International Journal of Contemporary Pediatrics
Magar SG et al. Int J Contemp Pediatr. 2026 May;13(5):xxx-xxx
http://www.ijpediatrics.com
pISSN 2349-3283 | eISSN 2349-3291

DOI: https://dx.doi.org/10.18203/2349-3291.ijcp20261070

Original Research Article

Knowledge, attitude, and practices of medical practitioners toward vitamin A prophylaxis in the under-six population: a cross-sectional study on the awareness-knowledge-practice gap

S. G. Magar*, A. Y. Athlekar, K. Akunuri, S. R. Thakre

MGM Medical College, Ch. Sambhaji Nagar, Maharashtra, India

Received: 14 March 2026
Accepted: 03 April 2026

***Correspondence:**
Dr. S. G. Magar,
E-mail: drsuvarnamagar@gmail.com

ABSTRACT

Background: The national prophylaxis programme against nutritional blindness due to vitamin A deficiency (VAD) was launched in 1970 as a remedial measure to reduce the blindness due to xerophthalmia and VAD. A decline in the trend of VAD has been documented in India. We investigated the current knowledge, attitude and practices towards vitamin A supplementation in different group of health care practitioners.
Methods: A descriptive cross-sectional study was conducted at MGM Medical College and Hospital. Data was collected from medical professionals via a structured Google Forms questionnaire focusing on the dosage, frequency, and practice of clinical implementation of vitamin A prophylaxis.
Results: The majority of participants practiced in urban/city areas (89.2%) and were based in Institutional Teaching settings (56.6%). While general awareness of the vitamin A prophylaxis program was nearly universal (92.8%) and most correctly identified the oral route (97.6%), significant knowledge gaps existed regarding specific protocols. Only 10.8% correctly identified the standard 2,00,000 IU dose for the target age group, and only 46.9% agreed on a 6-month schedule. Statistical analysis showed no significant association between the type of institute and awareness ($p=0.304$) or prescribing habits ($p=0.603$). However, a statistically significant difference was found in the ability to enumerate laboratory tests for documenting deficiency ($p=0.004$), with practitioners in teaching institutes showing a higher deficit in specific diagnostic knowledge compared to private practitioners.
Conclusions: This study concludes that while pediatricians and medical practitioners have high awareness of vitamin A prophylaxis, there is a clear need for reformation of vitamin A prophylaxis program reinforcement. The presence of clinical Bitot's spots in daily practice highlights that VAD is still a concern. As there is an ongoing debate about the policy implementation, it is best recommended for medical practitioners to be well aware and educated about the administration of vitamin A prophylaxis. Strengthening food-based strategies and fortification may offer a long-term path forward, but the current clinical reliance on prophylaxis suggests that the transition must be managed carefully to avoid a resurgence of nutritional blindness.

Keywords: Vitamin A prophylaxis, KAP study, Pediatricians, Vitamin A deficiency

INTRODUCTION

Before 1970, xerophthalmia and VAD were a public health problem and to tackle that the national prophylaxis programme against nutritional blindness due to VAD was launched in 1970.[1] In last 50 years, there has been steady decrease in VAD prevalence. WHO has defined that if the prevalence of VAD>20% in a region it will be identified as a public health problem. In the recent national nutrition survey of 2019, VAD was identified as a severe public health problem in 12 states among pre-school children and in four states among adolescents. Also, the national level VAD prevalence was below 20%, irrespective of whether the children had received mega doses of vitamin

A in the past 6 months.[2] So, we definitely have a situation where need for universal vitamin A supplementation can be debated.

While primary healthcare workers are the backbone of rural distribution, Pediatricians and Ophthalmologists play a vital role in assessing VAD status of the pediatric population. Pediatricians are responsible for the routine nutritional assessment of the children under six, while Ophthalmologists are often the first to diagnose the ocular manifestations of VAD.

