TACKLING VITAMIN D DEFICIENCY IN CHILDREN AND AT-RISK FAMILIES

Lisa Lewis describes a strategy developed to prevent the problem by improving awareness and knowledge among health professionals and parents.

Abstract

This article considers the reasons for, and the consequences of, vitamin D deficiency, which affects large numbers of young children. Despite extensive media coverage there appears to be a lack of awareness of the risks among parents and, in some cases, among health professionals. A strategy was developed in one city in the south west of England to counter continued poor uptake of vitamin supplements available through the Healthy Start scheme. The article concludes that pockets of good practice must be extended urgently to address the preventable effects of vitamin D deficiency.

Keywords
Children, diet, deficiency, Healthy Start, vitamin D

MOST PEOPLE get little vitamin D in their diet; only a few natural foods, mainly oily fish and eggs, contain significant amounts. But vitamin D is an essential nutrient for healthy bone development and for controlling the amount of calcium in the blood.

It is the most common mineral in the body and, in addition to bone development, helps the blood to clot and the muscles, including the heart, to contract. All formula milks are fortified with the vitamin, and it is added to some margarine products and breakfast cereals; breast milk generally contains little vitamin D (Jacobs 2013).

Sunshine is the main source of vitamin D but only through exposure when the sun is high in the sky. In the UK this is largely impossible from November to February, extending to March in the north of England and Scotland (Jacobs 2013).

Some groups are at greater risk than others of vitamin D deficiency, including people whose skin is darker and those who are not exposed to sunlight because of cultural dress codes and practices. Sedentary, indoor lifestyles and use of sunscreens to protect against the damaging effects of too much exposure increase the risk of vitamin D deficiency in the general population.

To prevent deficiency, the Department of Health (DH) recommends that vitamin supplements, including vitamin D, should be given to all children from the age of six months if they have less than 500ml of formula milk a day. Breastfed infants should be supplemented from one month if the mother has not taken vitamin D supplements during pregnancy (DH 2006).

Understanding the context
About 12% of young children have a vitamin D deficiency and as many as 40% have levels below the accepted optimal threshold. This is in spite of interventions (Gordon et al 2008) such as the Healthy Start national scheme. The initiative provides vouchers that can be exchanged for fruit, vegetables, milk and formula milk; additional vouchers can be exchanged for maternal vitamin supplements throughout pregnancy and for children’s vitamin supplements up to the age of five years for qualifying families (see www.healthystart.nhs.uk for details).

The chief medical officer for England’s annual report (Davies 2013) for 2013 recommends that the
National Institute for Health and Care Excellence examine the cost-effectiveness of making the Healthy Start vitamin programme available nationwide. This was widely reported across the media, with clear reference to the fact that the UK is failing its children in comparison with other developed countries.

Vitamin D deficiency is not new. More than a year ago, chief medical officer (CMO) Sally Davies contacted medical staff throughout England about concerns over vitamin D deficiency in children. This followed a report from the Feeding for Life Foundation (2011), suggesting that one in four toddlers in the UK are vitamin D deficient. The CMO’s letter (Davies et al 2012) was distributed to all GPs, practice nurses, health visitors and community pharmacists in February last year.

Benjamin Jacobs, a doctor from the Royal National Orthopaedic Hospital, told BBC television at the time that the hospital saw about one severe case of rickets every month. He also reported other problems that are caused by vitamin D deficiency, including muscle weakness, delay in walking and bone pain (Jacobs 2013).

One initial response to this media coverage was to question how local health visiting services could respond to parental concerns and ensure they received timely, appropriate and easily accessible information about vitamin D deficiency.

Dr Davies’s (2013) report says that the response to this health need, in the form of Healthy Start vitamins, was in place but that there was poor uptake of the scheme nationally (DH 2008a, 2008b, Lockyer and Porcellato 2011). This was clear in practice, where the identified health need was neither perceived nor expressed by parents seen in child health clinics (Bradshaw 1972), with few of them asking about vitamins.

