, if and when meetings are held, and how long the team has
been in place.

3. Do you have a vitamin D representative/coordinate?  
☐ Y  ☐ N
If “NO”:
   (i) Would you find it useful to have a vitamin D coordinator at your trust?  
☐ Y  ☐ N

4. Have health visitors at your PCT been provided with information about vitamin D supplementation in postnatal women?  
☐ Y  ☐ N
If “YES”, please attach any paper based resources for staff etc.

5. Do you have any in-house leaflets containing information on vitamin D for health visitors’ to give to clients?  
☐ Y  ☐ N
If “YES”, please attach any leaflets currently in use.

6. Does the PCT offer any vitamin D training for health visitors’?  
☐ Y  ☐ N
If “YES”:
   (i) Is this training mandatory?  
☐ Y  ☐ N
   (ii) Is it: ☐ a stand alone session? OR ☐ part of another training session?
   (iii) Does the training cover the following:
      a) The nutritional needs (specific to vitamin D) of postnatal women?  
☐ Y  ☐ N
      b) The importance of supplementation for breastfeeding women?  
☐ Y  ☐ N
      c) Availability of suitable vitamin D supplements (such as the Healthy Start vitamins)?  
☐ Y  ☐ N
If “NO”:
   (iv) Would you consider implementing a training session on vitamin D supplementation?  
☐ Y  ☐ N

Comments:

Healthy Start Scheme

7. Does the PCT promote the Healthy Start scheme?  
☐ Y  ☐ N
If “NO”, please can you state the reasons behind not promoting the Healthy start scheme?

8. Do you have a list of Healthy Start distributors in your area that health visitors’ can give to clients?  
☐ Y  ☐ N
If “YES”, please attach a copy.

9. Do you provide free Healthy Start vitamins to any of the following:
   ☐ All postnatal women
   ☐ Only those postnatal women who are eligible
   ☐ Postnatal women from certain areas/districts
   ☐ None of the above
   ☐ Other

Finally, if you have any comments please document them here:

Thank you for completing this provider services audit survey.

Please can you attach copies of any of the following:

☐ Vitamin D policy/protocol/SOP
☐ Any training documents for staff
☐ Any in-house leaflets for staff/clients
☐ List of Healthy Start distributors

Please complete the following:
Your name:
Your full job title:

50
Your email address:

Your contact number:

Date the questionnaire was completed:
Acute Trust Provider Services Proforma (September 2010)

The following survey forms part of a regional provider services audit into vitamin D promotion and practice with prenatal and postnatal women.

Selected trusts across the North West have been asked to complete the following survey to establish current practice and policies in place for the supplementation of vitamin D to prenatal and postnatal women.

This form can be completed in Microsoft Word. The shaded areas indicate where free text can be added, or a box can be ticked. Please complete and return the questionnaires and attach any additional documents by email or post before 31st October 2010.

Trust name:

No. of midwives employed at this trust:

<table>
<thead>
<tr>
<th>Vitamin D Policy and Protocols</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2. Does the maternity department within your Trust have a written vitamin D policy?</strong></td>
</tr>
<tr>
<td>If “YES” (please attach a copy):</td>
</tr>
<tr>
<td>(i) Is it publicised?</td>
</tr>
<tr>
<td>(ii) Is it audited?</td>
</tr>
<tr>
<td>(iii) Does it include a staff training policy?</td>
</tr>
<tr>
<td>(iv) When was your vitamin D policy implemented? (DD/MM/YYYY)</td>
</tr>
<tr>
<td>If “NO” :</td>
</tr>
<tr>
<td>(v) Would you consider implementing a vitamin D policy at your trust?</td>
</tr>
<tr>
<td>(vi) How long would it take for your trust to implement a new vitamin D policy?</td>
</tr>
<tr>
<td>□ 4-6 months</td>
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<td>□ 6-9 months</td>
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<tr>
<td>□ 9-12 months</td>
</tr>
<tr>
<td>□ 12 months +</td>
</tr>
<tr>
<td>□ Don't know</td>
</tr>
<tr>
<td>(vii) Please state the process and who needs to be consulted for a policy to be implemented at your trust:</td>
</tr>
</tbody>
</table>

| Comments: |

<table>
<thead>
<tr>
<th>Vitamin D Management and Training</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2. Do you have a vitamin D team?</strong></td>
</tr>
<tr>
<td><strong>3. Do you have a vitamin D representative/coordinator?</strong></td>
</tr>
<tr>
<td>If “NO” :</td>
</tr>
<tr>
<td>(i) Would you find it useful to have a vitamin D coordinator at your trust?</td>
</tr>
</tbody>
</table>
4. Have midwives at your trust been provided with information about vitamin D supplementation in pregnant women? (please attach any paper based resources for staff etc) □ Y □ N

5. Do you have any in-house leaflets containing information on vitamin D for midwives to give to clients? (please attach any leaflets in use) □ Y □ N

6. Does the trust offer any vitamin D training for midwives? □ Y □ N
   If “YES”:
   (i) Is this training mandatory? □ Y □ N
   (ii) Is it: □ a stand alone session? OR □ part of another training session?
   (iii) Does the training cover the following:
      a) The nutritional needs (specific to vitamin D) of pregnant women? □ Y □ N
      b) The importance of a balanced diet during pregnancy? □ Y □ N
      c) Availability of suitable vitamin D supplements (such as the Healthy Start vitamins)? □ Y □ N
   If “NO”:
   (iv) Would you consider implementing a training session on vitamin D supplementation? □ Y □ N

Comments:

Healthy Start Scheme

7. Does the trust promote the Healthy Start scheme? □ Y □ N

8. Do you have a list of Healthy Start distributors in your area that midwives’ can give to clients? (please attach a copy) □ Y □ N

Finally, If you have any comments please document them here:

Thank you for completing this survey.

Please can you attach copies of any of the following:

- Vitamin D policy/protocol/SOP
- Any training documents for staff
- Any in-house leaflets for staff/clients
- List of Healthy Start distributors

Please complete the following:

Your name:

Your full job title:

Your email address:

Your contact number:

Date the questionnaire was completed:
8.2  Staff surveys
The staff surveys were individual to each Trust, however an example of a PCT staff survey and an Acute Trust staff survey are detailed below.

8.2.1  PCT staff survey example

Vitamin D Provider Services Audit: Staff Knowledge, Practice and Training Survey for NHS Manchester

The following survey forms part of a regional healthcare provider services audit into vitamin D promotion and practice with prenatal and postnatal women.

You have been asked, along with all other midwives and health visitors employed at selected trusts and PCTs across the North West, to complete the following survey to establish your current knowledge, practice and training needs for the supplementation of vitamin D to prenatal and postnatal women.

This survey will take approximately 10 minutes to complete and is completely voluntary. **Any identifiable information will be kept strictly confidential.**

It is important to answer the questions honestly and without referring to other sources, as the information gathered will be used to understand the **training needs** of midwives and health visitors.

If you wish to complete the survey online please go to: [http://www.surveygizmo.com/s3/332280/vitamin-d](http://www.surveygizmo.com/s3/332280/vitamin-d). This will be available until 15th November 2010.

Once you have completed the survey, **please return to us in the pre-paid addressed envelope provided.**

___

**First we need to know a little bit about you…**

1. **How many years have you been employed at this PCT?**
   *Please round the figure off to the nearest year. If you have been working at this hospital less than 6 months please enter a '0'.*
   
   [ ] years
2. Where are you currently based?
   - Hospital
   - PCT
   - Children’s Centre
   - GP Surgery
   - Health Centre
   - Other (please state):

3. Does your current role involve working in the community?
   - Yes
   - No

4. If you work in the community, which of the following areas do you work within Manchester?
   - Ancoats and Clayton
   - Ardwick
   - Baguley
   - Bradford
   - Brooklands
   - Burnage
   - Charlestown
   - Cheetham
   - Chorlton
   - Chorlton Park
   - City Centre
   - Crumpsall
   - Didsbury East
   - Didsbury West
   - Fallowfield
   - Gorton North
   - Gorton South
   - Harpurhey
   - Higher Blackley
   - Hulme
   - Levenshulme
   - Longsight
   - Miles Platting and
   - Moss Side
   - Newton Heath
   - Moston
   - Northenden
   - Old Moat
   - Rusholme
   - Sharston
   - Whalley Range
   - Withington
   - Woodhouse Park
   - All of the above
   - Other (please state):

Next, we need to identify what you know about vitamin D…

It is important to answer the following questions honestly and do not refer to other sources, as the information gathered will be used to understand the training needs of midwives. All responses will be kept strictly confidential.

