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CORRESPONDENCE

Not all laboratories are alike

To the Editor:

KLUG *et al.* [1] have reported observer variability within and between two experienced observers of a number of lung function measurements in preschool children. One of the methods assessed was the measurement of airway resistance by the interrupter technique (*R*int). In their laboratory, *R*int measurements have high interobserver variability, although no systematic bias.

In our laboratory interobserver variability of *R*int measurements is measured with each new observer to ensure that it is acceptable [2]. Although our within-observer variability is similar to that reported by KLUG *et al.*, the between observer variability is much lower, despite differences in experience. There is no systematic bias. KLUG *et al.* have shown a variance (2 SDs of the differences between observers measurements) of 0.62 $kPa \cdot L^{-1} \cdot s$, where ours is 0.14–0.18 $kPa \cdot L^{-1} \cdot s$ (table 1). Our 95% limits of agreement are therefore much narrower.

It is misleading to imply that interobserver repeatability for *R*int is generally poor. Technical aspects of measurement and different criteria for accepting measurements both affect repeatability. Each laboratory should have its own standards for intra- and interobserver repeatability and use these to power proposed studies.

Table 1. – Interobserver variability

Observers	n	Mean±SD difference between observers $kPa \cdot L^{-1} \cdot s$	95% limits of agreement between observers
Pair 1	48	-0.007±0.07	-0.15–0.14
Pair 2	19	-0.021±0.09	-0.25–0.23
KLUG *et al.* [1]	22	0.02±0.31	-0.66–0.61

n: pairs of measurements. Mean age of children in pairs 1 & 2 = 3.9 yr, KLUG *et al.* = 4.8 yr.

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2. Bridge PD, Ranganathan S, McKenzie SA. Measurement of airway resistance using the interrupter technique in preschool children in the ambulatory setting. *Eur Respir J* 1999; 13: 792–796.

From the authors:

We wish to thank C.S. Pao and colleagues for their comments about our paper on the within-observer and between-observer variability of lung function measurements in young children [1]. In contrast to C.S. Pao and colleagues, we found that measurements of airway resistance by the interrupter technique (*R*int) differed significantly between observers. We agree that the explanation of this discrepancy is probably that the technical and practical application of the Rint technique differs between our laboratories.

Measurement of Rint has not yet been standardized and the outcome of measurements of *R*int may, therefore, differ between laboratories in several respects. In the current efforts to standardize *R*int measurements in children, the variability between observers clearly requires consideration. Hopefully, data on the advantages and limitations of different approaches to *R*int measurements will be available soon.

We agree with C.S. Pao and colleagues that each laboratory should examine the variability within and between observers, to improve the applicability of Rint for clinical and research purposes.

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