



**Universiteit  
Leiden**  
The Netherlands

**Vitamin D: ultraviolet light and well-being of older people**  
Veleva, B.I.

**Citation**

Veleva, B. I. (2021, November 23). *Vitamin D: ultraviolet light and well-being of older people*. Retrieved from <https://hdl.handle.net/1887/3244001>

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/3244001>

**Note:** To cite this publication please use the final published version (if applicable).

# Chapter 3

---

## **Vitamin D Supplementation in Older Persons: Guidelines versus Practice. Letter to the Editor**

---

*Bistra I Veleva<sup>1,2</sup>, Monique A A Caljouw<sup>1</sup>, Jenny T van der Steen<sup>1</sup>, Victor G M Chel<sup>1</sup>, Mattijs E Numans<sup>1</sup>*

<sup>1</sup>*Department of Public Health and Primary Care, Leiden University Medical Center, Leiden, the Netherlands.*

<sup>2</sup>*Woonzorgcentra Haaglanden, Den Haag, the Netherlands*

*Based on JAMDA 2019;20(5):639-640.*



## TO THE EDITOR:

Older individuals are particularly susceptible to vitamin D deficiency due to: an age-related reduction of cholecalciferol production in the skin, limited exposure to direct sunlight, comorbidity, polypharmacy, and inadequate nutritional intake.<sup>1</sup> A survey in Europe (SENECA) among community-dwelling older people (aged  $\geq 80$  years) without vitamin D-supplementation showed that 36% of older men and 47% of older women had serum 25(OH)D concentration levels  $\leq 30$  nmol/l.<sup>2</sup> In nursing home residents, the prevalence of vitamin D deficiency can rise to 98-100%.<sup>3</sup>

In 2008, the Dutch Health Council recommended vitamin D supplementation in nursing home residents, and for older persons with a dark skin.<sup>4</sup> In 2012 this advice was renewed, targeting all people aged  $\geq 70$  years to use supplementation of 800 IU vitamin D per day.<sup>5</sup>

The aim of this study was to explore vitamin D prescribing behavior of elderly care physicians (ECPs; who are specialized as a primary care expert in geriatric medicine, usually working in nursing homes) and of general practitioners (GPs) in persons aged 70 years and over and to examine a possible trend in this behavior.

A survey was administered between 15 December 2017 and 30 January 2018 to all (1685) ECPs and 310 GPs in the Netherlands. The ECPs were asked to participate in the survey using the Survey Monkey platform. They were invited to participate via a newsletter of the national professional association for elderly care physicians (Verenso), the Dutch Academic Networks Elderly Care (SANO), or via a general information letter sent to their working locations. At a continuing vocational training day for GPs (15 December 2017), 310 physicians were approached by the investigator to complete the survey (which was part of the program). The survey was completed by 414 ECPs and 310 GPs. The questions of the survey covered three domains: 1) knowledge of the 2012 vitamin D supplementation advice of the Dutch Health Council and their attitude towards it, 2) active vitamin D prescription behavior and dosage prescribed, 3) attitude towards monitoring 25(OH)D before and after supplementation. The results of the survey were analyzed as absolute and relative frequencies, and they were compared with a similar survey conducted in 2010 among a group of 648 ECPs and 40 GPs in the Netherlands (table 1).

The present survey among physicians in the Netherlands who practice in nursing homes (ECPs) and in the community (GPs) shows an increasing awareness of the importance of vitamin D supplementation in older people. Most ECPs (94.2%) and over a third of GPs (34.0%) prescribed vitamin D systematically (consistent with the guidelines) for patients aged  $\geq 70$  years; a comparison with 2010 showed a trend of an increase in the prescribing of vitamin D supplementation.

**Table 1 Results from physician surveys concerning vitamin D prescribing behavior in people aged 70 years and over**

	ECPs				GPs			
	2010 (n=648)		2017 (n=414)		2010 (n=42)		2017 (n=310)	
	n	%	n	%	n	%	n	%
Is familiar with advice of the Dutch Health Council	419	64.7	326	78.7	28	66.7	220	71.0
Nursing home has policy regarding routine vitamin D supplementation	344	53.1	395	95.4	N/A	N/A	N/A	N/A
Usually forgets to think about vitamin D supplementation	---	---	---	---	22	52.4	99	31.8
Finds vitamin D supplementation useful	487	75.2	337	81.4	---	---	198	63.9
Prescribes vitamin D systematically (consistent with Dutch guidelines) to people aged over 70 years	323	49.8	390	94.2	---	---	105	34.0
Prescribes vitamin D to people aged over 70 years:								
20 µg (800 IE) per day	294	45.4	350	84.5	21	52.5	272	87.7
10 µg (400 IE) per day	303	46.7	7	1.7	13	31.0	16	5.1
other dose	52	7.9	57	14.0	2	4.8	22	7.4
Does routine laboratory testing for serum 25(OH)D								
before supplementation begins	38	5.9	52	12.6	---	---	155	49.5
monitoring with special conditions (medication, obesity, malabsorption)	---	---	41	9.9	---	---	56	18.4
monitoring serum 25(OH)D after supplementation	---	---	4	1.0	---	---	37	11.7
no routine testing	---	---	317	76.5	---	---	166	20.4

