Title: Is the portable NIOX MINO reliable for screening nasal nitric oxide levels in primary ciliary dyskinesia?

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Body: BACKGROUND: Nasal nitric oxide (nNO) levels are very low in patients with PCD. nNO is used as a screening test for PCD. The portable NIOX MINO (Aerocrine, Sweden), is now able to make nasal measurements. This study aimed to assess the usability and reproducibility of the NIOX MINO measurements and comparison of MINO measurements with the 'standard' NIOX Flex. METHODS: Paired MINO and Flex readings were taken from 22 participants (3 PCD, 5 asthma +/- rhinitis, 12 healthy, 1 CF, 1 nonCF/nonPCD lung disease; age 5-64years) nNO was measured using Flex during breath holding, and using the Niox MINO using nasal aspiration at 2 and 5ml during mouth breathing, three times for each measurement. RESULTS: One participant was unable to use Flex or MINO, one participant was able to obtain acceptable readouts using the MINO at 5ml/sec but not at 2ml/sec nor Flex. Younger children were able to obtain measurements at 5ml/sec but not 2ml/sec. Within-method there was good inter-patient reproducibility using the Flex and MINO. Between method, nNO levels using the MINO at 2ml/sec were comparable with Flex (p=0.098) but readings using the MINO at 5ml/sec were significantly lower than Flex (p<0.001). PCD patients had extremely low levels of nNO (<50ppb) independent of method. A patient with CF had very low nNO (<50ppb) using Flex and MINO (5ml/sec). CONCLUSIONS: Patients who were able to use Flex could also provide nNO measurements using the MINO at 5ml/sec; younger children were unable to use it at 2ml/sec. Reproducibility of nNO within method was acceptable. Measurements using the MINO at 5ml/sec were low in comparison to Flex, but would still differentiate patients with PCD from healthy controls.