It is understood that, the national guidelines of universal vitamin A prophylaxis need reformation but we don't have evidence on the current practices about the implementation of vitamin A prophylaxis program amongst the pediatricians, health officers and ophthalmologists. This study seeks to assess the knowledge, attitude, and practices (KAP) of these specialists. By identifying gaps in knowledge, current attitude and hence the practice, we aim to bring a reality check on the ground reality and opinions on the practice.

METHODS

This was a descriptive, cross-sectional, survey-based study conducted from MGM Medical College, Pediatric department from the period January 2025 till October 2025. A self-administered electronic questionnaire was developed using Google Forms and the survey questionnaire was pre-validated to ensure clarity and relevance. The questionnaire included demographic data including specialty, type of practice, place of practice, and years of clinical experience; the knowledge component by awareness of the national prophylaxis schedule and implementation guidelines; attitude was checked by qualitative questions on perception of the importance of the program in an era of improved nutrition and practices by frequency of checking a child's Vitamin A supplementation history during routine visits and actually prescribing the doses.

The study population consisted of medical professionals, specifically focusing on pediatricians and ophthalmologists. This included senior consultants, junior consultants, and post-graduate residents, medical officers who are directly involved in the care of the pediatric population. We have tried to cover medical professionals working in both rural and urban settings as well as public and private practice sectors. The practitioners were divided in the three categories-professionals in the teaching institutes like medical colleges, professionals in the government non-teaching institutes like medical officers in primary or district health centers and thirdly private practitioners.

The study was conducted in accordance with ethical principles. Informed consent was obtained from all participants digitally before they proceeded to questionnaire. Data handled with strict confidentiality.

Data were analyzed using Microsoft excel. Descriptive statistics were used to summarize the KAP score.

RESULTS

The present KAP study included 83 health care practitioners, with a mean age of 37.59±10.12 years. Most participants belonged to the 31-40 years age group (37.3%), followed by ≤30 years (28.9%). Females constituted majority of the study population and most of the entire study population were qualified pediatricians. (81.9%) and 14.4% were MD Medicine graduates and ophthalmologists. The study participants are primarily situated in academic and urban environments. A significant majority (56.6%) are engaged in Institutional Teaching, which suggests that over half of the sample is likely involved in both clinical care and the education of future medical professionals. More than half of the participants were practicing in institutional teaching hospitals, and the majority were located in urban settings (89.2%). The mean duration of clinical practice was 10.55±9.44. The distribution of experience shows a healthy "middle" segment: 14.5% are relatively new to the field. The largest cohort, with 42.2% having 2-10 years of experience and 30.1% having 11-20 years. Combined, this represents nearly three-quarters (72.3%) of the participants. Most practitioners reported seeing 6-20 under-five children per day. Over half of the participants (52.8%) see between 6 and 20 children daily. Approximately 27.7% of the participants manage a heavy workload of more than 20 children per day, with 10.8% seeing upwards of 30 children daily. Only 20.5% see 5 or fewer children in this age group daily (Table 1).

Awareness regarding the vitamin A prophylaxis program was high, with 92.8% reporting knowledge of the program (Table 2). Awareness of the vitamin A prophylaxis program for preventing blindness is nearly universal, with 92.8% of participants confirming they are familiar with it. Furthermore, there is a very high level of correct knowledge regarding the route of administration, as 97.6% correctly identified it as an oral supplement. Despite high general awareness, there is significant variation in knowledge regarding the correct schedule and dosage. The most common response was 1,00,000 IU every 6 months (46.9%). Only 10.8% identified the correct 2,00,000 IU every 6 months schedule.

Only 10.8% of clinicians identified the 200,000 IU semi-annual schedule for children aged 1-5 years. The translation of knowledge into practice was measured by asking clinicians whether they prescribe prophylaxis to all children under 6 visiting their outpatient setup. 62.7% reported "Yes," indicating moderate adherence to the universal supplementation strategy. However, 22.9% stated they do not prescribe it to all visiting children. Among those who do prescribe (n=64), the available dosage forms were primarily syrup (42.2%) and capsules (34.4%).

