

Diagnosis and treatment of Vitamin D deficiency during pregnancy

Introduction

The aim of the HTA programme is to ensure that high quality research information on the effectiveness, costs and broader impact of health technologies is produced in the most efficient way for those who use, manage, provide care in or develop policy for the NHS. Topics for research are identified and prioritised to meet the needs of the NHS. Health technology assessment forms a substantial portfolio of work within the National Institute for Health Research and each year about fifty new studies are commissioned to help answer questions of direct importance to the NHS. The studies include both primary research and evidence synthesis.

Question

What is the relationship between maternal Vitamin D levels and maternal and neonatal outcomes of pregnancy? What is the best way to identify women who may benefit from treatment?

- 1 **Technology:** Assessment of Vitamin D levels and potential deficiency.
- 2 **Target group:** Pregnant women stratified by ethnic group, gender and/or religion.
- 3 **Setting:** Maternity services.
- 4 **Control or comparator treatment:** Normal care.
- 5 **Design:** An evidence synthesis by systematic review to establish the clinical criteria for 'deficiency' and the appropriate dose, frequency and route of administration that appear to be of benefit to mother and child.
- 6 **Outcomes of interest:** Child: reduced rates of hypocalcaemia and rickets; Maternal: reduced rates of osteomalacia. **Other outcomes:** Child: birth weight; Maternal: quality of life, compliance.

Background to commissioning brief:

The metabolism of Vitamin D involves its transformation by the liver and kidneys and the active form stimulates calcium absorption from the gut. The true prevalence of Vitamin D deficiency in pregnancy is unclear as it is not routinely screened for during pregnancy. Controversy still exists over dosing schedules used for either prevention or treatment of deficiency. High doses may be associated with the consequences of hypercalcaemia (such as the development of kidney stones and teratogenic effects). In the UK, the prevalence of Vitamin D deficiency in all adults is around 14.5% and may be more than 30% in those over 65 years old, and as high as 94% in otherwise healthy South Asian adults.

Improved Vitamin D status of the mother during pregnancy may have a wider beneficial impact on their child's health including bone mineralisation and wheeze in childhood. Vitamin D status of the newborn is largely determined by the Vitamin D status of the mother. Severe deficiency of Vitamin D results in rickets (in children) and osteomalacia (in children and adults). Vitamin D deficiency in pregnancy is likely to result in an infant born with, or at risk of, deficiency.

Research is required to establish the level of Vitamin D that would determine 'deficiency', the dose, frequency and most appropriate route of administration of Vitamin D.

Making an application

The NIHR Health Technology Assessment programme is funded by the NIHR, with contributions from the CSO in Scotland and WORD in Wales. Researchers from Northern Ireland should contact NETSCC to discuss their eligibility to apply.

If you wish to submit a proposal on this topic, complete the on-line application form at <http://www.hta.ac.uk/funding/standardcalls/index.shtml> and submit it on line by 30/6/10. You need to send a copy of the application form with original signatures, along with a detailed project description, to the HTA Commissioning Manager at the National Coordinating Centre for Health Technology Assessment, Alpha House, Enterprise Road, Southampton Science Park, Chilworth, Southampton, SO16 7NS.

Your full proposal will be assessed by designated board members, alongside other applications submitted in the same topic area. A maximum of three proposals will be taken forward for peer review by external referees, and subsequent consideration by the HTA Commissioning Board at its meeting in late-September.

Applications received electronically after 1300 hours on the due date will not be considered.

Please see GUIDANCE ON APPLICATIONS overleaf.

Guidance on applications

Methods

Applicants should demonstrate knowledge of current research in the field and of systematic review methods and state how these would apply to the question posed. Valid and reliable methods should be proposed for identifying and selecting relevant material, assessing its quality and synthesising the results. Guidance on choice of appropriate methods is contained in NHS CRD Report *Systematic Reviews: CRD's guidance for undertaking reviews in health care (third edition)* (http://www.york.ac.uk/inst/crd/systematic_reviews_book.htm). Where policy implications are considered, the emphasis should be on assessing the likely effects of a range of policy options open to decision makers rather than a judgement on any single strategy. Where epidemiological modelling or economic evaluation is required, the range of uncertainty associated with the results should be assessed. In the assessment of cost-effectiveness, further data collection may be required to estimate resource use and costs. If there is evidence that the ratio of costs and benefits may differ between readily identifiable groups, applicants are encouraged to state how they will identify these differences.

Cochrane

Applicants wishing to produce and maintain a Cochrane systematic review from this HTA commissioned systematic review should make the case in their proposal. This will need to include the approval of the relevant Cochrane Review Group (www.cochrane.org). Any additional costs associated with the initial preparation of a Cochrane review should be included in your project proposal. Maintenance costs cannot be met.

Public involvement in research

The HTA programme recognises the benefit of increasing active involvement of members of the public in research and would like to support research projects appropriately. The HTA programme encourages applicants to consider *how* the scientific quality, feasibility or practicality of their proposal *could* be improved by involving members of the public. Examples of how this has been done for health technology assessment projects can be found at <http://www.hta.ac.uk/PPIguidance/>. Research teams wishing to involve members of the public should include in their application: the aims of active involvement in this project; a description of the members of the public (to be) involved; a description of the methods of involvement; and an appropriate budget. Applications that involve members of the public will not, for that reason alone, be favoured over proposals that do not but it is hoped that the involvement of members of the public will improve the quality of the application.

Updating

It is the policy of NETSCC, HTA that all search strategies undertaken as part of evidence synthesis/secondary research projects must not be more than 12 months out of date when the draft final report is submitted. We expect that most projects will manage to bring their searches up to date prior to analysis and writing up. As research funders we are aware that exceptional circumstances can apply that would not allow this to be case but this must be the exception rather than the rule and will be assessed on a case by case basis. The expectation is that projects funded by the HTA programme will deliver information that is both relevant and timely.

In addition, in order to inform decisions on whether and when to update the review, researchers will be expected to give some indication of how fast the evidence base is changing in the field concerned, based on the nature and volume of ongoing work known at the time the review is completed. Applicants should note that they will not be expected to carry out any future updating as part of the contract to complete the review.

Communication

Communication of the results of research to decision makers in the NHS is central to the HTA Programme. Successful applicants will be required to submit a single final report for publication by the HTA programme. They are also required to communicate their work through peer-reviewed

journals and may also be asked to support NETSCC, HTA in further efforts to ensure that results are readily available to all relevant parties in the NHS. Where findings demonstrate continuing uncertainty, these should be highlighted as areas for further research.

Timescale

There are no fixed limits on the duration of projects or funding. However, there is a pressing need within the NHS for the information and so the research would normally be expected to be completed as soon as possible – however it is for applicants to justify the duration and costs proposed.