The feasibility of conducting a respiratory based field study in London primary schools

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Background

- Spirometry assessment in healthy subjects is an important aspect in clinical research and epidemiological studies.
- Spirometry data from healthy subjects is essential for ascertaining appropriate reference data for a study population and thus ensuring accurate interpretation.\(^1\)
- Recruitment of healthy subjects, particularly young children, can however prove challenging.

Aim

- To evaluate the feasibility of recruiting and conducting spirometry assessments in a multi-ethnic population of primary school children in London.

Methods

- 21 London primary schools were invited to participate in the Size and Lung function In Children (SLIC) Study.
- As part of recruitment, science workshops were presented at schools a week prior to commencement of assessments (Fig 1).
- Consent forms and information packs were distributed to all children. Those who returned signed consent forms were enrolled in the study.
- Spirometry, anthropometric measurements and health questionnaires were conducted in a mobile laboratory parked within the school grounds (Figs 2-4).

Results

- 67% schools (14/21) agreed to participate.
- Consent was obtained from 54% of children approached.
- Assessments were performed on 95% of children with consent.
- 93% of spirometry assessments were technically acceptable.
- 18% of acceptable results were excluded due to chronic/current respiratory illness.
- An additional 6% were excluded due to symptoms on day of test.
- Following all exclusions 1,091 children (71% of those tested), at a mean age 8.3y (range 5-11y) were classified as asymptomatic healthy controls with acceptable results (Fig. 5).

Fig 1. Science Workshop

Fig 2. Anthropometric Measurements

Fig 3. Spirometry Assessment

Fig 4. Mobile Laboratory

Fig 5. Recruitment rate and exclusion criteria for spirometry data

Total Approached: 2982
Total Consented: 1611
Total Tested: 1532
Acceptable Data: 1428
Acceptable Data: 1165
Asymptomatic Healthy Control: 1091
Not Tested: 79
(Late consent, absence, school commitments)
Failed: 104
(Quality Control)
Respiratory Illness: 263
(Sickle Cell Disease, Cystic Fibrosis or Asthma)
Symptomatic: 74
(Cough, runny nose, Sneezing)

Conclusions

- This study showed that conducting a respiratory based field study in London primary schools is feasible. However, technically unacceptable data; a relatively high prevalence of chronic respiratory disease and/or acute symptoms on day of testing means that results from ~ 30% of children tested may need to be excluded from any normative data.
- These factors should be taken into consideration when designing respiratory field studies to ensure an adequate sample size is obtained.

References: 1) Stanojevic et al, ERJ 2010

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