



POLICY BRIEF #51

Rising Vitamin D Deficiency: Action Points for the Department of Health and Family Welfare, Government of NCT of Delhi

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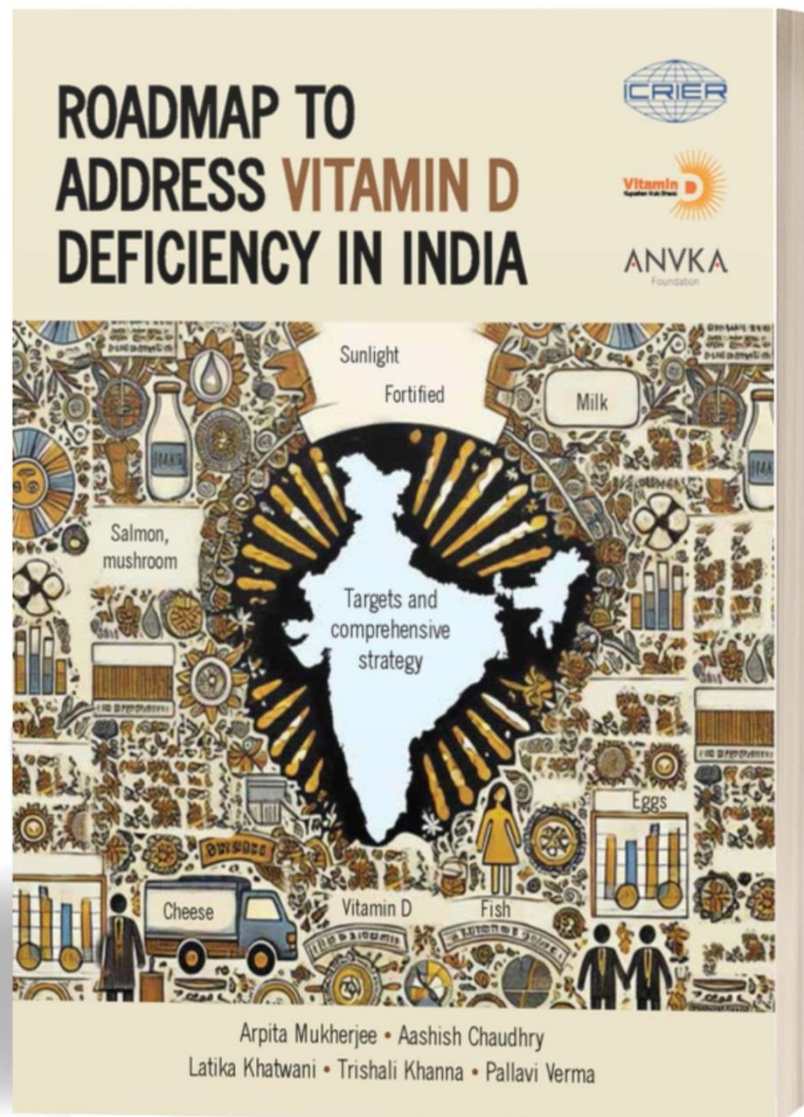


Table of Contents

Abstract.....	i
Acknowledgement	ii
List of Abbreviations.....	iii
1. Vitamin D Deficiency: A Silent Epidemic in Delhi.....	1
2. Factors Leading to Vitamin D Deficiency in Delhi	2
3. Action Points for the Department of Health and Family Welfare, Government of NCT Delhi for “Vitamin D Kuposhan Mukh Delhi”	3
3.1 <i>Publish Data for Data Driven Policymaking, Research and Identification of the Vulnerable Groups for Targeted Interventions</i>	3
3.2 <i>Integrate Vitamin D Supplementation into Existing Health Programmes.....</i>	4
3.3 <i>Create Awareness about the Deficiency and Efforts taken to Address it</i>	4
3.4 <i>Multi Stakeholder Partnership to Address Vitamin D Deficiency.....</i>	5
3.5 <i>Capacity Building of ASHA Workers and Health Professionals to Address Vitamin D Deficiency in Delhi.....</i>	6
3.6 <i>Ensuring Availability of Vitamin D Supplements through Public Healthcare Facilities</i>	7
4. Concluding Remarks.....	7
References	8

