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PRESENTATION TYPE: Yes, I would prefer to present my abstract, if accepted, as a poster.

You have only applied for the grants and/or sponsorships displayed below:

General Conflicts of Interests: The Presenting Author has no, real or perceived conflicts of interest that relate to this abstract.

Tobacco-Industry related conflict of interests: No

In the interests of transparency, it is advised that you also declare if applicable in the area below, any previous tobacco industry funding, specifying the dates that funding was received.

Title: Validation of a (semi)-automatic measurement and control platform for centralized, simultaneous electronic nose (eNose) analyses in multi-centre trials

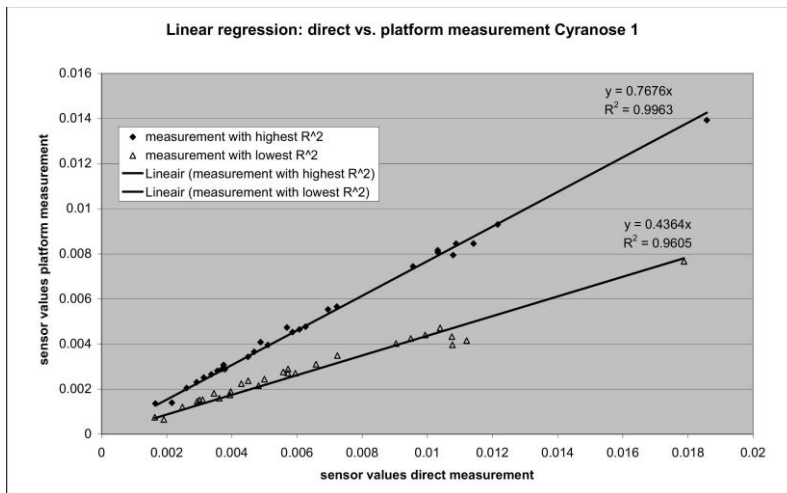
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Body: Rationale: Breath analysis by eNose technology represents a promising diagnostic tool in lung disease. The next step in making this technology suitable for multi-centre trials, such as the U-BIOPRED study, is to facilitate centralized (semi)-automatic measurements on multiple eNoses simultaneously.

Hypothesis: We postulate that incorporating multiple eNoses in a measurement and control platform (integrated system of PC, mass flow controllers and valves) does not influence the eNose sensor responses.

Methods: In this cross-sectional study on healthy volunteers (n = 12), exhaled breath was collected using a standardized method (Fens *et al.* AJRCCM 09). Two paired randomized measurements (standard configuration vs. incorporated in platform) were done on two parallel eNoses (Cyanose C320). Analysis was done by linear regression of sensor values between a paired measurement (see figure).

Results: There was a slight difference in sensor responses between paired measurements. However this was proportional for all sensors. (eNose 1: $0.961 \leq R^2 \leq 0.996$, eNose 2: $0.982 \leq R^2 \leq 0.998$). The slopes of the linear regression lines differed when changing the sampling flow.



Conclusion: The platform has a minimal, proportional influence on sensor responses, which can be adjusted for.

Implication: A parallel eNose platform can facilitate centralized, integrative analysis of different types of devices and application of eNose technology on larger cohorts in a multi-centre setting