



## Clinical Guideline: Falls Reduction Through Vitamin D Supplementation

Affected LCI Units: Care Management

Effective Date: **March 2017**

Last Review Date: **October 2020**

### **Definitions:**

- Frail Elder: Refers to members aged 65 or greater in all target groups.
- Falls: a sudden and unintentional change of position coming to rest on the ground, floor, or object, regardless of whether or not an injury has occurred.

**Purpose:** This clinical guideline, Falls Reduction Through Vitamin D Supplementation, has been developed as a fall reduction intervention for frail elder members. Falls within this population have significant quality of life and financial ramifications with research promoting that a daily regimen of 800 IU of vitamin D may reduce the risk of falls and fall related injuries. The primary benefits of vitamin D supplementation include: “improved postural balance, propulsion and also executive functions and navigation abilities among older adults” (Annweiler et al., 2010). These benefits aid to reduce the risk and incidence of falls.

Vitamin D deficiency in the frail elder is common with signs and symptoms of muscle weakness and instability related to neuromuscular function that are often attributed to age-related changes. Research has shown that screening for vitamin D deficiency is not cost effective because most frail elder populations are deficient in vitamin D. Vitamin D supplementation is easily monitored, as the upper intake limit of vitamin D is 4,000 IU per day for adults; the oral supplementation of 800 IU daily of vitamin D in conjunction with dietary intake and sun exposure should not put individuals at risk for vitamin D toxicity or hypercalcemia (Holick et al., 2011).

**Scope:** The clinical guideline will be used by interdisciplinary team (IDT) staff when supporting all frail elder members.

**Goal:** Frail elder members and their support person(s) will communicate an understanding of individual risk factors for falls and the benefits of vitamin D supplementation at 800 IU daily in reducing fall risk. Frail elder members will experience reduced fall risk and fall related injuries.

### **Process:**

1. Each frail elder member will be considered as a candidate for vitamin D supplementation.
2. Each member’s medical record, including medications, diagnoses, and allergies will be reviewed by the Registered Nurse Care Manager (RNCM) for contraindications of vitamin D supplementation (reference Table 1).
3. If the member is not prescribed any Vitamin D or is prescribed a daily dose of Vitamin D lower than 800 IU, the RNCM will discuss with the member or their legal representative the benefits of Vitamin D related to reducing falls; and the RNCM will request their permission to contact their primary physician to

- obtain an order or obtain an order to increase the dosage. (Reference Table 2 if resistance to consideration of Vitamin D is encountered.)
4. Each member with renal or hepatic dysfunction will require primary care physician approval prior to initiation of vitamin D supplementation.
  5. RNCM will follow the over-the-counter medication procedure when authorizing vitamin D supplementation.
  6. Following the second week of vitamin D supplementation, the RNCM will follow up with the member to ensure tolerance to vitamin D supplementation.
  7. Consideration of vitamin D must be reviewed in conjunction with the six-month reassessment and MCP review, and with any significant change in condition impacting risk factors for falls. The RNCM will Document assessment findings and results of member education regarding vitamin D within the electronic member record.
  8. The RNCM and Care Manager (CM) will continue to complete Incident reports for falls according to Best Practice Standards for Care Management.

**Considerations:**

- Education related to vitamin D deficiency and connection to falls
- Medication Review
- Current Health status
- Renal or hepatic dysfunction
- Member may decline supplementation (reference Table 2 for appropriate responses).

**Evaluation of Use and Effectiveness of the Guideline:**

- The number of frail elders who are taking Vitamin D as indicated on the Medication Flowsheet.
- Decrease in percentage of frail elder members who fall as reported in the musculoskeletal worksheet.
- Decrease in percentage of frail elder members who experience falls with injuries as reported in the Incident Management System.