5. What is the recommended daily allowance of vitamin D for prenatal/postnatal women in the UK? [Micrograms/day]

6. What food sources would you recommend to clients to increase their vitamin D uptake?
   - Please indicate up to 5 specific food sources in the boxes below.
   1.
   2.
   3.
   4.
   5.

7. What percentage of our vitamin D supply do we obtain from the sun? [%]

8. Which minerals does vitamin D help the body absorb?
   - Phosphorous
   - Magnesium
   - Calcium
   - Zinc
   - Don't know

9. Which of the following symptoms or risk factors may identify a client as being deficient in vitamin D?
Next, we would like to understand more about your vitamin D practice and training...

10. Do you discuss vitamin D supplementation with your clients?

Yes - All clients  
Go to question 11

Yes - Most clients  
Go to question 10b

Yes - Some clients  
Go to question 10b

Yes - Few clients  
Go to question 10b

No clients  
Go to question 10b

10b. What are your reasons for not discussing vitamin D supplementation with clients?

- Do not know enough about it
- Not confident discussing it
- It is not my job to discuss it
- Not enough time to discuss it
- The client does not appear to have any of the risk factors/symptoms

Other (please state):

11. Do you refer to any of the following information resources when discussing vitamin D with clients?

- The Pregnancy Book
- An in-house leaflet
- The internet
- No resources

Do not discuss Vit D  
Other (please state):

12. How confident are you in advising your clients about vitamin D supplementation?

- Very confident
- Confident
- Neutral
- Unconfident
- Very unconfident
- Not applicable

13. Have you come across the Department of Health’s vitamin D leaflet specifically for health professionals?

- See image below

Yes  
No
14. In the last 5 years, have you attended any training sessions/programmes which have incorporated vitamin D supplementation for prenatal/postnatal women?
   Yes ☐ No ☐

15. On a scale of 1-5, with 5 being 'very useful' and 1 being 'not at all useful', how useful would you find further training in this area?
   Not at all useful 1 ☐ Not useful 2 ☐ Neutral 3 ☐ Useful 4 ☐ Very useful 5 ☐

Next, we would like to know a bit more about your role and the Healthy Start Scheme...

16. Do you discuss the Healthy Start scheme with clients?
   Yes - All clients ☐ Go to question 17
   Yes - Most clients ☐ Go to question 16b
   Yes - Some clients ☐ Go to question 16b
   Yes - Few clients ☐ Go to question 16b
   No clients ☐ Go to question 16b

16b. What are your reasons for not discussing the Healthy Start scheme with clients?
   Do not know enough about it ☐ Not confident discussing it ☐
   It is not my job to discuss it ☐ Not enough time to discuss it ☐
   The client does not appear to have any of the risk factors/symptoms ☐ The client has not asked about it ☐
   Other (please state): ___________________________

17. Is the Healthy Start Scheme supported where you are based?
   Yes ☐ No ☐ Don't know ☐

18. Does your place of work ensure adequate supply of the following:
   Healthy Start application forms Yes ☐ No ☐ Don't know ☐
   Healthy Start information leaflets Yes ☐ No ☐ Don't know ☐
   Healthy Start vitamin supplements Yes ☐ No ☐ Don't know ☐
available for women

19. Are you confident in directing your client to a Healthy Start distribution point?  
   Yes ☐  No ☐  N/A ☐

20. Do you have a list of Healthy Start vitamin distributors in your area?  
   Yes ☐  No ☐  Don’t know ☐

Finally, please share any comments about this survey or vitamin D here:

Thank you for taking the time to complete this survey. Your response is very important to us.

If you would like to read more about vitamin D deficiency you may find the following links useful:

- A copy of the Department of Health’s leaflet (as seen in the body of the questionnaire) entitled ‘Vitamin D: an essential nutrient for all... but who is at risk of vitamin D deficiency?’ is available at:  
  http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/docu
  ments/digitalasset/dh_111302.pdf
- An excellent recent clinical review: Pearce SHS and Cheetham TD (2010) Diagnosis and management of vitamin D deficiency. BMJ, 340: 142-7. This is available online at:  
  http://press.psprings.co.uk/bmj/january/rickets.pdf

If you would like the answers to the knowledge questions please email me at: Deborah.lee@stockport.nhs.uk
Vitamin D Provider Services Audit: Staff Knowledge, Practice and Training Survey for CMFT

The following survey forms part of a regional healthcare provider services audit into vitamin D promotion and practice with prenatal and postnatal women.

You have been asked, along with all other midwives and health visitors employed at selected trusts and PCTs across the North West, to complete the following survey to establish your current knowledge, practice and training needs for the supplementation of vitamin D to prenatal and postnatal women.

This survey will take approximately 10 minutes to complete and is completely voluntary. Any identifiable information will be kept strictly confidential.

It is important to answer the questions honestly and without referring to other sources, as the information gathered will be used to understand the training needs of midwives and health visitors.

You DO NOT need to complete this if you have already completed the online version of the vitamin D survey.

If you wish to complete the survey online please go to: http://www.surveygizmo.com/s3/332280/vitamin-d. This will be available until 15th November 2010.

Once you have completed the survey, please return to us in the pre-paid addressed envelope provided.

First we need to know a little bit about you...

1. What is your current job title?
   - Midwife
   - Team Midwife
   - Staff Midwife
   - Community Midwife
   - Specialist Midwife
   - Midwife Practitioner
   - Other (please state):

   If you are a specialist midwife, which of the following areas do you specialize in?
   - Outreach
   - Breastfeeding
   - Smoking cessation
   - Bereavement
   - Diabetes
   - Substance abuse
   - Vulnerable women
   - Mental health
2. How many years have you been employed at this Trust?
   Please round the figure off to the nearest year. If you have been working at this hospital less than 6 months please enter a '0':
   □□□□ years

3. Where are you currently based?
   Hospital □ PCT □ Children's Centre □ GP Surgery □
   Health Centre □ Other (please state):

4. Does your current role involve working in the community?
   □ Yes □ No
   If you work in the community, which of the following areas do you work within Manchester?
   If you work within any other areas please list them in the 'other' box.
   Ancoats and Clayton □ Ardwick □ Baguley □ Bradford □
   Brooklands □ Burnage □ Charlestown □ Cheetham □
   Chorlton □ Chorlton Park □ City Centre □ Crumpsall □
   Didsbury East □ Didsbury West □ Fallowfield □ Gorton North □
   Gorton South □ Harpurhey □ Higher Blackley □ Hulme □
   Levenshulme □ Longsight □ Miles Platting and □ Moss Side □
   Moston □ Northenden □ Old Moat □ Rusholme □
   Sharston □ Whalley Range □ Withington □ Woodhouse Park □
   All of the above □ Other (please state):

Next, we need to identify what you know about vitamin D...
It is important to answer the following questions honestly and do not refer to other sources, as the information gathered will be used to understand the training needs of midwives. All responses will be kept strictly confidential.

5. What is the recommended daily allowance of vitamin D for prenatal/postnatal women in the UK?
   □□□□ Micrograms/day

6. What food sources would you recommend to clients to increase their vitamin D uptake?
   Please indicate up to 5 specific food sources in the boxes below.
   1
   2
   3
   4
   5

7. What percentage of our vitamin D supply do we obtain from the sun?
   □□□□ %

8. Which minerals does vitamin D help the body absorb?
   Phosphorous □ Magnesium □ Calcium □ Zinc □
   Don't know □

9. Which of the following symptoms or risk factors may identify a client as being deficient in vitamin D?
Next, we would like to understand more about your vitamin D practice and training...

10. Do you discuss vitamin D supplementation with your clients?

- Yes - All clients
- Yes - Most clients
- Yes - Some clients
- Yes - Few clients
- No clients

Go to question 11
Go to next question
Go to next question
Go to next question
Go to next question
Go to next question
Go to question 12

What are your reasons for not discussing vitamin D supplementation with clients?