When they were asked about the universal supplementation, 73.5% felt vitamin A should be given to all children, citing the prevention of VAD (44.3%) and blindness (34.4%). Out of those who disagreed with the universal requirement argued that it was not needed by all and must be reserved for a malnourished population. This split reflects an ongoing debate within the Indian medical community regarding the transition from universal to targeted prophylaxis.

Bitot's spots emerged as the most encountered clinical manifestation, with 16.9% of clinicians reporting the diagnosis of more than 10 cases annually. Keratomalacia, the most advanced ocular complication of VAD, was reported by 36.2% of clinicians to occur at least once per year, while 7.3% encountered five or more cases each year. These findings indicate that although advanced corneal pathology has become rare in economically advantaged populations, it continues to occur in specific vulnerable groups. The utilization of biochemical markers to document VAD is remarkably low in routine clinical practice. 80.7% of clinicians reported that they do not perform blood tests or laboratory evaluations for VAD, relying instead on clinical history and physical examination. Clinicians in institutional teaching settings were significantly more likely to identify and enumerate specific tests like serum retinol levels compared to those in private practice or non-teaching government roles.

We divided the practitioners in broadly three groups of institutional teaching, non-teaching institutes like government health centres and private practitioners (Table 3). Awareness about vitamin A prescription practices is not having statistically significant difference amongst all the three groups and majority were aware about the practice. Vitamin A prescription practice amongst the three groups showed that 65 % of teaching and non-teaching institute practitioners were prescribing vitamin A and 54 % of private practitioners were prescribing vitamin A but difference was not statistically significant. The attitude about universal prescription of vitamin A was also not statistically significant amongst all the groups indicating that vitamin A prescription practices were almost equal in all the subgroups. Almost 80 % practitioners in each group did not perform any blood tests to evaluate VAD. Statistically significant difference was found in the three groups regarding awareness of blood test required for diagnosis of VAD. The non-teaching institutes and private practitioners were better aware than teaching institute practitioners.

Table 1: Distribution of participants according to demographic profile.

Variables		N	Percentage (%)
Age group (in years)	≤30	24	28.9
	31-40	31	37.3
	41-50	17	20.5
	51-60	05	6.0
	>60	03	3.6
	Total	83	
	Mean±SD	37.59±10.12	
Gender	Male	39	47.0
	Female	44	53.0
Specialty-degree	MBBS	03	3.6
	DCH/MD/ DNB/ pediatric	68	81.9
	MD medicine	8	9.6
	MS ophthalmologist	6	8.5
Practicing type of institute	Institutional teaching	47	56.6
	Institutional non-teaching-government	14	16.9
	Solo/group private	22	26.5
Place of practice	City/district	74	89.2
	Taluk	6	7.2
	Village	3	3.6
How many years have you been in practice? (in years)	≤1	12	14.5
	2-10	35	42.2
	11-20	25	30.1
	>20	11	13.2
	Mean±SD	10.55±9.44	
How many under 6 years children are seen daily by you?	≤5	17	20.5
	6-10	21	25.3
	11-20	22	26.5
	21-30	14	16.9
	>30	09	10.8

Table 2: Distribution of participants according to knowledge about vitamin A prophylaxis, (n=83).

