



COVID-19

Questions, Answers and Actions

Vitamin D and infection risk

Question: "What is the evidence that vitamin D status affects COVID-19 infection risk?"

Answer: NICE has published a rapid evidence summary on [vitamin D for COVID-19](#).¹ The review concludes that "There is no evidence to support taking vitamin D supplements to specifically prevent or treat COVID-19. However, all people should continue to follow UK Government advice on daily vitamin D supplementation to maintain bone and muscle health during the COVID-19 pandemic."

The full summary of evidence is [available from the NICE website](#), with details of the trials reviewed. An additional rapid review is available [from the Centre for Evidence-Based Medicine](#), and reaches similar conclusions.²

In the winter months, up to 40% of the UK population may be considered deficient in 25(OH)D (serum levels <25 nmol/L), and a much larger proportion are likely to have levels considered insufficient (<50 nmol/L).³ Average annualised serum 25(OH)D levels vary with ethnicity, and do not reach the threshold for sufficiency in any ethnic group: 45.8 nmol/L in white adults, 20.5 nmol/L in Asian adults, and 27.7 nmol/L in black adults. Annualised levels in institutionalised adults were 30 nmol/L.³

A disproportionate number of patients admitted to a critical care unit in the UK with COVID-19 infection are from a black, Asian, or minority ethnic (BAME) background.⁴ Two studies analysing data from [UK Biobank](#) investigated whether 25(OH)D status could explain this observation.^{5,6} Compared to white participants, an increased risk of COVID-19 infection was observed in black and South Asian participants. However, adjusting for 25(OH)D concentration had little effect on the magnitude of this association. Further studies are needed to determine the factors influencing the pattern observed in BAME patients.

Vitamin D testing will not affect clinical management for the majority of patients and therefore has a limited place in clinical practice. **Testing should be reserved for scenarios where the result will influence clinical management (e.g. osteomalacia/rickets) or prior to a specific treatment (e.g. antiresorptive treatments such as IV bisphosphonates).** Testing is not indicated as part of the management or prophylaxis of COVID-19.

Action:

- Reinforce usual advice around vitamin D supplementation. Adults and children over 5 should consider taking a daily supplement containing 10 micrograms (400 units) of vitamin D.^{3,7} This may be more important than usual where otherwise replete individuals are being exposed to less sunlight due to social isolation measures. Suitable products for supplementation can be bought OTC and should not be prescribed; see NHSE guidance on [Conditions for which OTC items should not routinely be prescribed in primary care](#).⁸
- If deficiency is suspected then consideration should be given to administering a treatment dose, particularly in people at higher risk of deficiency such as BAME individuals and institutionalised people. Treatment doses must be prescribed since there are no suitable licensed products available OTC. Guidance on dosing regimens is available from [NICE CKS](#).⁹
- Vitamin D can be produced in the skin in response to exposure to sunlight in the UK between April and September.^{3,8} Adults and children may consider daily safe sun exposure, but must adhere to [government advice on leaving the home safely](#).¹⁰

References

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Version: 4.0

Updated to remove discussion of primary evidence (now outdated) and signpost to NICE Evidence Summary. Additional study of vitamin D and ethnicity added (Raisi-Estabragh et al).

Changes in version 3.0: Updated to add data from studies on association between vitamin D status and risk of COVID infection and influence of vitamin D status on differences observed between ethnic groups.

Changes in version 2.0: Updated to add data from observational studies on relationship between 25(OH)D status & COVID severity, and disproportionate effect on BAME population in the UK.

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