Article details	
Title	Feasibility of using sunlight exposure to obtain the recommended level of vitamin D in Canada
Authors	
Abstract	
Version 1	
Reviewer 1	
Name	Schwalfenberg, Gerry
Position	
Institution	University of Alberta, Family Medicine
Competing interests	
Date review returned	26-May-2014
General comments	The information presented in this paper is not new. It is well known that increasing latitude on both sides of the equator correlate with less skin production of vitamin D and skin type and color modulates this even further. However this article is well written and has useful information for Canadians in regards to the need for supplementation in most individuals in the summer and all individuals in the winter months. It should be noted the SDD of 1000IU of vitamin D used as a reference will not achieve normal blood levels of 25(OH)D in all individuals. Then again what level is ideal? The answer is certainly not in the recent IOM recommendations .[1] Rather the discussion about the following article gives us a better picture of what blood level needs to be achieved to save several billion dollars in health care.[2] A recent article showed increased 90 day mortality rates in hospital patients with pre admission levels of vitamin D <50nmol/l or >150nmol/l. Levels below 30 nmol/l also did poorly. Levels between 120 and 150nmol/l had the lowest mortality.[3] There are many experts on vitamin D that would agree that the ideal level of vitamin D should be in the range of 120-150nmol/l of 25(OH)D. This would be the level required for the other apocrine and immune function aspects of vitamin D to perform best Even 2000IU of vitamin D used on a daily basis in nursing home patients did not achieve adequate levels in 6% of the population (>80nmol/L).[4] These patients were not exposed to sun and supplementation compliance was near 100% in these individuals. Comments should be made that the newest information would suggest levels of vitamin D for the other apocrine and endocrine functions of vitamin D are really between 120-150nmol/l. 1000IU either from sun or supplementation will achieve these levels in about 50 percent of individuals only. One should also include Age of skin since with age there is

	significant reduction in vitamin D production by 50 % in those over 70 of age.[5] This is significant in an aging population like Canada. The Canadian Pediatric Society recommends 2000IU for pregnant women and this should be included. This would require significant more sun exposure or supplementation to achieve this.[6] Lastly there is no mention about those that catabolize vitamin D in skin fibroblasts at a faster rate (via the 24 hydroxylase enzyme) These individuals need significantly more vitamin D.[7] Some or all of these points may need to be included to make this a better article. References: 1. Schwalfenberg, G.K. and S.J. Whiting, A Canadian response to the 2010 Institute of Medicine vitamin D and calcium guidelines. Public Health Nutr, 2011. 14(4): p. 746-8. 2. Grant, W.B., et al., An estimate of the economic burden and premature deaths due to vitamin D deficiency in Canada. Mol Nutr Food Res, 2010. 54(8): p. 1172-81. 3. Amrein, K., et al., Evidence for a u-shaped relationship between prehospital vitamin d status and mortality: a cohort study. J Clin Endocrinol Metab, 2014. 99(4): p. 1461-9. 4. Schwalfenberg, G.K. and S.J. Genuis, Vitamin D supplementation in a nursing home population. Mol Nutr Food Res, 2010. 54(8): p. 1072-6. 5. MacLaughlin, J. and M.F. Holick, Aging decreases the capacity of human skin to produce vitamin D3. J Clin Invest, 1985. 76(4): p. 1536-8. 6. First Nations, I.a.M.H.C., Canadian Pediatric Society(CPS), Vitamin D supplementation: Recommendations for Canadian mothers and infants Paediatr Child Health, 2007. 12(7): p. 583-9. 7. Awumey, E.M., et al., Vitamin D metabolism is altered in Asian Indians in the southern United States: a clinical research center study. J Clin Endocrinol Metab, 1998. 83(1): p. 169-73.
Author response	1. and 2. We included comments on the debate on the recommended level of vitamin D in the limitations sub-section. However, given the limited word count of the paper we were not able to speak at lengths about it. 3. We added that there is significant reduction in vitamin D production by 50 % in those over 70 of age in the limitations subsection. 4. We included that the Canadian Pediatric Society recommends 2000IU for pregnant women in the limitations subsection. 5. We included that those that catabolize vitamin D in skin fibroblasts at a faster rate (via the 24 hydroxylase enzyme) need significantly more vitamin D in the limitations subsection.

Reviewer 2	—
Name	—
Position	—
Institution	—
Competing interests	—
Date review returned	—
General comments	—
Author response	—