Knowledge about vitamin A prophylaxis		N	Percentage (%)
Do you know about vitamin A prophylaxis program for prevention of blindness in under 6 children?	Maybe	3	3.6
	No	3	3.6
	Yes	77	92.8
Can you write the schedule and doses of vitamin A given under this program?	Every 6 months 1,00000 IU	39	46.9
	Every 9 months 1,00000 IU	17	20.5
	Every 12 months 1,00000 IU	13	15.7
	Every 6 months 2,00000 IU	09	10.8
	Not sure	05	6.0
Is it given orally or intramuscular?	Orally	81	97.6
	Intramuscular	2	2.4
Do you prescribe vitamin A prophylaxis (as per government program) to all the under 6 children visiting to your outpatient set up?	Yes	52	62.7
	Maybe	12	14.5
	No	19	22.9
If yes, what is the dosage form available to you? (n=64)	Ampoule	12	18.7
	Capsule	22	34.4
	chewable tablets	03	4.7
	Syrup	27	42.2
Do you feel that vitamin A should be given to all the children uniformly?	Yes	61	73.5
	May be	06	7.2
	No	16	19.3
If yes, why (n=61)	To prevent blindness	21	34.4
	To prevent vit A deficiency	27	44.3
	Nutrition improvement,	05	8.2
	Strategically given	04	6.5
	Other	04	6.5
If No, why, (n=16)	Not required to all children	03	18.7
	Only given in malnourished children	04	25.0
	Treatment dose is higher	02	12.5
	As most of the children are having normal anthropometric measurements	03	18.7
How many cases of Bitot's spot are seen by you every year?	None	31	37.3
	1-5	25	30.1
	6-10	13	15.7
	>10	14	16.9
How many cases of night blindness are seen by you in year?	None	52	62.6
	01	13	15.7
	2-4	10	12.0
	≥05	08	9.6
How many cases of keratomalacia are seen by you in a year?	None	53	63.8
	01	13	15.7
	2-4	11	13.2
	≥05	06	7.3
Apart from clinical evaluation, have you done any blood tests or ophthalmic chemical/laboratory evaluation documenting VAD in children?	Yes	11	13.2
	May be	05	6.0
	No	67	80.7
Can you enumerate the laboratory tests which were done for documenting VAD	None	44	53.1
	serum retinol level	39	46.9

Table 3: Association between practicing type of institute and their practices.

Variables		Practicing type of institute			Chi-square value	P value
		Institutional teaching, (n=47)	Institutional non-teaching-government, (n=14)	Solo/group private, (n=22)		
Do you know about vitamin A prophylaxis program for prevention of blindness in under 6 children?	Maybe	03	00	00	4.84	0.304 NS
	No	01	00	02		
	Yes	43	14	20		
Do you prescribe vitamin A prophylaxis (as per government program) to all the under 6 children visiting to your outpatient set up?	Yes	31	09	12	2.73	0.603 NS
	Maybe	08	01	03		
	No	08	04	07		
Do you feel that vitamin A should be given to all the children uniformly?	Maybe	01	02	03	4.88	0.299 NS
	No	11	02	03		
	Yes	35	10	16		
Apart from clinical evaluation, have you done any blood tests or ophthalmic chemical/ laboratory evaluation documenting VAD in children?	May be	02	01	02	1.02	0.906 NS
	No	38	11	18		
	Yes	07	02	02		
Can you enumerate the laboratory tests which are done for documenting VAD?	None	32	06	06	10.70	0.004 S
	Serum retinol levels	15	08	16		