<b>Table 1</b>	
<b>Precautions/Warnings/Contraindications</b>	
Use cautiously in patients with diabetes or those using hypoglycemic agents, as, according to clinical review and human research, vitamin D may lower blood glucose and increase the risk of hypoglycemia	
Use cautiously in patients with hypertension or those using antihypertensive agents, as, according to clinical review, vitamin D may lower blood pressure and increase the risk of hypotension	
Use cautiously in patients with liver disease, as vitamin D is metabolized in the liver	
Use cautiously in patients with hyperparathyroidism, as vitamin D may increase calcium levels	
Use cautiously in patients with renal disease, as vitamin D may increase calcium levels and the risk of arteriosclerosis	
Use cautiously in patients with granulomatous disorders (sarcoidosis, tuberculosis, fungal granulomas, berylliosis, and lymphomas), which are associated with calcium metabolism disorder. Theoretically, concurrent use of high amounts of vitamin D in these patients may increase the risk of hypercalcemia and kidney stones	
<b><u>Avoid</u></b> in individuals with known allergy to vitamin D or with vitamin D hypersensitivity syndromes	
<b><u>Avoid</u></b> in patients with hypercalcemia; theoretically, high amounts of vitamin D may cause this adverse effect and exacerbate this condition	

Adverse Effects/Precautions/Warnings/Contraindications taken from Natural Standard, the Authority on Integrative medicine, 2014

<b>Table 2</b>	
<b>Appropriate Responses to Vitamin D Supplementation Declination</b>	
Member/Legal Representative Response:	RNCM Response:
“I already take too many pills”	<ul style="list-style-type: none"> <li>• Vitamin D is a safe and natural pill with low side effects and low potential for adverse interactions.</li> <li>• Some of your medications could be placing you at a higher risk for falls.</li> <li>• (for those already on calcium) We may be able to check with your physician to see if the Vitamin D can be combined with your calcium so that you would not have an additional pill.</li> </ul>
“I don’t fall”	<ul style="list-style-type: none"> <li>• Risk of falls increases with age.</li> <li>• You are at high risk for falls due to . . .</li> <li>• . . .</li> </ul>
Member is wheelchair bound	<ul style="list-style-type: none"> <li>• Falls can happen from any position, even sitting.</li> <li>• Transfers can also put you at risk of falls.</li> </ul>
	Misc. response:

	<ul style="list-style-type: none"> <li>• In general people from this region of the US do not receive enough Vitamin D in their diet to reduce their fall risk.</li> </ul>
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Appropriate Responses to Vitamin D Supplementation Declination taken from Lakeland Care, Falling Head Over Heals for Falls Reduction Performance Improvement Program, January 2015

**Resources:**

- Annweiler, C., Montero-Odasso, M., Schott, A.M., Berrut, G., Fantino, B., & Beauchet, O. (2010). Fall prevention and vitamin D in the frail elder: an overview of the key role of the non-bone effects. *Journal of NeuroEngineering and Rehabilitation* 7(50). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2959005/>
- Holick, M.F., Binkley, N.C., Buschoff-Ferrari, H.A., Gordon, C.M., Hanley, D.A., Heaney, R.P., Murad, M.H., & Weaver, C.M. (2011). Evaluation, treatment, and prevention of vitamin d deficiency: an Endocrine Society clinical practice guideline. *Journal of Clinical Endocrinology and Metabolism* 96(7), 1911-1930.
- Lakeland Care, Falling Head Over Heals for Falls Reduction, Performance Improvement Program, January 2015.
- Lakeland Care, Falls Intervention Guide <S:\All Staff\Forms\Care Management\Assessments and Risk Tools\Falls Intervention Guide.docx>
- “Vitamin D Fact Sheet for Health Professionals” by National Institutes of Health <http://ods.od.nih.gov/factsheets/VitaminD-HealthProfessional>
- Winnebago County Fall Prevention Resource Guide [https://www.co.winnebago.wi.us/sites/default/files/uploaded-files/wc\\_fall\\_prevention\\_resource\\_guide.pdf](https://www.co.winnebago.wi.us/sites/default/files/uploaded-files/wc_fall_prevention_resource_guide.pdf)