- Do not know enough about it
- Not confident discussing it
- It is not my job to discuss it
- Not enough time to discuss it
- The client does not appear to have any of the risk factors/symptoms
- The client has not asked about it

Other (please state):

11. Do you refer to any of the following information resources when discussing vitamin D with clients?

- The Pregnancy Book
- An in-house leaflet
- The internet
- No resources
- Do not discuss Vit D
- Other (please state):

12. How confident are you in advising your clients about vitamin D supplementation?

- Very confident
- Confident
- Neutral
- Unconfident
- Very unconfident
- Not applicable

13. Have you come across the Department of Health's vitamin D leaflet specifically for health professionals?

- Yes
- No

See image below
14. In the last 5 years, have you attended any training sessions/programmes which have incorporated vitamin D supplementation for prenatal/postnatal women?
   Yes [ ] No [ ]

15. On a scale of 1-5, with 5 being 'very useful' and 1 being 'not at all useful', how useful would you find further training in this area?
   1 [ ] Not at all useful
   2 [ ] Not useful
   3 [ ] Neutral
   4 [ ] Useful
   5 [ ] Very useful

Next, we would like to know a bit more about your role and the Healthy Start Scheme...

16. Do you discuss the Healthy Start scheme with clients?
   Yes - All clients [ ]
   Yes - Most clients [ ]
   Yes - Some clients [ ]
   Yes - Few clients [ ]
   No clients [ ]

   Go to question 17
   Go to next question
   Go to next question
   Go to next question

   What are your reasons for not discussing the Healthy Start scheme with clients?
   Do not know enough about it [ ]
   Not confident discussing it [ ]
   It is not my job to discuss it [ ]
   Not enough time to discuss it [ ]
   The client does not appear to have any of the risk factors/symptoms [ ]
   The client has not asked about it [ ]
   Other (please state): [ ]

17. Is the Healthy Start Scheme supported where you are based?
   Yes [ ]
   No [ ]
   Don’t know [ ]

18. Does your place of work ensure adequate supply of the following:
   Healthy Start application forms [ ]
   Healthy Start information leaflets [ ]
   Healthy Start vitamin supplements available for women [ ]

   Yes [ ]
   No [ ]
   Don’t know [ ]
19. Are you confident in directing your client to a Healthy Start distribution point?
   Yes ☐   No ☐   N/A ☐

20. Do you have a list of Healthy Start vitamin distributors in your area?
   Yes ☐   No ☐   Don’t know ☐

21. On a scale of 1-5, with 5 being 'very useful' and 1 being 'not at all useful', how useful would you find the stocking of Healthy Start vitamins within the hospital pharmacy?
   1 ☐ Not at all useful   2 ☐ Not useful   3 ☐ Neutral   4 ☐ Useful   5 ☐ Very useful   Not applicable ☐

Finally, please share any comments about this survey or vitamin D here:

Thank you for taking the time to complete this survey. Your response is very important to us.

If you would like to read more about vitamin D deficiency you may find the following links useful:
A copy of the Department of Health’s leaflet (as seen in the body of the questionnaire) entitled ‘Vitamin D: an essential nutrient for all… but who is at risk of vitamin D deficiency?’ is available at:

If you would like the answers to the knowledge questions please email me at: Deborah.lee@stockport.nhs.uk
Health Visitors’ case note audit proforma (November 2010 – February 2010)

The following proforma forms the second part of a regional audit into vitamin D promotion and practice with prenatal and postnatal women. Selected PCT’s across the North West have been asked to audit 100 case notes to establish current practice and policies in place for the supplementation of vitamin D to prenatal and postnatal women.

---

**Date of Primary Contact (DD/MM/YYYY):**

**Age at Primary Contact (years):**

**Postcode (First 4-5 digits):**

**Ethnicity**

- African
  - N. Africa
  - Sub-Saharan
- Asia
  - India
  - Pakistan
  - Bangladesh
  - China
  - Far East
  - South East Asia

**Clients Occupation:**

- Europe
  - Britain
  - Ireland
  - N. Europe
  - W. Europe
  - E. Europe
  - S. Europe
  - Caribbean
  - Middle East
  - Not Documented
  - Other

**Vitamin D**

<table>
<thead>
<tr>
<th>Does the client have any of the following risk factors:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of bone disorders?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coeliac disease?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crohn’s disease / hepatic or renal disease?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family history of boney deformity?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Is there any evidence of vitamin D having been discussed with the client?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Was the client taking Vitamin D / Healthy Start supplements;</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>During pregnancy?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postnataally?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never taken vitamin D supplements?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Documented?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Was any literature given to the client?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Was the client referred to any of the following literature:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth to Five book?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-house leaflet?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy start leaflet?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---
# Midwives’ case note audit proforma (November 2010 – February 2010)

The following proforma forms the second part of a regional audit into vitamin D promotion and practice with prenatal and postnatal women. Selected trusts across the North West have been asked to audit 100 case notes to establish current practice and policies in place for the supplementation of vitamin D to prenatal and postnatal women.

| Date of First Contact: __/__/__________ | Age at First contact: ___yrs |
|______________________________|__________________________|
| Gestation at first contact: ________ weeks | Postcode (First 4-5 digits): ___ ___ ___ ___ |

### Ethnicity
- **Africa**
  - □ N. Africa
  - □ Sub-Saharan
- **Asia**
  - □ India
  - □ Pakistan
  - □ Bangladesh
  - □ China
- □ Far East
- □ South East Asia
- □ Europe
- □ Britain
- □ Ireland
- □ N. Europe
- □ W. Europe
- □ S. Europe
- □ Caribbean
- □ Middle East
- □ Not Documented
- □ Other (please state)

### Vitamin D

<table>
<thead>
<tr>
<th>Has the client’s BMI been calculated?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>If “YES”, please state the clients BMI:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Does the client have any of the following risk factors:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>History of bone disorders?</td>
<td></td>
</tr>
<tr>
<td>Suffers from Coeliac disease?</td>
<td></td>
</tr>
<tr>
<td>Suffers from Crohn's disease / hepatic or renal disease?</td>
<td></td>
</tr>
<tr>
<td>Family history of bone deformity?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Is there any evidence of vitamin D having been discussed with the client?</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Was the client taking Vitamin D supplements;</th>
</tr>
</thead>
<tbody>
<tr>
<td>At Preconception?</td>
</tr>
<tr>
<td>During pregnancy?</td>
</tr>
<tr>
<td>Never taken vitamin D supplements / healthy Start vitamins?</td>
</tr>
<tr>
<td>Not Documented?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Was any literature relating to vitamin D given to the client?</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If “YES”, please state which from the following was given:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Referred to pregnancy book</td>
<td></td>
</tr>
<tr>
<td>□ In-house leaflet</td>
<td></td>
</tr>
<tr>
<td>□ Healthy start leaflet</td>
<td></td>
</tr>
<tr>
<td>□ Not documented</td>
<td></td>
</tr>
</tbody>
</table>
Provider services Trust summaries

8.2.3 Acute Trusts

Central Manchester University Hospitals NHS Foundation Trust (CMFT)

- 214 Midwives are employed by CMFT.
- In October 2008, a vitamin D policy was put in place. This policy has been publicised and audited since, but the current policy does not include guidelines for staff training.
- There is no vitamin D team or coordinator at this Trust, but they acknowledge that this would be useful.
- Midwives have been given some vitamin D information.
- No in-house leaflets have been produced to distribute to women visiting the midwifery department.
- A vitamin D training session would be welcomed at the Trust.

Liverpool Women’s NHS Foundation Trust (LWH)

- LWH employs 303 Midwives.
- Currently LWH has no vitamin D policy in place.
- It has been recommended that 4-6 months is a sufficient amount of time for the Trust to implement a vitamin D policy using the appropriate pathway.
- Liverpool Women’s NHS Trust is the only Trust in the audit to have a vitamin D team; however the Trust does not have a named vitamin D coordinator or representative.
- LWH has no in-house leaflets nor do they provide their midwives with vitamin D training.
- Midwives at LWH have not been provided any vitamin D information.
- Healthy Start is promoted at the Trust; although our representative informs us that a lack of application forms makes it difficult to promote the scheme effectively.

