Should diffusing capacity quality control be treated like other laboratory devices?

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Shareable abstract (@ERSpublications)
The ERS/ATS D_{LCO} standards recommend that a weekly D_{LCO} test should be performed with a 3-L syringe and the V_A from this should be 3±0.3 L. This report suggests that a tighter range (±3 SD) provides better D_{LCO} quality control than fixed arbitrary limits. https://bit.ly/3EvkEj0

Cite this article as: Haynes JM, Ruppel GL, Kaminsky DA. Should diffusing capacity quality control be treated like other laboratory devices? *Eur Respir J* 2021; 58: 2102642 [DOI: 10.1183/13993003.02642-2021].

Received: 5 Oct 2021
Accepted: 20 Oct 2021

To the Editor:

Diffusing capacity of the lung for carbon monoxide (D_{LCO}) is an important pulmonary function test for the diagnosis and management of obstructive, restrictive and pulmonary vascular disease. The 2017 European Respiratory Society (ERS)/American Thoracic Society (ATS) standards for single-breath carbon monoxide uptake in the lungs recommends that a weekly D_{LCO} simulation be performed with a calibrated 3-L syringe [1]. This type of simulation provides quality control values for both D_{LCO} and alveolar volume (V_A). After accounting for system dead space, an acceptable simulated V_A is defined as 3±0.3 L (gas conditions at atmospheric temperature, pressure, dry). We previously suggested that fixed arbitrary ranges for spirometry calibration verification were inferior to limits based on the performance of the device (±2 standard deviations), which is commonly used to determine quality control ranges in laboratory medicine [2]. This recommendation was included in the 2019 ATS/ERS spirometry technical standard [2, 3]. We believe that a similar recommendation is appropriate for V_A simulation.