Naidoo and Wills (2009) identify that the dominant understanding of health is the absence of disease. However, Becker (1997) proposes that people are more likely to ask questions when disruption to their lives forces them to do so. In the context of this notion to disease and health, it may be that parents were unlikely to recognise vitamin D deficiency as a health need until presented with a case of rickets in their communities. The Marmot review (Marmot 2010) suggests that health inequalities throughout life could be reduced by giving every child the best possible start. With vitamin deficiency, it has been well documented that poorer diets, more often seen in deprived communities, are a contributing factor. In fact, the first welfare food scheme to improve early nutrition was introduced in the 1940s (Feeding for Life Foundation 2011).

**The local picture**

National and local data indicate that more than 11,000 children live in poverty in Plymouth. There is also a higher than average number of families receiving out of work benefits or tax credits (Plymouth City Council 2012). Data from eight clinics dispensing Healthy Start vitamins in the city suggested a significant difference in uptake, ranging between 9% and 73% across clinics, with one of the least deprived wards showing the highest uptake (Plymouth NHS Teaching Primary Care Trust 2006). Figures published by the city council estimated the mid-year resident population of children under four in 2010 at 15,100 (Child and Maternal Health Observatory 2012). The data collated from the clinics show that only 310 vitamin supplements were actually dispensed, indicating that few children living in the city were receiving them.

There is also evidence to suggest that professionals nationally are failing in their statutory responsibility to make Healthy Start supplements readily available at local level (Davies et al 2012). While there are conflicting views about the degree to which professionals lack awareness and knowledge of vitamin D and supplementation, lack of direct access to Healthy Start vitamins remains a key reason for continued poor uptake (Davies and Shaw 2011).

**A strategic approach**

The author of this article recommended a threefold strategy, which was accepted by the local provider:

- Developing a simple information leaflet placed in child health records.
- Creating a short presentation about vitamin D deficiency aimed at professionals, parents and carers.
- Improving access to Healthy Start vitamins.

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**Box 1 Text for leaflet on raising awareness about vitamin D**

The information leaflet aims to improve knowledge among parents and healthcare professionals and states that:

- We get vitamin D from sunlight and foods such as oily fish (sardines, salmon, mackerel), eggs and meat. It is also added to formula milk.
- Vitamin D helps us absorb calcium to grow and maintain healthy bones and teeth.
- The Department of Health recommends a daily vitamin D supplement for all children aged six months to five years, and all pregnant and breastfeeding women.
- Pregnant women and children aged five or under who qualify for the Healthy Start scheme can get free supplements.
- Talk to your health visitor, midwife, GP or pharmacist for more information about vitamin supplements.
- Healthy Start vitamins are available at the following clinics: Clinic 1; Clinic 2; Clinic 3; Clinic 4; Clinic 5; Clinic 6; Clinic 7 and at the Central Health Centre.
Information leaflet The document (Box 1) was developed and placed in all personal child health records either at the primary assessment or at a clinic session. The rationale was that it would help allay parental concern, raise awareness and give information about how to get Healthy Start vitamins, while acting as a prompt for health professionals to discuss supplements and a healthy diet with parents and carers.

The strategy was ratified by the trust’s clinical governance group, the local public health department and the children’s commissioner. It was then adopted not only in the immediate locality and also more widely across the county.

Presentation A short presentation on vitamin D deficiency was developed, which could be adapted to specific audiences. The presentation covers the causes of vitamin D deficiency and why it has become a problem and identifies those at higher risk with explanations as to why this is the case.

The intention was to use the presentation in antenatal groups, children’s centre groups and as part of professional updates. This approach aimed to provide greater exposure to discussions about vitamin D, increasing awareness of the issue and facilitating health-enhancing activities by professionals in the communities most at risk.

As part of the public health role, professionals must recognise the ethical implications of ‘not preventing the preventable’ and the consequences of vitamin D deficiency (Davies and Shaw 2011, Lockyer and Porcellato 2011). Raising awareness among health professionals was the starting point in this local strategy, particularly as parents were not identifying the need themselves, despite significant media coverage.

A strategy proposed by Lockyer and Porcellato (2011) is the introduction of a diary insert, which would be placed in professionals’ diaries for reference and identifying groups at increased risk. However, given DH recommendations that all children under five should receive supplements, it was considered that this would be of little value. Healthy Start already provides a vitamin decision-tree poster that could go into clinic diaries or be used in clinics.