List of Boxes

Box 1: Rashtriya Bal Swasthya Karyakram (RBSK).....	3
Box 2: Weekly Iron and Folic Acid Supplementation (WIFS)	4
Box 3: PM POSHAN (Pradhan Mantri Poshan Shakti Nirman)	5
Box 4: Calcium Supplementation for Pregnant and Lactating Women.....	6

Abstract

Delhi, India's capital, with a population of 34.7 million, suffers from a silent epidemic – Vitamin D deficiency. The ICRIER-ANVKA 2025 report titled “*Roadmap to Address Vitamin D Deficiency in India*” found that one in five Indians are Vitamin D deficient, with children, pregnant women and elderly being the vulnerable groups. In a densely populated and highly urbanised city like Delhi, the risks are even more pronounced. Studies reveal that 94% of newborn children, 92.3% of adolescents, 93.5% of pregnant women, 91.2% of elders and 71 % of urban residents in Delhi were found to be Vitamin D deficient. This deficiency is associated with serious and lifelong health risks, such as, rickets in children, osteomalacia/osteoporosis in adults and poor foetal bone development during pregnancy.

This policy brief outlines six action points for the Department of Health and Family Welfare (DoHFW), Government of NCT of Delhi, to achieve a “*Vitamin D Kuposhan Mukh Delhi*”. The recommendations range from publishing mass testing data to enable evidence-based policymaking and identifying vulnerable groups and areas, integrating Vitamin D supplementation into existing health programmes, creating awareness, fostering multi-stakeholder partnerships, building the capacity of frontline health workers and ensuring the widespread availability of supplements through public healthcare systems.

By taking timely and focused action, Delhi can not only improve public health outcomes and reduce the burden on its healthcare system but also emerge as a leading example in the national effort towards achieving a “*Vitamin D Kuposhan Mukh Bharat*.”

Key Words: *Vitamin D deficiency, Delhi, health policy, osteoporosis, rickets, micronutrient, India*

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The authors of the ICRIER-ANVKA (2025) report titled, *“Roadmap to Address Vitamin D Deficiency in India”* formally presented and handed over the report to Dr. Pankaj Kumar Singh, Cabinet Minister for Health & Family Welfare, Government of NCT of Delhi. At the meeting, the Hon’ble Minister encouraged the authors to develop a focused set of action points specifically for Delhi to address Vitamin D deficiency. This policy brief is a result of his valuable guidance and feedback, for which we are extremely thankful.

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List of Abbreviations

AIIMS	All India Institute of Medical Science
ANM	Auxiliary Nurse Midwives
ASHAs	Accredited Social Health Activists
DoHFW	Department of Health and Family Welfare
GAIN	Global Alliance for Improved Nutrition
ICMR-NIN	Indian Council of Medical Research – National Institute of Nutrition
IFA	Iron and Folic Acid
NRHM	National Rural Health Mission
PHCs	Primary Health Centres
PM POSHAN	Pradhan Mantri Poshan Shakti Nirman
PUHCs	Primary Urban Health Centres
RBSK	Rashtriya Bal Swasthya Karyakram

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1. Vitamin D Deficiency: A Silent Epidemic in Delhi

To foster rapid, sustainable and inclusive growth, the Government of India has embarked on a journey to *Viksit Bharat@2047*. Each state will play a key role in contributing to this growth and a healthy population will be an important growth driver. In this context, micronutrient deficiency has emerged as a significant public health concern, with Vitamin D deficiency alone affecting one in every five Indians.¹

Delhi, the capital of India with a population of 34.7 million,³ is at high risk, with a large population suffering from Vitamin D deficiency. Studies reveal alarming trends – 94% of new-born children,⁴ 92.3% of adolescents,⁵ 93.5% of pregnant women,⁶ 91.2% of elders⁷ and 71 % of urban residents⁸ in Delhi were found to be Vitamin D deficient. This widespread deficiency is associated with health issues, such as rickets in children, osteomalacia/osteoporosis in adults and poor foetal bone development during pregnancy.⁹ Maternal Vitamin D deficiency during pregnancy often results in Vitamin D-deficient infants, posing lifelong health risk.¹⁰ Thus, Vitamin D deficiency is a serious public health challenge that demands urgent attention from the government.

