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Title: No difference between measured and calculated $F_ENO_{0.05}$ with the clinical software for extended NO analysis

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Body: The extended NO analysis, with the calculations of alveolar NO (C_ANO), airway wall NO ($C_{aw}NO$), diffusion rate of NO ($D_{aw}NO$), gives more information of the respiratory system than a single value. It demands an exhalation at low flow which is difficult in children. The aim was to identify the lowest flow to use for the extended NO analysis, non-linear method (Högman & Meriläinen algorithm, HMA)[1]. In addition, the clinical software using the HMA is incorporated in the CLD 88sp NO analyser (ECO Medics AG, Switzerland) was tested with these optimal flow rates. Healthy subjects, smokers and atopic subjects with an age of 18-65 years participated. The lower flow rate of 10, 20 and 30 mL/s was tested in 20 subjects. The HMA was used to calculate the NO parameters and a significant difference was found with different flow rates. It was concluded that 20 mL/s could be used instead of 10 mL/s. Subjects (n=32) volunteered to exhaled at 20, 50, 100 and 350 mL/s with the use of the clinical software. $F_ENO_{0.05}$ was calculated from the HMA. There was no statistical difference between the measured and calculated.

Measured	Calculated				
FENO0.05 ppb	FENO0.05 ppb	CANO ppb	CawNO ppb	DawNO mL/s	JawNO nL/min
11.7 (9.6-14.3)	11.5 (9.3-14.1)	0.8 (0.6-1.0)	45 (33-62)	14 (10-19)	674 (527-864)

Data given as geometrical mean and CI95%, except CANO given as mean

In conclusion, the clinical software with the HMA to calculate NO parameters could accurately generate $F_ENO_{0.05}$. The flow rates to use for the non-linear model for the NO parameters are 20, 100 and 350 mL/s. Therefore patients need only to perform at three flow rates which make the extended NO analysis less burdensome. [1] Högman et al. Respir Med 2002:96;24-30.