Access to supplements The final part of the strategy was to make Healthy Start vitamins more accessible. Supplements were primarily available in eight of the city’s clinics, which were staffed by a receptionist who could take payment from those not entitled to free vitamins under the Healthy Start scheme. In addition, there are practical difficulties around accessibility, because the shelf life of Healthy Start vitamins for children is ten months. NHS Supply Chain, which provides healthcare products and services to the NHS, is required only to ensure that the stock delivered has at least three months before expiry. This makes stock management over a large number of sites difficult.

Ethically, this could raise a dilemma. Although the estimated cost of untreated vitamin D deficiency is huge (Davies and Shaw 2011), organisations responsible for public monies may find it difficult to justify the direct costs of expired stock. Davies et al (2012) point out that organisations could supply the vitamins free of charge and that they would encourage this on behalf of the DH. The CMO’s annual report (Davies 2013) goes further, recommending a review of the cost effectiveness of universal availability, although the issue of stock control and implied costs remains an issue and would need consideration.

Locally, it was proposed that every parent who wished to order supplements should be asked to bring their vitamin voucher to clinic. Supplies could then be ordered, via a clinic with stock, and dispensed at the subsequent clinic. This means the organisation would not incur any costs for unsold or undispensed stock. The rationale was that, as uptake increased, so would stock turnover, giving an indication of the viability of keeping stock at local clinics and team bases in future.

The proposal was challenged by some staff who thought the approach meant that parents were not taking responsibility for their children’s health and that the service was ‘spoonfeeding’ them. This perhaps reflects a lack of knowledge about the effects of vitamin D deficiency; public health professionals would not, for example, apply a similar approach to educating parents about the effects of smoking on their child’s health.

Implementation Mind the Gap (Feeding for Life Foundation 2011) raises the question of who should take responsibility for providing more education and support for health workers to ensure discussion about vitamin D supplementation is a priority when talking to parents.

It could be argued that health visitors, and health workers generally, have a responsibility to remain...
up to date and use current evidence to support practice. But it is also important to recognise that in practice, a co-ordinated approach can support and facilitate this, thereby maximising the potential dissemination of this important information.

This was therefore used as a basis for making a recommendation locally for a designated health visitor to be responsible for co-ordinating the relaunch of Healthy Start vitamin supplements, providing clear leadership for the programme. It was also recommended that each team should have a designated community health worker responsible for ensuring that vitamins were ordered and that Healthy Start information was available at all clinics. It was anticipated that in future these workers could be trained to take payment for purchased vitamin supplements and account for them accordingly.

Discussion
In 2012, the DH decided that NHS Supply Chain could make Healthy Start vitamins available to non-NHS organisations (Fruin 2012). On further investigation, there appeared to be restrictions on this placed by NHS Supply Chain, such as allowing only one drop-off point, one order per month and, if a primary care trust (PCT) or trust had a formal arrangement with a Sure Start children’s centre, for example, only one invoice could be sent on behalf of the PCT/trust per quarter.

Conclusion
A number of organisations across England are trying to make Healthy Start supplements readily available, with Birmingham cited as leading the way (Davies 2013). However, while there are pockets of good practice, one can only assume that the experiences of this one city in the south west are not uncommon across the rest of the UK. Although it is commendable that the CMO is attempting to make Healthy Start vitamins universally available, practitioners are only too aware of how long policy takes to influence practice.

With this in mind, the author of this article would recommend that it should remain the responsibility of all providers to address this issue without delay to avoid the preventable consequences of vitamin D deficiency.

Implications for practice
- Vitamin D deficiency is preventable.
- All professionals should be aware of population groups at risk of deficiency.
- Healthcare professionals working with children and families should be advising on vitamin supplements.
- Healthcare professionals working with children and families should understand the Healthy Start Programme and be aware of local availability.
- Healthcare professionals should be aware of alternative appropriate supplements for families not eligible for Healthy Start in localities not providing a purchase option for all.
- Healthcare professionals are well placed to promote similar programmes in their area of practice.
- It is the responsibility of all providers to implement adequate prevention programmes to tackle vitamin D deficiency.

References
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