*S-significant, NS-not significant

DISCUSSION

The data paints a picture of an urban-centric, academically-inclined group of practitioners. The high concentration in teaching institutes and cities, combined with a significant daily volume of young paediatric patients, suggests that this group is well-positioned to comment upon the questions raised in the survey though the rural representation was poor. So, we would know a few aspects of prevalence of VAD and practice of Vitamin A prophylaxis in urban settings better than rural settings. Though overall practitioners are aware of the vitamin A prophylaxis practice when it came to implementation, it is not 100% as many of them have perceived that it should be given in malnourished children or in specific situations and locations with high rate of VAD. The survey also noted that many practitioners, especially pediatricians had enough workload but majority of practitioners are seeing a very few children with VAD signs like night blindness, Bitot's spot or keratomalcia. The ophalmologist saw a greater number of cases i. e. more than 20- 50 in a year. The national prevalence of VAD in school-age children and adolescents in India indicated that in only 3 states, this prevalence estimate was >20% with 95% certainty. The prevalence of VAD was significantly lower than 20%, even in the children who had not received VAS within the previous 6 months.[2] In a study by Houghton et al, the prevalence of VAD among the children was low (17%) and it was no longer at a level of public health concern (i.e., >20%). A high proportion of children (i.e., 68%) in this study had reportedly received a bi-annual dose of vitamin A in the last 6 months, which may be the reason for less prevalence of VAD. There has been a decrease in wasting and stunting in under 5 children in NFHS 5 survey 2015-2016 as compared to NFHS 4 survey, indicating prevalence of malnutrition is reduced for India. NFHS 6, identified India achieved minor changes 1.7%, 2.9% and 3.7% decline in wasted, stunted and underweight children during the 2015-16 to 2019-21.[4,5] The improvement in mal nutrition may be an indicator of overall better availability of micronutrients and likely reason for reduced prevalence of VAD. Secondly fortification of vitamin A was started in 2018 and FSSAI has stated that 47 percent of the vegetable oil produced is being fortified and 36.6% of milk is currently being fortified.[6] This can be an additional reason for reduced prevalence of clinically detected VAD. So, our survey is clearly identifying that in urban areas, clinical VAD cases are reduced and practitioners are seeing lesser number of cases of VAD. In the study by Kundu et al, NFHS data was used to identify the VAD and its association with socio-economic and demographic characteristics. The study identified socio-economic and demographic inequality existing in VAD among the children in India. Increase in mother's education and duration of breastfeeding may lower the VAD among the children. The study suggests in focusing on the targeted groups of

children who are at more risk in developing VAD and planning interventions for specific groups needs to be done in the current scenario in India.[7] The study by Reddy et al suggested that the national prevalence of VAD risk is below 20% in Indian children and additionally, there is risk of excess intake with food fortification and VAS, serious consideration should be given to a targeted approach in place of the universal VAS program in India.[8] As in our survey, the practice of vitamin A prophylaxis was implemented by only 64% practitioners and many practitioners perceived targeted approach for the program. There is a strong demand for changing the universal approach of prophylactic mega-dose vitamin A supplementation to preschool children and giving preference to targeted approach. The prevalence more than 20% is only existing in a few states of India and not all the states. There should be more studies on prevalence of VAD in different states in India for such a targeted approach. Bhattacharya et al have debated upon utility of universal mega doses of vitamin A to under 6 children as mega doses of vitamin A can have various acute side effects like nausea, vomiting, headache, irritability, and bulging of the fontanelle in infants and chronic side effects like hepatotoxicity, bone demineralization, increased risk of fractures, and impaired growth. The association of reduced mortality with vitamin A mega doses have been studies and the study by Awasthi et al concluded that megadose Vit-A supplementation has no role in reducing childhood mortality and morbidity rates.[9,10] Similar findings were observed in studies in Johns Hopkins University) and in Uttar Pradesh, India and done in Assam.[11,12] Bhattacharya et al also suggested to use vitamin A to be made available from food items like locally available seasonal fruits and vegetables, green leafy vegetables, animal liver, and red palm oil etc. More awareness should be created for sources of vitamin A and daily consumption of widely available resources rather than medical supplements. The medical mega doses of vitamin A can be reserved to target areas with more prevalence or children with malnutrition etc. Our survey does give insight into all these issues and the opinions shared by practitioners from different settings have different say about this practice. So, time has come for the authorities to conduct more studies for actual prevalence of VAD and need for universal mega doses of vitamin A or targeted approach for a specific population.

The strength of our study is that teaching, non-teaching government institutes and private practitioners participated who are the grass root workers actually implementing the program. They have witnessed better nutrition status, very few cases of VAD and have their own opinions about weather this practice needs continuation or reformation.

The few limitations about the study are relatively small sample size (n=83) limiting the generalizability of the findings and urban based practitioners with poor representation from rural areas.