“We are determined to build a robust, modern healthcare system for Delhi - one that serves everyone efficiently.”

*-Rekha Gupta,
Delhi Chief Minister (2025)²*

The Department of Health and Family Welfare (DoHFW), Government of NCT of Delhi, is already aware of the issue and has started mass testing for Vitamin D deficiency through healthcare facilities. During our interaction with Dr. Pankaj Kumar Singh, Cabinet Minister for Health & Family Welfare,



¹ Mukherjee et al., (2025).

² <https://health.economicstimes.indiatimes.com/news/policy/delhi-government-earmarks-rs-12893-crore-for-health-proposes-2-new-medical-colleges-over-16k-beds/119508469> (Last accessed on July 30, 2025).

³ <https://worldpopulationreview.com/cities/india/delhi> (Last accessed on July 30, 2025).

⁴ Naik et al. (2015).

⁵ Khadgawat et al. (2023).

⁶ Sharma et al., (2015).

⁷ Marwaha et al., (2011).

⁸ Praveen et al., (2023).

⁹ Schoenmakers et al., (2013), Schott et al., (1976); Gloth et al., (1995); Omdahl et al., (1982); McKenna (1992); Girgis et al., (2019).

¹⁰ Marwaha et al., (2011).

Government of NCT of Delhi, regarding the ICRIER-ANVKA Foundation report (2025) titled “Roadmap to Address Vitamin D Deficiency in India”, the Honourable Minister asked us to give action points to make “Vitamin D Kuposhan Mukht Delhi”. Given this background, this policy brief first examines the underlying factors contributing to widespread Vitamin D deficiency in Delhi and then builds on existing initiatives to suggest actionable plans to address it.

2. Factors Leading to Vitamin D Deficiency in Delhi

Some of the reasons for Vitamin deficiency among Delhi’s population are the following:

a) Limited Sun exposure: In Delhi, extreme seasonal temperatures – ranging from 46°C in summer to 5°C in winter – often keep residents indoors. This makes the Indian Council of Medical Research – National Institute of Nutrition (ICMR-NIN)’s Dietary Guidelines for Indians (2024),¹¹ recommendation of 30 minutes of sun exposure between 11 a.m. and 2 p.m. non-viable for a majority of the population. Moreover, peak sunlight and cold weather forces people to wear clothing that covers most of their body, thereby limiting sun exposure. Apart from this, Delhi is also highly polluted, which significantly hampers Vitamin D synthesis by blocking Ultraviolet B (UVB) rays even in sunlight abundant regions.¹² Additionally, increased indoor time due to work-from-home routines and the lack of adequate playgrounds and open spaces in schools have drastically reduced sun exposure among Delhi’s urban population.¹³

b) Allied Health Conditions: Allied health-related factors such as low birth weight, obesity and respiratory infections in infants (6-30 months) due to pollution have shown a direct correlation with severe Vitamin D deficiency.¹⁴

c) Diet Patterns: Dietary sources of Vitamin D, such as salmon, cod liver oil and mushrooms, are often costly and beyond the financial means of a majority of Delhi’s

Sources of Vitamin D:



Sunshine: Vitamin D, also known as the ‘sunshine vitamin,’ is primarily obtained through exposure to sunlight.

Foods: Fish, eggs, mushrooms, cheese, etc., fortified products like milk, margarine, yogurt, juices and cereals.

Vitamin D Supplements: Vitamin D₂ (Ergocalciferol, mostly plant-based) and D₃ (Cholecalciferol, mostly animal-based).

¹¹ <https://1pdf.in/icmr-dietary-guidelines-2024/> (Last accessed on July 30,2025).

¹² Agarwal et al., (2002).

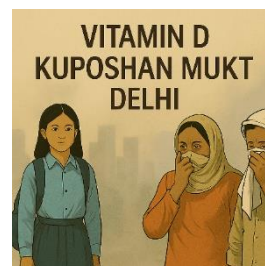
¹³ Mustafa & Shekhar, (2021), Ajmani et al., (2016).