Pennine Acute Hospitals NHS Trust (PAT)

- PAT employs 400 midwives across 4 sites.
- The Trust does not have a vitamin D policy in place, but has vitamin D guidelines in draft form (before approval the author is awaiting comments from others before making any modifications). Implementation is expected to take 4-6months.
- Midwives at PAT have been provided with information on vitamin D, but there are no in-house leaflets for midwives to give to clients.
- Vitamin D training is given to all midwives as part of their mandatory training.
- Healthy Start is promoted within the Trust; however some of the sites do not have lists of Healthy Start distribution centres to give to clients.

Stockport NHS Foundation Trust (SFT)

- 158 Midwives are employed by SFT.
- The Trust does not have a vitamin D policy in place at present but would consider implementing one to increase vitamin D awareness amongst their clients and health professionals.
- If the Trust were to introduce a new vitamin D policy, it would take between 6-9 months; this would require approval from the Guideline and Development Group and the Quality Board.
- Midwives at this Trust have been provided with some vitamin D information; however no training policy is currently in place.
- The midwifery manager believes if vitamin D training was considered, it would sit best with the mandatory screening section.
- At present the Trust has not produced any in-house leaflets for maternity clients.
- The Healthy Start Scheme is promoted at the hospital; this is the only Trust that currently offers their women a list of distribution centres for the Healthy Start vitamins.
Wirral University Teaching Hospital NHS Foundation Trust (WUTH)

- WUTH employs 158 midwives.
- They currently have no vitamin D policy in place.
- There is no vitamin D team or representative for the Trust, but they acknowledge that this may be useful.
- The Trust anticipates that it would take 6-9 months to implement a vitamin D policy as it would need to go through the Clinical Guidelines Group for consultation and then ratification.
- Midwives at WUTH have been provided with information about vitamin D and the Trust provides vitamin D training to all midwives as part of their mandatory training package; the training includes discussing nutritional needs, dietary requirements and the availability of vitamin D supplements.
- The midwives at WUTH have also been encouraged to undertake an online vitamin D training package as part as their continuous professional development.
- The Trust does not have a Healthy Start vitamin distribution centre list; however they do promote the Healthy Start scheme.

Wrightington Wigan and Leigh NHS Foundation Trust (WWL)

- WWL has the smallest midwifery team, employing 117 midwives.
- A Vitamin D policy has not currently been implemented. If a policy was considered, the Matron envisages 4-6 months to compose, approve and cascade the policy.
- The Trust does not engage in any vitamin D team meetings, but do acknowledge that this may be beneficial allowing information to be shared.
- Midwives have been provided with some vitamin D information, and the Trust offers a stand alone vitamin D training session to all their midwives; the training covers importance of a balanced diet, nutrition and supplement availability.

8.2.4 Primary Care Trusts

NHS Liverpool Community Health NHS Trust (NHS LIV)

- NHS LIV employs 75 Health Visitors.
- They govern 26 children centres within their PCT.
- Currently Liverpool PCT has no vitamin D policy publicised or documented for health professionals to use.
- They believe 4-9 months is adequate for the PCT to implement a vitamin D policy using the appropriate pathway. To introduce a vitamin D policy the PCT would require partnership with City Council and their maternity services.
- The PCT has a vitamin D coordinator; however a vitamin D team has not been formed.
- The PCT provides health visitors with information about vitamin D supplementation.
- Strategies to promote vitamin D awareness are non existent in the Trust, the Trust has no in house leaflets to increase Vitamin D awareness, nor does it provide health visitors with vitamin D training.
- To tackle this, the PCT would consider cascading a vitamin D training session to all health visitors.
- Healthy Start is promoted at the Trust, it is free to eligible postnatal women; health visitors are able to refer to a distribution list although a lack of forms makes it difficult to promote the scheme effectively.

NHS East Lancashire (NHS EL)

- Comprised of 4 Trusts.
- 27 children’s centres.
- Employs 73 health visitors across their PCT.
• The PCT has a publicised vitamin D policy since April 2009; the impact of this policy has not been assessed.
• The vitamin D policy has been included in staff training sessions and documents.
• The PCT has employed a dedicated vitamin D coordinator and team since October 2005. The team consists of
  o Infant feed coordinator (Vitamin D lead)
  o Health coordinators (1 per borough)
  o Public health midwives
  o Data inputter
During monthly meetings team members are given the opportunity to discuss challenges and current news with each other. Health coordinators liaise with children’s centres regularly to engage with local families and inform centres of meetings and training needs they may require. To ensure key messages are delivered to the local communities the team is to be extended in 2011 to include a health improvement practitioner and neighbourhood health visitor.
• NHS EL provide their health visitors with:
  o Information regarding vitamin D supplementation
  o In house leaflet for distribution
  o Training which covers nutritional needs specific to vitamin D, importance of supplementation for breastfeeding women and the availability of suitable vitamin D.
All training is provided as a stand alone session and within weaning and basic breastfeeding management training to health visitors, nursery nurses, staff nurses midwives and children centre staff.
• The Healthy Start Scheme is promoted throughout local communities.
• Health visitors are provided with a distribution list of Healthy Start centres.
• All postnatal women are provided with free Healthy Start Vitamins.

NHS Blackburn and Darwen
• The trust employs 39 health visitors and 29 midwives.
• Currently they have 13 children’s centres open.
• A publicised vitamin D audit has been documented and cascaded throughout the PCT. This includes a staff training policy to ensure vitamin D is properly rolled out.
• Training is provided to staff as a standalone session, covering nutritional needs of postnatal women, the importance of supplementing, and the availability of vitamin D supplements.
• To reinforce the information relating to vitamin D during appointments, health visitors are provided with a vitamin D in house leaflet to issue to their clients.
• NHS Blackburn and Darwen has a vitamin D team comprising of a coordinator and other staff members. The team ensures that vitamin D is promoted.
• Health visitors are provided with;
  o Healthy Start information
  o Healthy Start distribution list
  o Healthy Start vitamins are free to all postnatal women.

NHS Ashton, Leigh and Wigan (NHS ALW)
• Employs 80 health visitors.
• The PCT is compromised of 3 Trusts.
• The PCT does not have a vitamin D policy, they suggest it would take 4-6 months to compose, approve and cascade.
• The Trust suggests a vitamin D representative would be useful, the representative would share knowledge and stream important messages to each Trust; currently they have neither a vitamin D team nor representative.
• The Trust offers vitamin D training to all health visitors, the training covers;
  o Importance of supplementation for breastfeeding women
  o The availability of suitable vitamin D supplements
Health visitors promote Healthy Start scheme, however they do not have a distribution list. The vitamins are only free to those postnatal women who are eligible.

NHS Heywood Middleton and Rochdale (NHS HMR)

- Employs 50 health visitors.
- The Trust has 21 children’s centres.
- The PCT does not have a vitamin D policy, but would consider implementing one. It would take up to 9 months to complete a new policy and cascade it throughout the PCT.
- A vitamin D team or coordinator has not been employed; the PCT feel they would not benefit from either.
- Health visitors are provided with information and an in-house leaflet about vitamin D supplementation that can be given to their clients.
- Unfortunately health visitors are not provided with any vitamin D training.
- The Healthy Start scheme is promoted by the PCT.

NHS Manchester (NHS MAN)

- Employs 79 health visitors.
- Of the participating PCTs, Manchester PCT employ the largest number of children’s centres (n = 34) and health visitors (n = 79).
- A vitamin D policy has not been written, but the PCT would consider writing one. A publicised policy would require discussions with the vitamin D working group which include representatives from public health, nutrition, the clinical lead for health visitors, midwives and Sure Start. An approved time frame to complete the implementation of the policy would be 6-9 months.
- Health visitors are not given information about vitamin D or leaflets for distribution; therefore it is not apparent if clients are receiving guidance on vitamin D intake.
- Vitamin D training is not offered to health visitors currently, however plans to deliver training are in process. The PCT suggest vitamin D training would be delivered by the end of 2011.
- Healthy Start vitamins are promoted to clients during appointments with health visitors but health visitors are not provided with a distribution list to direct their clients.

