FEASIBILITY OF CONDUCTING AN AUSTRALASIAN EXTERNAL PROFICIENCY TESTING PROGRAM FOR LUNG FUNCTION

Peter D. Rochford[1], Jeffrey J. Pretto[1], Tracy T Barber[2] and Paul A. Guy[2].

1. Department of Respiratory & Sleep Medicine, Austin Hospital, Vic 3081.
2. Department of Respiratory Medicine, Monash Medical Centre, Vic 3168 .
Although the reasons for persistent inter-laboratory variability in lung function measurements are unclear, a possible contributing factor is the traditional reliance by laboratories on internal quality control techniques and the absence of external proficiency testing (EPT) methods. EPT methods have been a key and widely employed component of QA programs in many other laboratory areas and their role in reducing inter-laboratory variability is well established. Application of EPT methods to respiratory laboratories has been hampered by lack of applicable test methods that are suitable for transport over wide geographic areas. **AIM:** Evaluate the feasibility of conducting an on-going, wide area EPT program for lung function tests. **METHOD**: Using a syringe-based methodology, and in the context of a multicentre pharmaceutical trial, we designed a 2 year EPT program with 4-6 monthly cycles of testing. Spirometry (N=25) and TLCO (N=19) systems in 19 laboratories throughout Australia and New Zealand participated. Duplicate test syringes were purpose built and designed to allow VC, TLCO and VA target values to be varied in a single blind manner. Target values for each syringe setting were determined by water displacement and measurement with a carefully calibrated reference system. Syringes were transported by courier between laboratories. End-of-cycle summary reports were compiled showing each laboratory's result relative to target, previous cycles and other labs. Syringe verification was achieved by re-testing with the reference system following each cycle. **RESULTS**: To date, two cycles have been completed. Efficient inter-state and inter-country transportation of syringes has proved achievable. Despite considerable handling, no change in syringe target values has occurred. Differences from target (mean±SD) for FVC, TLCO and VA for cycle 1 were 0.01±0.04 L, 0.4±0.6 ml/min/mmHg and –0.13±0.14 L and for cycle2 were -0.06±0.07 L, 0.4±0.9 ml/min/mmHg and

-0.10±0.23 L. C**ONCLUSIONS**: These preliminary results suggest that the application of EPT methods to respiratory laboratories is feasible.
Keywords: quality control, external proficiency testing, lung function.