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Title: Validation of the global lung function initiative spirometry reference equations in preschool Spanish children

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Body: Introduction. Recent publication of multi-ethnic spirometry reference equations for Caucasian subjects from 3-95 years aim to avoid age-related discontinuities and provide a worldwide standard for interpreting spirometric test results. Objective. To assess the agreement of the Global Lung Function Initiative (GLI) reference equations (Quanjer; Eur Respir J 2012) to Spanish preschool lung function data, to verify the appropriateness of this reference for clinical use in Spanish preschool children. Methods. Spirometric measurements were obtained at 10 randomly selected schools from Barcelona (Spain) in children aged 3 to 6 years. Stanojevic's quality control criteria (Am J Respir Crit Care Med 2009) were applied, selecting only manoeuvres with rapid onset of expiration, repeatability and free from artifact, cough or glottic closure. Z-scores were calculated for the spirometry outcomes based on the GLI-white equations. If there was no offset between the reference and test populations, the mean (SD) z-scores of the test population would be 0 (1). A difference of ≥ 0.5 z-score was considered to be clinically significant. Results. Of 543 children recruited, 405 (74.6%) were 'healthy' of whom 380 were Caucasians. Of these 81.6% (169 females, 141 males) performed technically acceptable and reproducible manoeuvres.

	FVC	FEV1	FEV0.75	FEF25-75	FEF75
N	310	257	300	297	297
z-score; mean	-0.40	0.02	-0.001	0.002	0.49
z-score: SD	0.97	0.99	1.00	0.93	1.00

Conclusions. GLI equations are appropriate for Spanish preschool children. These data provide further

evidence to support widespread application of the GLI reference equations.