NHS Wirral (NHS WIR)

- The Trust employs 52 health visitors.
- The Trust has 16 children’s centres.
- NHS WIR has no vitamin D policy in place; therefore no audit or training has been carried out.
- The PCT would consider employing a vitamin D policy; a 6-9 month time frame to implement the policy was suggested. Involvement from the service improvement and general policy review team would be needed for approval.
- Currently no vitamin D team or coordinator has been instructed to promote vitamin D across the Wirral; the PCT believe a vitamin D coordinator would be useful.
- The PCT does not provide health visitors with leaflets or information about vitamin D supplementation; unfortunately health visitors are not offered any vitamin D training.
- The PCT promotes the Healthy Start scheme; they provide their health visitors with a distribution list of where vitamins are kept and provide free vitamins to eligible postnatal women.
### 8.3 Trust name abbreviations

#### 8.3.1 Primary Care Trusts:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHS LIV</td>
<td>Liverpool Community Health NHS Trust</td>
</tr>
<tr>
<td>NHS EL</td>
<td>NHS East Lancashire</td>
</tr>
<tr>
<td>NHS B&amp;D</td>
<td>NHS Blackburn and Darwen</td>
</tr>
<tr>
<td>NHS ALW</td>
<td>NHS Ashton, Leigh and Wigan</td>
</tr>
<tr>
<td>NHS HMR</td>
<td>NHS Heywood Rochdale and Middleton</td>
</tr>
<tr>
<td>NHS MAN</td>
<td>NHS Manchester</td>
</tr>
<tr>
<td>NHS WIR</td>
<td>NHS Wirral</td>
</tr>
</tbody>
</table>

#### 8.3.2 Acute Trusts:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMFT</td>
<td>Central Manchester University Hospitals NHS Foundation Trust</td>
</tr>
<tr>
<td>LWH</td>
<td>Liverpool Women’s NHS Foundation Trust</td>
</tr>
<tr>
<td>PAT</td>
<td>Pennine Acute Hospitals NHS Trust</td>
</tr>
<tr>
<td>SFT</td>
<td>Stockport NHS Foundation Trust</td>
</tr>
<tr>
<td>WUTH</td>
<td>Wirral University Teaching Hospital NHS Foundation Trust</td>
</tr>
<tr>
<td>WWL</td>
<td>Wrightington Wigan and Leigh NHS Foundation Trust</td>
</tr>
<tr>
<td>ELHT</td>
<td>East Lancashire Hospitals NHS Trust</td>
</tr>
<tr>
<td>RBH</td>
<td>Royal Bolton Hospital NHS Foundation Trust</td>
</tr>
</tbody>
</table>
8.4 Further findings

8.4.1 Further charts by PCT

**Figure 47:** Correct identification of Vitamin D RDA, % of Vitamin D obtained from sunlight, and minerals that Vitamin D helps the body absorb by PCT
Figure 48: Correctly and incorrectly identified food types by PCT
Figure 49: Most commonly identified risk factors/symptoms of vitamin D deficiency by health visitors at each PCT

- Limited exposure to sunlight
- Pigmented skin (non-white ethnicity)
- Muscle pain/weakness
- Strict vegetarian diet
- Gastrointestinal disorders/conditions
- Multiparity (short spacing between pregnancies)
- Obesity (a BMI of 30 or more)
- Don’t know

Figure 50: Reasons for not discussing vitamin D who reported not discussing with ‘all’ clients by PCT

- Knowledge
- No risk factors
- Not asked
- Not enough time
- Not confident
- Not my job
- Other

NHS ALW (n=20)  NHS EL (n=13)  NHS HMR (n=19)
NHS LIV (n=26)  NHS MAN (n=15)  NHS WIR (n=37)
Figure 51: Resources referred to by health visitors when discussing vitamin D with clients by PCT

- Pregnancy/Birth to 5 Book
- In-house vitamin D leaflet
- The internet
- None of the above
- Other

Figure 52: Awareness of DH vitamin D leaflet and experience of vitamin D training amongst health visitors by PCT
Figure 53: Usefulness of potential training in vitamin D by PCT

Figure 54: Reasons for not discussing Healthy Start amongst health visitors who report not discussing with 'all' clients by PCT
8.4.2 Further charts by Acute Trust

**Figure 55:** Healthy Start support, resource availability, and distribution amongst health visitors by PCT

**Figure 56:** Correct identification of Vitamin D RDA, % of Vitamin D obtained from sunlight, and minerals that Vitamin D helps the body absorb by Acute Trust
Figure 57: Correctly and incorrectly identified food types by Acute Trust
Figure 58: Most commonly identified risk factors/symptoms of vitamin D deficiency by Acute Trust

Figure 59: Reasons for not discussing vitamin D who reported not discussing with ‘all’ clients by Acute Trust
Figure 60: Resources referred to by midwives when discussing vitamin D with clients by Acute Trust

Figure 61: Awareness of DH vitamin D leaflet and experience of vitamin D training amongst midwives by Acute Trust
Figure 62: Usefulness of potential training in vitamin D by Acute Trust

Figure 63: Reasons for not discussing Healthy Start amongst midwives who report not discussing with 'all' clients by Acute Trust
Figure 64: Healthy Start support, resource availability and distribution amongst midwives by Acute Trust

<table>
<thead>
<tr>
<th>Resource Available</th>
<th>CMFT</th>
<th>ELHT</th>
<th>LWH</th>
<th>PAT</th>
<th>RBH</th>
<th>SFT</th>
<th>WUTH</th>
<th>WWL</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS supported at base</td>
<td>70%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HS application forms available</td>
<td>50%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HS information leaflets available</td>
<td>40%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HS vitamin supplements available</td>
<td>30%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confident directing to HS distribution point</td>
<td>20%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HS distribution list available</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The values represent the percentage of midwives in each acute trust with the resource available.
8.5 Midwifery case note findings by Trust

8.5.1 Central Manchester Foundation Trust

Central Manchester Foundation Trust employs a large team of midwives, since October 2008 the Trust has imposed new vitamin D guidelines and midwives are given information relating to vitamin D to reinforce literature and discussions about vitamin D.

Figure 65: Categorised age of clients

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-20</td>
<td>7</td>
</tr>
<tr>
<td>21-25</td>
<td>7</td>
</tr>
<tr>
<td>26-29</td>
<td>15</td>
</tr>
<tr>
<td>30-34</td>
<td>7</td>
</tr>
<tr>
<td>Above 35</td>
<td>15</td>
</tr>
<tr>
<td>Grand Total</td>
<td>51</td>
</tr>
</tbody>
</table>

Results show 30% of the women audited belonged to 26-29. 14 of the 15 women in this group received literature relating to vitamin D. 30% of pregnancies were noted in the above 35 year old category, 10 of the 15 women received literature but vitamin D was only discussed with 2. Vitamin D was not discussed with any woman below 25 years old. A discussion was noted in 2 women above 35.

Figure 66: Case note ethnicity

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>British</td>
<td>28</td>
</tr>
<tr>
<td>Sub Sahara</td>
<td>6</td>
</tr>
<tr>
<td>Pakistani</td>
<td>4</td>
</tr>
<tr>
<td>N. African</td>
<td>4</td>
</tr>
<tr>
<td>Middle Eastern</td>
<td>3</td>
</tr>
<tr>
<td>Indian</td>
<td>2</td>
</tr>
<tr>
<td>Bangladeshi</td>
<td>2</td>
</tr>
<tr>
<td>Far Eastern</td>
<td>1</td>
</tr>
<tr>
<td>S. European</td>
<td>1</td>
</tr>
<tr>
<td>South East Asian</td>
<td>1</td>
</tr>
<tr>
<td>Chinese</td>
<td>1</td>
</tr>
<tr>
<td>Not Documented</td>
<td>1</td>
</tr>
<tr>
<td>Grand Total</td>
<td>54</td>
</tr>
</tbody>
</table>

A varied population of ethnic women from the audit was noted, a large proportion of these women belonged to the high risk group stated by NICE guidelines. We found 19 women fitted into the high risk group according to their ethnicity, vitamin D was discussed with 4 women.

