

Vitamin D Supplementation in Breastfed Infants: Do Video Counselling and Samples Improve Adherence?

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Introduction

Although preventable, vitamin (vit) D-deficiency rickets persists in Canada at an annual incidence of 2.9 cases per 100 000.¹ Additionally, several northern Vancouver Island breastfed infants recently exhibited early rachitic changes.

Because breast milk is an unreliable vit D source, Health Canada recommends supplementation for all breastfed infants to prevent vit D-deficiency. Though effective and accepted by health professionals, the persistence of vit D-deficiency suggests inconsistent application and poor parental adherence with the guideline.

Professional counselling has been positively correlated with vit D supplementation rates in infants.² In the Vancouver Island Health Authority (VIHA), consistent education for new parents combining video counselling and vit D sample with the current pamphlet was thus proposed to improve parental adherence. No research has prospectively investigated their effects on parental adherence with vit D supplementation in breastfed infants.

As such, this study will add to the current literature, and be used to implement a new vit D education program within VIHA to ultimately improve parental adherence with vit D recommendations and thus, the health of VIHA's infants.

Objectives

Primary Objective:

- To determine if the addition of video counselling and vit D sample improves parental adherence with Canadian vit D supplementation recommendations for breastfed infants compared to the provision of a vit D pamphlet alone

Secondary Objective:

- To identify potential factors influencing parental adherence with vit D supplementation recommendations

Methods

Design: Single centre, prospective, single-blinded, randomized control trial

Inclusion Criteria:

- Consenting caregivers who:
 - Are breastfeeding
 - Delivered a healthy, term infant (≥ 37 weeks) at Victoria General Hospital (VGH)
 - Can understand English
 - Are available for follow-up interview via telephone

Exclusion Criterion: Caregivers with a substance use problem

Sample Size: Total of 150 participants

Power Calculation: 92% power (with a 2-sided alpha of 0.05) to detect a 25% difference in vit D adherence, assuming 60% adherence in the control group

Procedure:

- Upon consent, participants provided demographic information
- Participants were randomized to one of two interventions:
 - Pamphlet only (control)
 - Pamphlet + video counselling + vitamin D sample
- 2-month (+/-14 days) standardized follow-up telephone interview conducted to assess adherence (interviewer blinded to group allocation)

Approved by VIHA Health Research Ethics Board

Methods (continued)

Exploratory Baseline Survey:

- Anonymous, voluntary survey run over 1.5 week period
- Distributed to 11 Vancouver Island public health units across 6 cities
- Purpose:
 - To gain a general indication if babies up to one year were receiving vit D
 - To determine if current vit D use differed across the island

Created vit D educational video with collaboration from VIHA nursing and nutrition departments, and the Victoria Native Friendship Centre

Instrumentation, Adherence Scales:

- Surveys and data gathering tools developed for this study (*can view upon request*)
- Telephone interview to include the following questions:
 - Primary Scale:** "Think back to last week. How often did you miss giving your baby the daily dose?"
Adherence: No misses = 100%, 1-2 misses = 75%, 3-4 misses = 50%, 5-6 misses = 25%, 7 misses = 0%
 - Secondary Scale:** Estimation of vit D usage based on how much liquid is left in supplement bottle (full bottle, $\frac{3}{4}$ left, $\frac{1}{2}$ left, $\frac{1}{4}$ left, almost done)

Analysis (determined *a priori*):

- Intention to treat
- Dichotomous variable: Adherent ($\geq 75\%$ adherence) or Non-adherent
- Dichotomous variables will be tested using chi square tests with Fisher's exact tests