CONCLUSION

This study concludes that while pediatricians and medical practitioners have high awareness of Vitamin A prophylaxis, there is a clear need for reformation of Vitamin A prophylaxis program reinforcement. The presence of clinical Bitot's spots in daily practice highlights that VAD is still a concern. As there is an ongoing debate about the policy implementation, it is best recommended for medical practitioners to be well aware and educated about the administration of vitamin A prophylaxis. Strengthening food-based strategies and fortification may offer a long-term path forward, but the current clinical reliance on prophylaxis suggests that the transition must be managed carefully to avoid a resurgence of nutritional blindness.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Maternal and child health scheme for prophylaxis against nutritional blindness in children caused by vitamin A deficiency. Family Planning Programme, Fourth Five-Year Plan Technical Information: MCH No. 2. New Delhi: Government of India Press. 1970;1-22.
2. Comprehensive National Nutrition Survey (CNNS). CNNS National Report 2016-18. New Delhi: Ministry of Health and Family Welfare (MoHFW), Government of India, UNICEF and Population Council. 2019.
3. Houghton LA, Trilok-Kumar G, McIntosh D, Haszard JJ, Harper MJ, Reid M, et al. Multiple micronutrient status and predictors of anemia in young children aged 12-23 months living in New Delhi, India. PLoS One. 2019;14:e0209564.
4. Jindal H, Suresh V, Agarwal S, Vyas P, Bari N. Understanding the dynamics of malnutrition dichotomy in India: Trends and insights from the National Family Health Surveys, Dialogues in Health. 2025;6:100209.
5. Somnath P. Prevalence of Severity of Child Malnutrition under Age 5 in India: A State Wise Analysis. J Neonatal Surg. 2025;14(16S):707-24.
6. Food Safety and Standards Authority of India (FSSAI). Media upload-fortification touches 47% in packaged edible oil, 36.6% in milk Internet. 2019. Available at: https://fssai.gov.in/upload/media/FSSAI_News_Fortification_MoneyControl_28_08_2019.pdf. Accessed on 14 March 2026.
7. Sampurna K, Balram R, Anandi S. Prevalence and determinants of Vitamin A deficiency among children in India: Findings from a national cross-sectional survey, Clinical Epidemiology and Global Health. 2021;11:100768.

8. Reddy GB, Pullakhandam R, Ghosh S, Naveen KB, Shalini T, Avula L, et al. Vitamin A deficiency among children younger than 5 y in India: an analysis of national data sets to reflect on the need for vitamin A supplementation. Am J Clin Nutr. 2021;113(4):939-47.
9. Bhattacharya S, Singh A. Time to revisit the strategy of massive vitamin A prophylaxis dose administration to the under five children in India-An analysis of available evidence. Clin Nutr ESPEN. 2017;21:26-30.
10. World Nutrition. Journal of the World Public Health Nutrition Association. Volume 1, Number 2. Available at: http://www.dis.xlibx.info/dd-medicine/427180-1 world-nutrition-volume-number-june-2010-world-nutrition-volume-n.php. Accessed on 14 March 2026.
11. Awasthi S, Peto R, Read S, Clark S, Pande V, Bundy D. Vitamin A supplementation every 6 months with retinol in 1 million pre-school children in north India: DEVTA, a cluster-randomized trial. Lancet 2013;381(9876):1469e77.
12. West KP, LeClerq SC, Shrestha SR, Wu LS, Pradhan EK, Khatry SK, et al. Effects of vitamin A on growth of vitamin A-deficient children: field studies in Nepal. J Nutr. 1997;127(10):1957e65.

Cite this article as: Magar SG, Athlekar AY, Akunuri K, Thakre SR. Knowledge, attitude, and practices of medical practitioners toward vitamin A prophylaxis in the under-six population: a cross-sectional study on the awareness-knowledge-practice gap. Int J Contemp Pediatr 2026;13:xxx-xx.