Figure 67: High risk clients

<table>
<thead>
<tr>
<th>High risk group</th>
<th>TRUE</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>39</td>
<td>39</td>
</tr>
</tbody>
</table>

We identified 39 women booked at CMFT were at a higher risk of becoming vitamin D deficiency due to their ethnicity, pre-pregnancy weight and associated medical conditions. Vitamin D was not discussed with any of these women.
Figure 68: Associated medical conditions

<table>
<thead>
<tr>
<th>Question</th>
<th>Clients reported with medical condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the client have coeliac disease</td>
<td>6</td>
</tr>
<tr>
<td>Does the client have crohn's disease / hepatic or renal disease</td>
<td>8</td>
</tr>
<tr>
<td>Does the client have family history of bone deformity</td>
<td>6</td>
</tr>
<tr>
<td>Does the client have history of bone disorders</td>
<td>7</td>
</tr>
</tbody>
</table>

Overall nine women had an associated medical condition, six women had more than one associated condition, vitamin D was not discussed with any of the nine women however literature was given to all of them.

Figure 69: Clients who received a discussion relating to vitamin D or literature

Vitamin D was discussed with less than 10% of the women audited, just over 30% of women visiting the hospital were given literature relating to vitamin D, this Trust had the largest ethnic population in the audit, and of the 36 women who had not receive literature, 15 were from an ethnic group.
Very little literature was issued at CMFT, the pregnancy book ought to have been distributed to everyone, however only seven women received it. The healthy start leaflet was given to a selected ten, an additional four women were entitled to the healthy start leaflet according to their age.
8.5.2 Liverpool Women’s Hospital (LWH)

Vitamin D is a poorly promoted issue, the hospital does not have a policy in place and their 303 midwives are not provided with vitamin D related information. Healthy Start is promoted at this hospital but a lack of application forms makes it difficult to promote the scheme to everyone.

Figure 71: Age group of clients

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-20</td>
<td>6</td>
</tr>
<tr>
<td>21-25</td>
<td>11</td>
</tr>
<tr>
<td>26-29</td>
<td>9</td>
</tr>
<tr>
<td>30-34</td>
<td>11</td>
</tr>
<tr>
<td>Above 35</td>
<td>13</td>
</tr>
<tr>
<td>Grand Total</td>
<td>50</td>
</tr>
</tbody>
</table>

The largest age group of clients from LWH were above 35 years old. Pregnancies in clients under 20 years old was low.

Figure 72: Case note ethnicity

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>British</td>
<td>45</td>
</tr>
<tr>
<td>Chinese</td>
<td>1</td>
</tr>
<tr>
<td>Sub Sahara</td>
<td>1</td>
</tr>
<tr>
<td>Grand Total</td>
<td>47</td>
</tr>
</tbody>
</table>

LWH has a large white British population; from the 47 case notes audited less than 5% were from an ethnic background. The ethnicity of 3 women was not documented.

Figure 73: High risk group

<table>
<thead>
<tr>
<th>High Risk Group</th>
<th>TRUE</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>15</td>
<td>50</td>
</tr>
</tbody>
</table>

Women who documented an associated medical condition or a BMI over 30 were grouped together as having a higher risk to developing vitamin D deficiency. 30% of the clients at LWH were at risk of becoming vitamin D deficient.

Figure 74: Associated medical conditions

<table>
<thead>
<tr>
<th>Question</th>
<th>Clients reported with medical condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the client have coeliac disease</td>
<td>0</td>
</tr>
<tr>
<td>Does the client have crohn’s disease / hepatic or renal disease</td>
<td>1</td>
</tr>
<tr>
<td>Does the client have family history of bone deformity</td>
<td>0</td>
</tr>
<tr>
<td>Does the client have history of bone disorders</td>
<td>2</td>
</tr>
</tbody>
</table>

We found three women with an associated medical condition, these women did not receive a discussion relating to vitamin D or any literature to inform them of vitamin D and the implications associated with deficiency.
22 women received a discussion relating to vitamin D, findings showed that a further 15 women were at a higher risk of developing a vitamin D deficiency. These women did not receive any information informing them of the risks attached to low circulating vitamin D serum and the implications to their baby’s health.

None of the women at LWH received literature relating to vitamin D; the health start leaflet was not given to any of the audited clients. 2 women under 18 years old were eligible for free Healthy Start vitamins, employment status was not recorded therefore we can not speculate how many other women were highly eligible, never the less the healthy start leaflet should have been given to all clients. The pregnancy book is used as a reference guide by many women; only one woman received it.
8.5.3 Stockport Foundation Trust (SFT)

Stockport Foundation Trust currently does not have a vitamin D policy in place, but the midwifery team are provided with information relating to vitamin D. The service audit results revealed midwives promoted the Healthy Start scheme to clients but did not have an in-house leaflet to distribute.

**Figure 76: Grouped age of clients**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-20</td>
<td>3</td>
</tr>
<tr>
<td>21-25</td>
<td>10</td>
</tr>
<tr>
<td>26-29</td>
<td>12</td>
</tr>
<tr>
<td>30-34</td>
<td>8</td>
</tr>
<tr>
<td>Above 35</td>
<td>8</td>
</tr>
<tr>
<td>Grand Total</td>
<td>41</td>
</tr>
</tbody>
</table>

The largest number of pregnancies were recorded in women between 21-29 years old. Vitamin D was not discussed with any of the three women belonging to the 16-20 year old group, the Healthy Start scheme or leaflet was not discussed either.

**Figure 77: Ethnicity of clients**

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>British</td>
<td>38</td>
</tr>
<tr>
<td>Irish</td>
<td>1</td>
</tr>
<tr>
<td>Grand Total</td>
<td>39</td>
</tr>
</tbody>
</table>

Results from SFT predominately depict a British white population, like all the women in the audit, vitamin D levels in these women would be subject to the amount of sunlight they receive, their working conditions, and their diet.

**Figure 78: High risk group**

<table>
<thead>
<tr>
<th>High Risk Group</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>15</td>
</tr>
</tbody>
</table>

NICE proposes that women at a higher risk of becoming vitamin D deficient are educated about the vitamin D, eight women were found to be at high risk, three women received literature relating to vitamin D, vitamin D was not discussed with any of these women.

**Figure 79: Associated medical risk**

<table>
<thead>
<tr>
<th>Question</th>
<th>Clients reported with medical condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the client have coeliac disease</td>
<td>0</td>
</tr>
<tr>
<td>Does the client have crohn’s disease / hepatic or renal disease</td>
<td>1</td>
</tr>
<tr>
<td>Does the client have family history of bone deformity</td>
<td>3</td>
</tr>
<tr>
<td>Does the client have history of bone disorders</td>
<td>0</td>
</tr>
</tbody>
</table>

An associated medical condition also increases the likelihood of becoming vitamin D deficient, these women did not receive any advice or literature informing them of the implications of low vitamin D nor did they receive information on how to increase their vitamin D uptake through supplements, sunlight or fortified food.
Figure 80: Clients who received a vitamin D discussion and/or literature

Vitamin D had not been discussed with any of the women who saw the midwives at SFT, however we found just over 50% of clients received literature that informed them of vitamin D.

Figure 81: Literature distribution

SFT advised the auditor of promoting Healthy Start to their clients, unfortunately the results showed that less than 40% of clients received a Healthy Start leaflet.
8.5.4 Wirral University Hospital Trust

Although this hospital Trust does not have a vitamin D policy in place, the midwifery services have since implemented interventions to educate midwives in the anticipation that the Information relating to vitamin D is cascaded to expectant and new mothers. WUHT has included vitamin D training in their mandatory training in view to target all their midwives. Midwives employed at this Trust are encouraged to complete the online vitamin D training package as part of their personal development.

**Figure 82: Grouped age of clients**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-20</td>
<td>6</td>
</tr>
<tr>
<td>21-25</td>
<td>11</td>
</tr>
<tr>
<td>26-29</td>
<td>12</td>
</tr>
<tr>
<td>30-34</td>
<td>10</td>
</tr>
<tr>
<td>Above 35</td>
<td>10</td>
</tr>
<tr>
<td>Grand Total</td>
<td>49</td>
</tr>
</tbody>
</table>

The Healthy Start scheme was promoted to four of the six women belonging to the 16-20 year group, five women in this group were eligible for free vitamins according to their age, all women were booked before 12 weeks and five of the six received literature relating to vitamin D. Vitamin D discussions were low in all groups.