¹⁴ Chowdhury et al. (2017); Agarwal et al., (2012); Praveen et al., (2023).

population. With around 30% of Delhi's population being vegetarian,¹⁵ overall intake of Vitamin D-rich food is limited.

3. Action Points for the Department of Health and Family Welfare, Government of NCT Delhi for "Vitamin D Kuposhan Mukh Delhi"

Delhi's health infrastructure is one of the most extensive in India; it has 92 hospitals, 39 primary health centres, 1,658 dispensaries, 44 polyclinics and over 500 mohalla clinics (as of 2023).¹⁶ The city also hosts premier tertiary care institutions like the All-India Institute of Medical Science (AIIMS) Delhi, Safdarjung Hospital, Ram Manohar Lohia (RML) Hospital, Guru Teg Bahadur (GTB) Hospital and Lok Nayak Hospital, ensuring advanced healthcare access for a large population. Thus, the Department of Health and Family Welfare (DoHFW), Government of NCT Delhi, is well-positioned to address public health challenges such as Vitamin D deficiency by leveraging its existing infrastructure and roping in the extensive network of private healthcare providers in the capital. The Department has already started doing testing and screening for Vitamin D deficiency to identify vulnerable groups and zones within Delhi. Therefore, the Department can take the following steps:



3.1 Publish Data for Data Driven Policymaking, Research and Identification of the Vulnerable Groups for Targeted Interventions

The DoHFW of Delhi should publish the screening data from the ongoing mass testing initiative, along with state-level data generated under national programmes such as the *Rashtriya Bal Swasthya Karyakram (RBSK)* (see Box 1 for details). Making data accessible on website of DoHFW of Delhi, particularly under a dedicated section titled "Efforts Undertaken for *Vitamin D Kuposhan Mukh Delhi*," will not only increase transparency but also raise awareness among the public about the efforts taken by the Department. Our field surveys indicate that many patients are unaware of the availability of Vitamin D testing

Box 1: Rashtriya Bal Swasthya Karyakram (RBSK)

The goal of RBSK is to ensure early identification and free treatment of health conditions in children from birth to 18 years by focusing on the 4Ds: defects at birth, diseases, deficiencies (including Vitamin D) and development delays. Screenings (including for Vitamin D deficiency) are done at health centres, anganwadi centres, and schools by mobile health teams, while ASHAs¹⁷ conduct home-based checks for newborns and young children.¹⁸

¹⁵ <https://www.bbc.com/news/world-asia-india-43581122> (Last accessed on July 30,2025).

¹⁶ https://delhiplanning.delhi.gov.in/sites/default/files/Planning/highlights_of_es_2022-23_english.pdf (Last accessed on July 30,2025).

¹⁷ Accredited Social Health Activists (ASHAs) are community health workers in India who operate under the Ministry of Health and Family Welfare as part of the National Rural Health Mission (NRHM). They are instrumental in bridging the gap between healthcare services and the community.

¹⁸ Ministry of Health & Family Welfare-Government of India. (2013). *Rashtriya Bal Swasthya Karyakram: National Health Mission*. <https://nhm.gov.in/index4.php?lang=1&level=0&linkid=499&lid=773> (Last accessed on July 30,2025).

services, despite the Department’s commendable efforts. Publicising the data, including details about which schemes the mass testing falls under, will help communicate the government’s initiatives more effectively. It will help to identify the most vulnerable groups and encourage organisations working in this area to make targeted interventions to reduce the deficiency. The data will help the DoHFW of Delhi to build partnerships with healthcare and research organisations, philanthropic foundations and public health partners such as ANVKA Foundation, Global Alliance for Improved Nutrition (GAIN), and the Gates Foundation to implement targeted interventions for identified vulnerable groups and zones in Delhi. These interventions may include localised delivery of fortified biscuits or supplementation campaigns to address Vitamin D deficiency more effectively.

3.2 Integrate Vitamin D Supplementation into Existing Health Programmes

During consultation at ICRIER, health experts suggested that integrating Vitamin D supplementation into existing programmes, like the Weekly Iron and Folic Acid Supplementation programme under *Anaemia Mukh Bharat* (for details see Box 2) could be a practical step forward to address the deficiency. Since the screening is already done for iron deficiency under the programme, the same blood samples can be used to test for Vitamin D deficiency. This would lead to more efficient utilisation of existing infrastructure and delivery mechanisms.