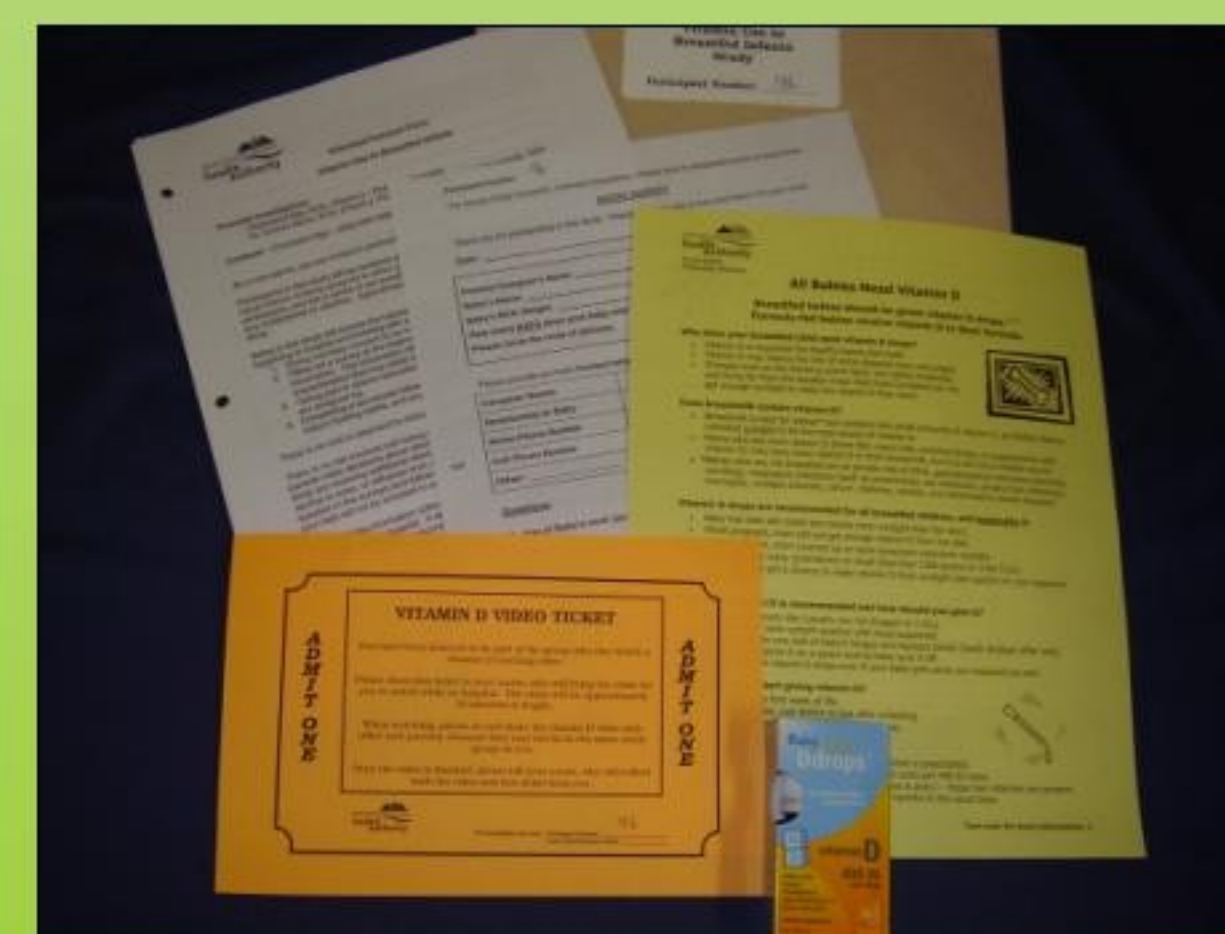
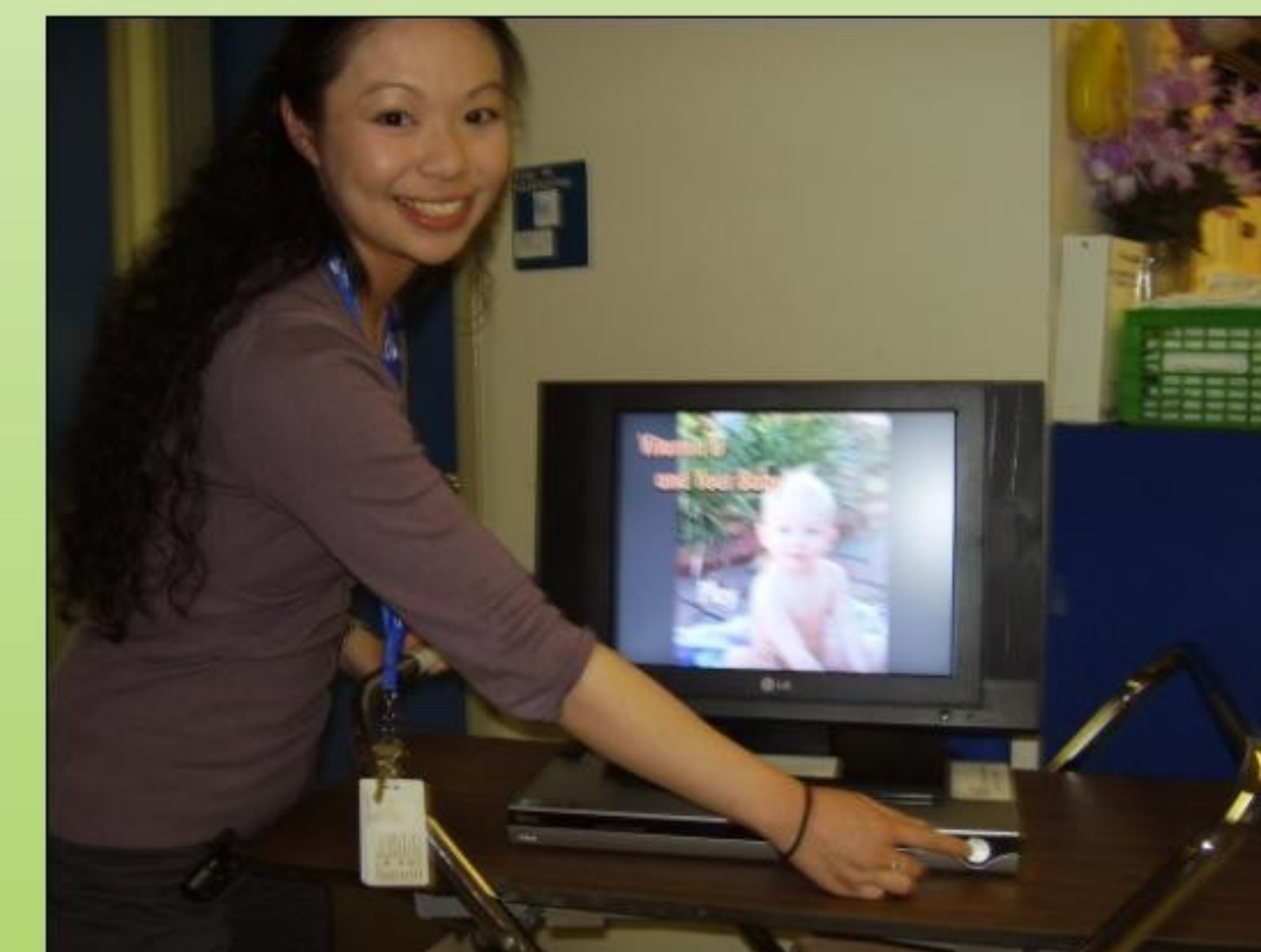