**Figure 83: Ethnicity of clients**

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>British</td>
<td>45</td>
</tr>
<tr>
<td>Indian</td>
<td>1</td>
</tr>
<tr>
<td>Grand Total</td>
<td>46</td>
</tr>
</tbody>
</table>

From the case notes reviewed we found a large population of white British women at this Trust.

**Figure 84: High Risk Group**

<table>
<thead>
<tr>
<th>High Risk Group</th>
<th>TRUE</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>35</td>
<td>14</td>
</tr>
<tr>
<td>Grand Total</td>
<td>49</td>
<td></td>
</tr>
</tbody>
</table>

All women in this group had a pre pregnancy BMI over 30, 57% received literature; no one received a vitamin D discussion.

**Figure 85: Associated medical conditions**

<table>
<thead>
<tr>
<th>Question</th>
<th>Clients reported with medical condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the client have coeliac disease</td>
<td>0</td>
</tr>
<tr>
<td>Does the client have crohn’s disease / hepatic or renal disease</td>
<td>0</td>
</tr>
<tr>
<td>Does the client have family history of bone deformity</td>
<td>0</td>
</tr>
<tr>
<td>Does the client have history of bone disorders</td>
<td>0</td>
</tr>
</tbody>
</table>

No associated medical conditions were documented in any case notes.
Figure 86: Clients who received a vitamin D discussion and/or literature

![Bar chart showing vitamin D discussion and literature given to clients]

Vitamin D was discussed with two clients, with the new training in place now; we foresee these numbers rising in the future. The circulation of literature amongst clients were just over 50%.

Figure 87: Literature distribution

![Bar chart showing literature distribution]

The pregnancy book was the most popular form of literature given out to women, the circulation of Healthy Start leaflets were low, 32% of those who did not receive the Healthy Start leaflet were from a high risk group.
8.6 Health visitor case note audit.

This section documents results from the health visitor case note audit.

8.6.1 NHS Ashton Wigan and Leigh

Ashton Wigan and Leigh PCT Trust is comprised of three Trusts, although the Trust does not have a current vitamin D policy the policy and practice audit indicate health visors are offered training regarding vitamin D supplementation for breastfeeding and availability of suitable vitamin D supplementation. The Healthy Start scheme is also promoted.

Figure 88: Categorised age of clients

<table>
<thead>
<tr>
<th>Grouped Age</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-20</td>
<td>3</td>
</tr>
<tr>
<td>21-25</td>
<td>15</td>
</tr>
<tr>
<td>26-29</td>
<td>17</td>
</tr>
<tr>
<td>30-34</td>
<td>7</td>
</tr>
<tr>
<td>Above 35</td>
<td>7</td>
</tr>
<tr>
<td>Grand Total</td>
<td>49</td>
</tr>
</tbody>
</table>

The largest number of pregnancies occurred in the 26-29 year old group
All clients between 16-20 years old were found to be unemployed, therefore eligible for free Healthy Start vitamins; one client received a Healthy Start leaflet, clients did not receive information informing them about vitamin D supplementation and were not given the Birth to Five book.

Figure 89: Ethnicity of Case mix

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>British</td>
<td>37</td>
</tr>
<tr>
<td>Caribbean</td>
<td>1</td>
</tr>
<tr>
<td>E. European</td>
<td>1</td>
</tr>
<tr>
<td>Far Eastern</td>
<td>1</td>
</tr>
<tr>
<td>Grand Total</td>
<td>40</td>
</tr>
</tbody>
</table>

The majority (93%) of the case notes audited were white British women, of the 37 cases audited 18 women received the Healthy Start leaflet; women belonging to other ethnic groups did not receive the leaflet.

Figure 90: Associated medical conditions

<table>
<thead>
<tr>
<th>Question</th>
<th>Clients reported with medical condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the client have Coeliac disease</td>
<td>0</td>
</tr>
<tr>
<td>Does the client have Crohn’s disease / hepatic or renal disease</td>
<td>0</td>
</tr>
<tr>
<td>Does the client have family history of bone deformity</td>
<td>1</td>
</tr>
<tr>
<td>Does the client have history of bone disorders</td>
<td>1</td>
</tr>
</tbody>
</table>

Of all the case notes audited, two clients reported to have bone disease or a family history of bone disease. Documentation of a vitamin D discussion taken place with the clients was not recorded in both case notes. Both clients did not receive the Birth to Five book but one client did receive a Healthy Start leaflet.
Figure 91: Representation of vitamin D uptake

<table>
<thead>
<tr>
<th>Question</th>
<th>Clients reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was vitamin D Discussed</td>
<td>0</td>
</tr>
<tr>
<td>Was vitamin D taken prenatally</td>
<td>0</td>
</tr>
<tr>
<td>Was vitamin D taken postnatal</td>
<td>0</td>
</tr>
<tr>
<td>Clients received Birth to Five book</td>
<td>0</td>
</tr>
</tbody>
</table>

The table demonstrates the ignorance and lack of vitamin D awareness. All of the women audited did not take vitamin D / Healthy Start supplements throughout pregnancy and after their baby was born.

Although the PCT audit advised health visitors were provided with information regarding vitamin D the data captured paints a different picture, none of the audited case notes made reference to vitamin D ever being discussed or giving the client the Birth to Five book.

Figure 92: Clients who received a discussion relating to vitamin D or literature

Unfortunately vitamin D was not discussed with any of the clients, six women were at high risk of vitamin D deficiency, two reported an associated medical condition and four were from an ethnic background.

Overall 54% of women in the audit did not receive any of literature, of these women three were from ethnic minority groups, two were under 18 years old and one client advised of a history of bone disease.
The Birth to Five was not distributed to any of the clients audited, during the provider service audit; Wigan had informed the auditor they did not have an in-house leaflet to give to clients. The graph clearly shows 46% (23 clients) received the Healthy Start leaflet. It became apparent health visitors are not consistent with using literature to promote vitamin D and particularly capture those at high risk.

### 8.6.2 NHS Central Manchester

NHS Manchester employs the largest number (34) of children centres and health visitors (79), at present a vitamin D policy is not in place and health visitors are not given information about vitamin D or leaflets to distribute. Vitamin D training is not offered to health visitors currently, however plans to deliver training are in process. The Healthy Start scheme is promoted to clients during appointments with health visitors.

#### Figure 94: Categorised age of clients

<table>
<thead>
<tr>
<th>Grouped Age</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-20</td>
<td>11</td>
</tr>
<tr>
<td>21-25</td>
<td>21</td>
</tr>
<tr>
<td>26-29</td>
<td>33</td>
</tr>
<tr>
<td>30-34</td>
<td>23</td>
</tr>
<tr>
<td>Above 35</td>
<td>11</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>99</strong></td>
</tr>
</tbody>
</table>

Central Manchester audited the largest number of case notes, the audit highlighted the highest number of pregnancy occurred in 26-29 year olds.
The results show a diverse ethnic population, 22% of women were found to be from an Asian origin (Bangladeshi, Chinese, Indian, Pakistani and South East Asia) of the grouped Asian population 50% were from a Pakistani origin.

Associated medical conditions were recorded, those clients reporting having a medical condition all received vitamin D literature. Furthermore the coeliac was a Pakistani woman who received the Birth to five book and reported taking vitamin D supplementation pre and postnatal, however no documentation was found suggesting vitamin D had been discussed with her.
Vitamin D discussions were low amongst the case notes audited; in many instances those who were high risk clients did not receive a discussion informing them of the implications of low vitamin D.

Literature was given to 55% of clients, this included one or more of the following listed; Birth to Five, in-house leaflet, Healthy Start leaflet or other literature which made reference to vitamin D.

**Figure 98: Type of literature distributed**

The Birth to Five was the most given form of literature, 34% of clients audited were eligible beneficiaries for Healthy Start vitamins, only 5% received the Healthy Start leaflet.
8.6.3 NHS Liverpool

NHS Liverpool currently employs 75 health visitors, facilities 26 children centres and vitamin D coordinator. Although they do not have a policy in place they provide their staff with vitamin D information. Healthy Start is promoted but with limited application forms, health visitors feel it is difficult.