Box 2: Weekly Iron and Folic Acid Supplementation (WIFS)

The WIFS programme aims to combat iron deficiency anaemia among adolescents by providing weekly iron and folic acid (IFA) tablets to students in classes 6 to 12. In Delhi, over 1,200 government and aided schools administer IFA tablets every Wednesday, along with biannual deworming. The programme also includes health education and anaemia screening, and is implemented under the School Health Scheme by Directorate General of Health Services as part of the *Anaemia Mukh Bharat* initiative.¹⁹

3.3 Create Awareness about the Deficiency and Efforts taken to Address it

The symptoms of Vitamin D deficiency often appear when the deficiency becomes severe, it is crucial to disseminate information widely to enable early detection and intervention. While efforts to spread awareness on Vitamin D deficiency and its effects have been made, the results have been slow in coming and there are considerable information gaps. For example, there is no information in the DoHFW of Delhi website on initiatives taken to address Vitamin D deficiency. A dedicated section may be created to showcase the efforts taken by the Department.

The Department may start an awareness campaign for “*Vitamin D Kuposhan Mukh Delhi,*” where it can create pamphlets and modules on the benefits of sun exposure, a Vitamin D rich diet and lifestyle changes. Awareness of Vitamin D deficiency, such as the likely symptoms,

¹⁹ <https://dgehs.delhi.gov.in/dghs/weekly-iron-and-folic-acid-supplementation> (Last accessed on August 5, 2025).

locations where testing can be done, etc., can be made available through infographics (posters, leaflets, short videos, etc.). Both print and social media may be used and information may be displayed in government hospitals and healthcare centres. Many people remain unaware that mass testing for Vitamin D is already being conducted. This will help to spread the awareness of this initiative. Additionally, awareness campaigns can be conducted at community health camps, school programmes and public events such as trade fairs to reach a broader audience and promote testing and preventive care.

3.4 Multi Stakeholder Partnership to Address Vitamin D Deficiency

The DoHFW of Delhi can create a platform for multi stakeholder partnerships that can mobilise funding and support towards realising “*Vitamin D Kuposhan Mukh Delhi*” a reality. For example, the DoHFW of Delhi can work with the MoE to ensure Vitamin D rich and fortified foods (milk and edible oil) are regularly given to school children under PM POSHAN. The Department can also share the Vitamin D testing data with the Ministry of Health and Family Welfare and MoE. This will enable evidence-based assessment of whether the provision of fortified oil under government funded programmes, such as the PM POSHAN scheme (see Box 3 for details), effectively reaches the beneficiaries and whether it helps address Vitamin D deficiency.

Box 3: PM POSHAN (Pradhan Mantri Poshan Shakti Nirman)

Launched in 2021, PM POSHAN is the Government of India’s flagship school meal programme under the Ministry of Education (MoE). It aims to improve the nutritional status of children in classes 1 to 8 in government and government-aided schools. The scheme provides hot cooked meals on all school working days, using fortified staples such as fortified edible oil to combat micronutrient deficiencies. It also includes health check-ups, micronutrient supplementation (like iron-folic acid and Vitamin A), deworming and nutrition education to support overall growth, learning outcomes and school attendance.²⁰

Fortification has been proven as a cost-effective strategy to reduce Vitamin D deficiency. For example, in Delhi, Marwaha et al. (2021) found that daily consumption of 200 mL of milk fortified with 240 IU of Vitamin D₂ for three months significantly reduced the secondary hyperparathyroidism and slowed the decline in Vitamin D levels during winters. Similarly, a study in Pune by Ekbote et al. (2011) found that daily consumption of wheat-flour ladoos fortified with 600 IU of Vitamin D₂ and 1 gm of calcium for six months reduced Vitamin D deficiency rates and improved bone health indicators.

If the data suggests limited impact from fortified oil, the government could consider alternative or complementary interventions such as the inclusion of other Vitamin D rich-food

²⁰ https://dse1.education.gov.in/sites/default/files/schemes_guidelines/Guidelines_PM%20POSHANSCH_EME.pdf (Last accessed on August 5, 2025).

