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Fixed ratio or lower limit of normal (LLN) as cut-off value for FEV₁/VC

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In a recent article,¹ Wollmer and Engström concluded that “ $FEV_1/VC < 0.70$, LLN” increased the risk of death and likely indicated airways disease. We respectfully disagree, as follows:

- Their 95% confidence interval (0.94–1.9) for the hazard ratio (HR) of death included unity, and is therefore not statistically significant.
- Their analysis did not account for restrictive impairment ($VC < LLN$), a known risk factor for cardiovascular death.^{2,3}
- Their interpretation of prior work requires clarification.⁴ In a population study, we showed that the risk of death in older persons who had $FEV_1/VC < 0.70$ was increased in the 21.5% who also had a decreased FEV_1 ($< 5^{\text{th}}$ SR-tile [LLN]), adjusted HR: 2.01 (1.60–2.54), but not in the 78.5% who had a normal FEV_1 (5^{th} SR-tile [LLN]), adjusted HR: 1.06 (0.89–1.25).⁴ Thus, the majority of older persons who have $FEV_1/VC < 0.70$ will have a normal FEV_1 and no increased mortality.⁴
- $FEV_1/VC < 0.70$ often occurs in asymptomatic never-smokers aged > 50 .^{5–7}

Misidentification of chronic disease adversely affects patient care. The use of $FEV_1/VC < 0.70$ as proposed by Wollmer and Engström increases the risk of poor outcomes in aging populations — clinical findings are incorrectly attributed to a respiratory impairment (potentially delaying the consideration of other diagnoses),^{5,8,9} and respiratory therapies are inappropriately prescribed.^{10–13}

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