**Figure 99: Categorised age of clients**

<table>
<thead>
<tr>
<th>Grouped Age</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-25</td>
<td>16</td>
</tr>
<tr>
<td>26-29</td>
<td>14</td>
</tr>
<tr>
<td>30-34</td>
<td>16</td>
</tr>
<tr>
<td>Above 36</td>
<td>14</td>
</tr>
<tr>
<td>Grand Total</td>
<td>60</td>
</tr>
</tbody>
</table>

The audit highlighted a high number of pregnancies in women above 35 years old. Calcium stores are comprised by the increasing demands on the mother causing depleted or compromised vitamin D stores.

**Figure 100: Ethnicity of case mix**

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>British</td>
<td>35</td>
</tr>
<tr>
<td>Not Documented</td>
<td>14</td>
</tr>
<tr>
<td>N. European</td>
<td>3</td>
</tr>
<tr>
<td>N. African</td>
<td>2</td>
</tr>
<tr>
<td>Indian</td>
<td>1</td>
</tr>
<tr>
<td>Irish</td>
<td>1</td>
</tr>
<tr>
<td>Far Eastern</td>
<td>1</td>
</tr>
<tr>
<td>Bangladeshi</td>
<td>1</td>
</tr>
<tr>
<td>South East Asian</td>
<td>1</td>
</tr>
<tr>
<td>Sub Sahara</td>
<td>1</td>
</tr>
<tr>
<td>Grand Total</td>
<td>60</td>
</tr>
</tbody>
</table>

Large proportions of the case notes audited belonged to white British women, indicating that Liverpool predominately has a white British population. Vitamin D was discussed with four women, three from a white British background and one from a Far Eastern background.

**Figure 101: Number of clients with a high risk medical condition**

<table>
<thead>
<tr>
<th>Question</th>
<th>Clients reported with medical condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the client have Coeliac disease</td>
<td>0</td>
</tr>
<tr>
<td>Does the client have Crohn’s disease / hepatic or renal disease</td>
<td>0</td>
</tr>
<tr>
<td>Does the client have family history of bone deformity</td>
<td>0</td>
</tr>
<tr>
<td>Does the client have history of bone disorders</td>
<td>0</td>
</tr>
</tbody>
</table>

No clients recorded having any medical problems that would increase their risk of already being or becoming vitamin D deficient.
The table above demonstrates the low uptake of vitamin D overall. Healthy Start vitamins were taken by one woman postnatal.

Evidence of vitamin D being discussed was poor in this group, four case notes reported vitamin D had been discussed, three were given literature.
Distribution of literature was poor in Liverpool; the Birth to Five book was given to less than 10% of clients. Healthy Start was promoted to six clients; furthermore another 12 clients were eligible for the free vitamins, but were not introduced to the scheme.
8.6.4 East Lancashire

NHS East Lancashire is compromised of four Trusts and 27 children’s centres. The vitamin D policy in place has not been audited. Training offered to health visitors is a stand alone session including nutrition and the availability of supplements. An in-house leaflet and information regarding Healthy Start is given to all health visitors to ensure information given to women is concise and accurate.

Figure 105: Categorised age of clients

<table>
<thead>
<tr>
<th>Grouped Age</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-20</td>
<td>6</td>
</tr>
<tr>
<td>21-25</td>
<td>23</td>
</tr>
<tr>
<td>26-29</td>
<td>21</td>
</tr>
<tr>
<td>30-34</td>
<td>20</td>
</tr>
<tr>
<td>Above 35</td>
<td>10</td>
</tr>
<tr>
<td>Grand Total</td>
<td>80</td>
</tr>
</tbody>
</table>

East Lancashire audit did not record any pregnancies in women younger than 19 years old. Women in the youngest group all received literature informing them of vitamin D uptake. Vitamin D was promoted in all women above 30 years old.

Figure 106: Ethnicity of case mix

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladeshi</td>
<td>2</td>
</tr>
<tr>
<td>British</td>
<td>19</td>
</tr>
<tr>
<td>N. European</td>
<td>1</td>
</tr>
<tr>
<td>Pakistani</td>
<td>5</td>
</tr>
<tr>
<td>South East Asian</td>
<td>1</td>
</tr>
<tr>
<td>Grand Total</td>
<td>28</td>
</tr>
</tbody>
</table>

Unfortunately the ethnicity of 61 clients was not recorded and therefore a true reflection of ethnicity can not be shown.

Figure 107: Number of clients with a high risk medical condition

<table>
<thead>
<tr>
<th>Question</th>
<th>Percentage of clients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the client have Coeliac disease</td>
<td>0%</td>
</tr>
<tr>
<td>Does the client have Crohn’s disease / hepatic or renal disease</td>
<td>0%</td>
</tr>
<tr>
<td>Does the client have family history of bone deformity</td>
<td>0%</td>
</tr>
<tr>
<td>Does the client have history of bone disorders</td>
<td>0%</td>
</tr>
</tbody>
</table>

No clients recorded having any medical problems that would increase their risk of already being or becoming vitamin D deficient.
Overall over 80% of the clients received a discussion and literature. A small number of clients received literature without a discussion.

The distribution of literature was high in East Lancashire, an in house produced vitamin D card to monitor vitamin uptake was given to 79% of their women.
The Trust employs a large team of health visitors and midwives; they have a well established standalone training package which is cascaded to reinforce their vitamin D policy. Health visitors use a specific in-house vitamin D leaflet that they refer to and issue when discussing vitamin D with their women.

**Figure 110: Grouped age of clients**

<table>
<thead>
<tr>
<th>Grouped Age</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-20</td>
<td>2</td>
</tr>
<tr>
<td>21-25</td>
<td>15</td>
</tr>
<tr>
<td>26-29</td>
<td>25</td>
</tr>
<tr>
<td>30-34</td>
<td>39</td>
</tr>
<tr>
<td>Above 35</td>
<td>16</td>
</tr>
<tr>
<td>Grand Total</td>
<td>97</td>
</tr>
</tbody>
</table>

A large portion of the case notes viewed was from women over 25 years old. A small number of pregnancies were seen in women under 20 years old.

**Figure 111: Ethnicity of clients**

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>British</td>
<td>19</td>
</tr>
<tr>
<td>Indian</td>
<td>38</td>
</tr>
<tr>
<td>Middle Eastern</td>
<td>1</td>
</tr>
<tr>
<td>N.African</td>
<td>1</td>
</tr>
<tr>
<td>other</td>
<td>2</td>
</tr>
<tr>
<td>Pakistani</td>
<td>38</td>
</tr>
<tr>
<td>Sub Sahara</td>
<td>1</td>
</tr>
<tr>
<td>Grand Total</td>
<td>100</td>
</tr>
</tbody>
</table>

The ethnicity of more than 50% of the case notes reviewed was from women of an ethnic background. All of these women received literature relating to vitamin D.

**Figure 112: Number of clients with a high risk medical condition**

<table>
<thead>
<tr>
<th>Question</th>
<th>Clients reported with medical condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the client have Coeliac disease</td>
<td>1</td>
</tr>
<tr>
<td>Does the client have Crohn’s disease / hepatic or renal disease</td>
<td>2</td>
</tr>
<tr>
<td>Does the client have family history of bone deformity</td>
<td>0</td>
</tr>
<tr>
<td>Does the client have history of bone disorders</td>
<td>3</td>
</tr>
</tbody>
</table>

We noted three women of those who reported an associated medical condition did not receive a discussion relating to vitamin D. These women in particular are venerable to becoming deficient and require extra nutritional advice to ensure they maintain the recommended vitamin D levels.
NHS Blackburn and Darwen was the only Trust in the audit to discuss and issue literature to over 90% of the women they saw; these results evidently support the importance of a vitamin D policy which is reinforced with mandatory vitamin D training. All health visitors have access to vitamin D information, a leaflet, and an up to date health start distribution list.

**Figure 114: Type of literature distributed**

We found 98% of women received literature, the Birth to Five book was the least given out, surprisingly followed by the in house leaflet. NHS Blackburn has a dedicated vitamin D leaflet that they issue to all women; we found 71% of women received this leaflet. In many case notes we found women we given more than one of the listed leaflets/book.