(like eggs) in PM POSHAN, as seen in Maharashtra, Tamil Nadu, West Bengal and Odisha.²¹ Ultimately, such data driven insights can guide the integration of a diverse range of fortified foods under the public distribution systems to better address the specific nutritional needs of children in Delhi.

States play a key role in making recommendations to the MoHFW. The department can suggest to the MoHFW the leveraging of existing national schemes such as the *Calcium Supplementation Programme for Pregnant and Lactating Women* to address Vitamin D deficiency (for details see Box 4). The Department with multi-stakeholder partnerships can support initiatives such as organising regular health check-up camps across Delhi and leverage the city's health infrastructure to implement mobile phone-based follow-up systems, such as SMS reminders, to improve adherence to supplementation.

Box 4: Calcium Supplementation for Pregnant and Lactating Women

This programme was launched in December 2018 by MoHFW to prevent hypertensive disorders like pre-eclampsia and eclampsia among pregnant and lactating women.

Under this scheme, Vitamin D and calcium supplements are provided to pregnant women from the second trimester and to lactating mothers up to six months postpartum. Distribution occurs through public health channels (like public health centres, hospitals and clinics), with auxiliary nurse midwives (ANMs) distributing at clinics and accredited social health activists (ASHAs) delivering to homes if required.²²

3.5 Capacity Building of ASHA Workers and Health Professionals to Address Vitamin D Deficiency in Delhi

ASHA workers and frontline health professionals play a crucial role in identifying and helping people with Vitamin D deficiency. To strengthen their ability to do this, the DoHFW of Delhi can introduce systematic training programmes. These will help acquaint workers with the methods to recognise symptoms, understand the causes of deficiency and use available data to guide interventions. Workers should also be trained to educate communities on practical steps like spending more time in the sun, making small dietary changes and using supplements. Training packages can be created for this purpose, and certificates can be given to track how many workers have been trained. Regular refresher sessions and supervision will ensure the quality and consistency of community outreach.

²¹ <https://pmposhan.education.gov.in/Files/PAB/PAB-2024-25/Minutes-PAB-2024-25/Maharashtra%20PAB%20Minutes%20PM%20POSHAN.pdf> (Last accessed on August 5, 2025).

²² Maternal Health Division, Ministry of Health & Family Welfare, Government of India, & New Concept Information Systems (P) Ltd. (2014). National Guidelines for Calcium Supplementation During Pregnancy and Lactation. In UNICEF, *Ministry of Health & Family Welfare*. https://nhm.gov.in/images/pdf/programmes/maternal-health/guidelines/National_Guidelines_for_Calcium_Supplementation_During_Pregnancy_and_Lactation.pdf (Last accessed on July 30, 2025).

3.6 Ensuring Availability of Vitamin D Supplements through Public Healthcare Facilities

Vitamin D supplements can be made widely available through the public healthcare system. The government must ensure that primary health centres (PHCs), primary urban health centres (PUHCs) and mohalla clinics are adequately stocked with appropriate forms of Vitamin D supplements such as oral tablets or injectable doses. These should be accessible at little to no cost, especially for economically disadvantaged and vulnerable populations, but given only with a prescription to prevent the risk of toxicity. Healthcare providers at these centres should be provided with a focused training session on the standard operating procedures (SOPs) for testing, detection, management, and prevention of Vitamin D deficiency. Additionally, developing an application to monitor and track stock levels across facilities would enhance transparency and ensure timely restocking. This approach will help make Vitamin D supplementation a regular part of public healthcare services and close the gap between testing and treatment.

4. Concluding Remarks

Delhi has both the vision and the infrastructure to lead the way in addressing micronutrient deficiencies like Vitamin D. With a vast healthcare network, strong digital platforms and a track record of successful public health interventions, Delhi is well prepared to tackle Vitamin D deficiency. The Department of Health and Family Welfare, Government of NCT of Delhi, has taken commendable steps through its initiative of mass testing, and it is now time to ensure a reduction in incidence of Vitamin D deficiency. A well-executed strategy under *“Vitamin D Kuposhan Mukht Delhi”* will not only improve the health and productivity of its citizens but can also serve as a model for other Indian states to follow.

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