

STABILITY OF THE EASYONE ULTRASONIC SPIROMETER FOR USE IN GENERAL PRACTICE

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Spirometry is recommended for the diagnosis and management of chronic respiratory diseases in the community and its use in primary care is increasing. Spirometer accuracy is critical but few GPs meet the ATS/ERS recommendation for daily calibration. The aim of this study was to assess the accuracy of an ultrasonic spirometer (EasyOne) that the manufacturer claims does not require regular calibration.

Methods: Six EasyOne spirometers were used in a practice-based spirometry study. Inspiratory and expiratory accuracy was checked periodically according to clinical usage using a certified 3.00 litre syringe. Paired calibration checks were performed using a dedicated mouthpiece assembly (spirette™) and randomly selected spirettes.

Results: The six spirometers were used for up to 26 weeks (mean 23.9 weeks) and a total of 1,142 spirometry tests were performed and 75 syringe calibrations. All inspiratory and expiratory calibration checks using dedicated and randomly selected spirettes met the ATS/ERS accuracy criterion ($3.00 \pm 0.105L$) with no deterioration over time. Accuracy was not affected by the mean flow generated during the calibration procedure. Table shows the deviation from the syringe target volume of 3.00 litres.

	Expiratory Calibration (n=75)		Inspiratory Calibration (n=75)	
	Mean (SD) L	Range L	Mean (SD) L	Range L
Dedicated spirette	0.011 (0.033)	-0.06 - 0.09	-0.036 (0.030)	-0.09 - 0.05
Random spirette	0.046 (0.033)	-0.09 - 0.10	0.003 (0.039)	-0.08 - 0.07

Conclusions: This study supports the manufacturer's claim that the EasyOne spirometer maintains its calibration during routine clinical use in general practice and does not require daily calibration as specified in international spirometry guidelines.

Conflict of interest: None