

## **VOLUME 3(4) December 1983**

Below are short overviews of the articles that appeared in this issue of VOLUME:

### **President's Report – 1983. (Alan J. Crockett)**

Annual reports such as the President's report published in this issue, serve an important role in flagging important historical milestones and providing chronological commentary. Below are a few extracts from Alan's 1983 report, which gives a sense of the Society's 'position' at the time, and illustrates that the early development of the ANZSRS was the result of careful planning and management. [Note: the TSANZ was formerly called the Thoracic Society of Australia, TSA]. For historical accuracy I have quoted directly:

- "...the ASRT has been going through a period of quiet consolidation. Our membership has grown and we now have members in each State of Australia (except the Northern Territory) as well as in New Zealand."
- "In May of this year I took the opportunity to attend the Thoracic Society of Australia, Annual Scientific Meeting in Perth. It gave me the opportunity to meet our Perth members informally as well as to approach the Thoracic Society's Executive regarding a letter that we had sent at their request in August of last year. I also put to the Thoracic Society members that we are a professional body with a tremendous amount of expertise within our membership. I argued that the ASRT should be consulted by the Thoracic Society on matters of direct mutual interest eg Standards for Pulmonary Function Equipment and Education."
- "... we now have some representation on the Technology Sub-Committee of the Thoracic Society. The second achievement has been that it is accepted that members of the ASRT who are not members of the Thoracic Society may attend the Annual Scientific Meeting of the Thoracic Society of Australia, paying only 50 percent of registration fees."
- "At no time has there been nor, I hope, will there be an intention to amalgamate the two Societies, but rather mutual benefit through the development of a continuing association and co-operation."
- "One final point whilst on the subject of the Thoracic Society. Many individual members expressed a strong wish that we hold our Annual Scientific Meeting in the same city and at the same time immediately before or after the Thoracic Society's meeting. I believe this gives some hint of the regard our meeting holds within the speciality."

### **Domiciliary Oxygen Therapy (Niall F. Cain FRACP, MRCP (UK))**

This short and timely review by Dr Niall Cain (Respiratory Specialist) was written shortly after the independent publication of two 'trans-Atlantic' papers describing the benefits of long-term oxygen therapy in hypoxaemic patients with COPD (NOTT 1980; MRC, 1981). These seminal papers demonstrated that the administration of low flow oxygen sufficient to maintain a PaO<sub>2</sub> of at least 60 mmHg for at least 15 hours per day (longer is better) resulted in improved survival and quality of life. The article

by Dr Cain summarised the indications and non-indications for oxygen therapy and comments on the methods of administration and possible adverse effects.

### **Inter-laboratory Variability of Pulmonary Function Tests (Michael Snow RCPT, Cheryl Stein RCPT and Robert Fallot MD)**

This article by Michael Snow (now a senior member of the MedGraphics Corp, USA) and colleagues was originally published in the American Review of Diagnostics 2(2) May/June 1983.

The article describes a pilot study to quantify inter-laboratory variability of measurements of spirometry ( $FEV_1$ , FVC,  $FEF_{25-75\%}$ ), diffusing capacity (DLCO, VA) and lung volume (TLC), and to determine the feasibility of using trained subjects as controls for proficiency testing. Two trained and experienced control subjects were first tested in a 'reference' laboratory to assess within-subject variability and then visited six other laboratories to determine inter-laboratory variability. All tests were performed in the afternoon and within an eight-week period.

Within-subject variability across all lung function indices was very good with  $FEV_1$  and FVC being the most reproducible, and  $FEF_{25-75\%}$  the most variable. Across the six laboratories all flows and volumes were within the 95% confidence interval established by the reference laboratory. However, substantial inter-laboratory differences were found for DLCO.

The authors concluded that it was feasible to use trained subjects to study inter-laboratory variability for proficiency testing and called for a larger study to be undertaken.