Figure 1: Pamphlet + video counselling + vit D sample intervention group:

Teaching video (*top left and right*),
Treatment envelope contents (*bottom*)

Results

- 95 Participants enrolled with one withdrawal as of May 15, 2008
- 5 follow-up interviews completed as of May 15, 2008
- Data analysis will be completed once participant enrollment complete

Discussion

- Future Plans:** Complete participant recruitment and follow up interviews, analyze data
- Limitations:**
 - Primary adherence scale dependent on participant reporting
 - Secondary adherence scale dependent on parental estimation of volume of supplement used
 - No objective adherence scale
 - Potential for responding bias with follow-up interviews
 - Participants so far showing trend of high education
 - Possible selection bias due to nature of informed consent process, exclusion of caregivers with substance use problems

Conclusions

- Study recruitment ongoing and will continue until sample size reached
- Analysis will be conducted once all follow-up interviews are complete
- As such, no conclusions at this time
- However, due to the trend of high education in caregivers consented so far, continuation of this study at additional sites may be necessary

Additional Impact

- Legacy: vit D educational video produced for this study will be used by VIHA public health units
- Facilitated interdisciplinary collaboration with VIHA nutrition, public health, and multimedia departments, and VGH perinatal ward
- Community collaboration with Victoria Native Friendship Centre
- Prompted nutrition initiative for vit D education for nursing, pharmacy, and pediatricians to take place after completion of study enrollment
- Discussion to conduct study at an additional central or north island site
- Study results will help to develop a consistent vit D education program for new parents within VIHA

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References

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