N/A, not applicable, ---not asked

Differences in the prescribing behavior of ECPs and GPs might be explained by differences in the populations taken care of by these physicians. It is no longer questioned whether all nursing home residents should receive vitamin D supplementation,<sup>6</sup> but rather it is regarded a standard of good care. On the other hand, GPs may need to overcome some practical problems: the population of the community-dwelling people is very heterogeneous, ranging from vulnerable older people to very vital and active older persons. There is uncertainty in the prescribing behavior of the GPs: 49.5 % always performs blood tests to assess serum 25(OH)D before starting supplementation and 36.1% find the supplementation in the people aged 70 years and over not useful.

A scoping review of the existing literature concerning the clinical management of low vitamin D in community-dwelling people concluded that “broad variability in physicians’ knowledge, attitude and behaviors related to vitamin D testing are reflective of the landscape of uncertainty in research findings, recommendations, and guidelines”.<sup>7</sup> A survey conducted in 2015 among general practitioners in Belgium showed uncertainty in vitamin D prescribing behaviors even though in the population of nursing home residents.<sup>8</sup>

Worldwide, there is lack of consensus between the guidelines for vitamin D supplementation in community-dwelling older people, e.g. prescribing vitamin D titrated to the degree of deficiency, or standard supplementation in this group at risk. The present literature concerning the topic of vitamin D supplementation is ambiguous with regard to guidance.

An umbrella review stated that there is no convincing data from clinical trials for the benefits of vitamin D supplementation overall.<sup>9</sup> However, another umbrella review concluded that most randomized controlled trials are carried out in populations that are not vitamin D deficient.<sup>10</sup> Further, there is an increasing body of evidence from observational and clinical studies that support the presence of thresholds in vitamin D status below which health risks increase, and vitamin D supplementation has beneficial effects.<sup>11</sup>

Future studies may elucidate specific groups of community-dwelling older people who are more likely to benefit from vitamin D supplementation and this might reduce the apparent uncertainty of GPs regarding their vitamin D supplementation strategies. While awaiting the results of well-designed randomized clinical trials, GPs should consider vitamin D supplementation in persons aged  $\geq 70$  years (patients with osteoporosis, malabsorption, hyperthyroidism, chronic kidney disease or liver failure) and always prescribe vitamin D supplementation for their most vulnerable patients.<sup>12</sup>

## REFERENCES

1. Smith LM, Gallagher JC. Dietary Vitamin D Intake for the Elderly Population: Update on the Recommended Dietary Allowance for Vitamin D. *Endocrinol Metab Clin North Am.* 2017;46(4):871-884.
2. van der Wielen RP, Lowik MR, van den Berg H, et al. Serum vitamin D concentrations among elderly people in Europe. *Lancet.* 1995;346(8969):207-210.
3. Chel VG, Elders PJ, Tuijpp ML, et al. [Vitamin D supplementation in the elderly: guidelines and practice]. *Ned Tijdschr Geneeskd.* 2013;157(33):A5779.
4. Weggemans RM, Schaafsma G, Kromhout D. Towards an adequate intake of vitamin D. An advisory report of the Health Council of the Netherlands. *Eur J Clin Nutr.* 2009;63(12):1455-1457.
5. Evaluation of dietary reference values for vitamin D. Health Council of the Netherlands: The Hague. publication no. 2012/15E. In:2012.
6. Rolland Y, de Souto Barreto P, Abellan Van Kan G, et al. Vitamin D supplementation in older adults: searching for specific guidelines in nursing homes. *J Nutr Health Aging.* 2013;17(4):402-412.
7. Rockwell M, Kraak V, Hulver M, Epling J. Clinical Management of Low Vitamin D: A Scoping Review of Physicians' Practices. *Nutrients.* 2018;10(4).
8. Buckinx F, Reginster JY, Cavalier E, et al. Determinants of vitamin D supplementation prescription in nursing homes: a survey among general practitioners. *Osteoporos Int.* 2016;27(3):881-886.
9. Theodoratou E, Tzoulaki I, Zgaga L, Ioannidis JP. Vitamin D and multiple health outcomes: umbrella review of systematic reviews and meta-analyses of observational studies and randomised trials. *BMJ.* 2014;348:g2035.
10. Rejnmark L, Bislev LS, Cashman KD, et al. Non-skeletal health effects of vitamin D supplementation: A systematic review on findings from meta-analyses summarizing trial data. *PLoS One.* 2017;12(7):e0180512.
11. Scragg R. Emerging Evidence of Thresholds for Beneficial Effects from Vitamin D Supplementation. *Nutrients.* 2018;10(5):561.
12. Morley JE, Vellas B, van Kan GA, et al. Frailty consensus: a call to action. *J Am Med Dir Assoc.* 2013;14(6):392-397.