*[Whilst I agree that there are advantages in using healthy human subjects to determine within and between laboratory variability, their use does raise several problems, including: 1) subject availability, 2) biological variability (not constant and difficult to separate it from variability due to equipment), and 3) limited signal range when healthy subjects are used. I have often advocated the use (and development) of more comprehensive non-biological QC methods for assessing lung function equipment/measurements. Examples of non-biological methods that can assess complex For example:*

- Calibration syringe (volume and VA are known)
- Isothermal lung ('lung' volume is known)
- Fixed resistors ('airway' resistance reproducible)
- DLCO simulator (DLCO, IVC and VA are known)
- Explosive decompression device, 'EDDE' (FVC,  $FEV_1$  and  $FEF_{25-75\%}$  (etc) are highly reproducible)
- Metabolic simulator ( $VO_2$ ,  $VCO_2$ , ventilation, tidal volume etc are known).

*Human controls provide information about the reproducibility of the whole system but because there is no target value they provide only limited information about test accuracy. In contrast, non-biological control methods usually provide a known target value that can often be adjusted (at will) to span a wide range, are highly reproducible and are always available for use at any time (they don't take rostered days off, annual leave or resign and take their lungs with them!) I believe we should place greater reliance on such methods than we currently do.*

*I realise that these methods (and my opinions) have their limitations and invite you to comment via the ANZSRS website. DJJ*

### **Abstracts Presented at the 1983 ASRT Symposium**

This is the first year that abstracts of papers presented at our annual scientific meeting were published in VOLUME. In this issue 15 abstracts presented at the August 1983 ASRT Symposium (Royal Canberra Hospital) appeared. Our 'older' members may recall the problems caused by the airline pilots strike. This meeting was organised by Stephen West and Veronica Frewin. The abstracts (listed below) are an excellent record of the early research undertaken by Society members. You will notice an abstract by Brian Graham (Guest Speaker), Joseph Mink and David Cotton describing the overestimation of DLCO in patients with airflow limitation.

1. Hanna G. Accuracy and reproducibility of peak flow meters.
2. Anderson SD and Schoeffel RE. Exercise-induced asthma: state of the art.
3. Imberger H. The measurement of airway obstruction and possible estimation of lung elastic recoil.
4. Kelly C. Determination of a laboratory protocol to assess the responsiveness of patients with chronic airflow limitation to ipratropium bromide.
5. Shaw J. Methods of achieving optimal bronchodilator delivery by metered aerosols.
6. Graham LB, Mink JT, Cotton. Overestimation of the single breath CO diffusing capacity in patients with airflow limitation.
7. McEvoy RD, Sharpe D, Thornton A, Tiivas K. Use of a mini-computer for presentation of quantitative data from sleep studies.
8. Homan S. On-line analysis of gas exchange using a tracer to measure ventilation.
9. Crockett AJ, Simmul R. Review of oxygen concentrators as a source of long-term domiciliary oxygen.
10. Smith M, Keating MC, Johns DP. Lung function test audit.
11. Gross JB. Maximising effort for the child, adult and the seriously ill, on pulmonary function tests.
12. Berghouse R, Castle W, Silver D, Simmul R. Ear oximetry – a comparative study No. 2.
13. Wallace AG, Roget JA. Ear oximetry – a comparative study.
14. Hahn AG, Nogardy SG. Mechanisms of refractiveness in exercise-induced asthma.
15. Crockett AJ, Kangalee KM. Quality control in the respiratory function laboratories: another man's view.

### **Mouth-Piece**

A letter from the Secretary (Gillian Lowe) of the Association of Respiratory Technicians and Physiologists (UK) appeared. The letter outlined the formation of the ART&P in 1975 with formal launching in 1976 during a gathering of members at the Cardiothoracic Institute, Brompton Heart and Chest Hospital, London. *[Rereading this letter brought back very fond memories as I trained at this hospital and attended the meeting. DJJ]*. In 1983 the fee for full membership was £7 and included receiving

a copy of their journal, BREATH. At this time, the fee for Ordinary membership of our Society was somewhat higher at \$25. However, our membership fee was to remain unchanged for about 20 years!

**Please contact me if you are interested in a copy of this or any other issue of VOLUME.**

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