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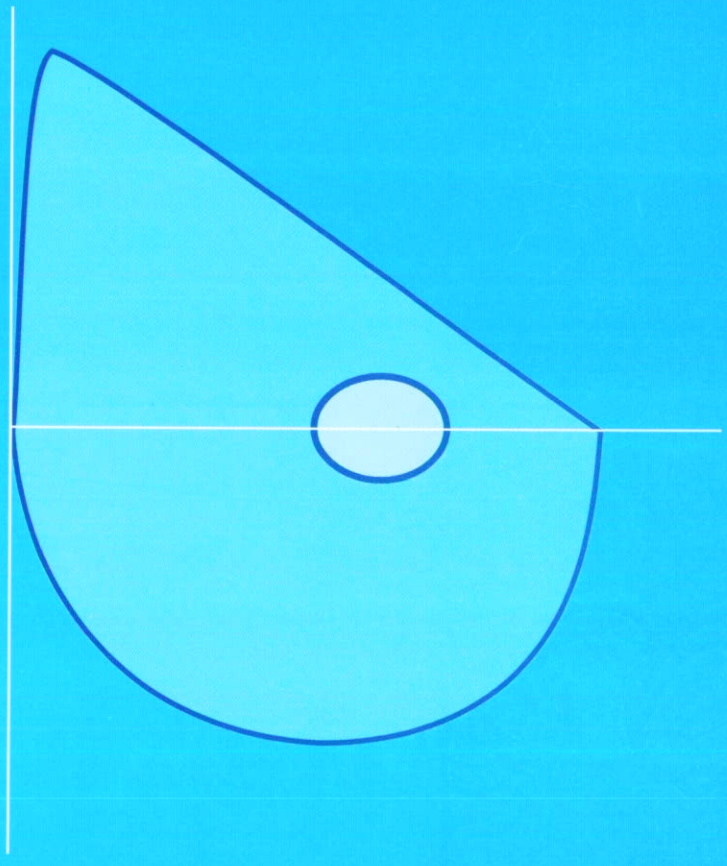
Inspire



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The Official Journal of the Association for Respiratory Technology & Physiology

Inspire

The Official Journal of The Association for Respiratory Technology and Physiology

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ALL CORRESPONDENCE TO

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FIRST WORD

Doesn't time go quickly? Or am I just getting old? It only seems like five minutes since I was sitting down to write my first First Word and now it's time for the second one. I hope you have all recovered from the Annual Conference in Glasgow. Apologies for the somewhat indifferent weather, but as we say in Scotland "if you don't like the weather, just wait half an hour". I thoroughly enjoyed the Conference and I would just like to add my thanks to Pat Mitchell, Jackie Hutchinson and her team for all their hard work organising the event (you'll hear more on this matter in the next issue of Inspire). This is the first time I have seen behind the scenes at the Annual Conference and I can assure you that I will never complain again about working too hard.

One of the highlights of the Conference is the poster session (well I would say that as I co-Chair it!) as it brings home to me the high standard of research that is carried out in Labs throughout the country. I know this is one area of the meeting that will hopefully expand in the next few years, as more people submit their abstracts for consideration.

This issue of Inspire has the first two articles from members awarded a travel grant for the Glasgow Conference. Three more will follow in the next issue. I would just like to congratulate all five winners for the high standard of their submissions and the easy job of editing them.

I've started writing this on my way back from the ARTP assessors course in Rotherham, but by the time it is published the assessments will be completed. I hope those of you who took the practical assessment in Birmingham felt sorry for the white-faced gibbering idiot in the corner because it was me! Exam nerves are just as bad on the other side of the desk I can assure you - I hope that makes you feel better and can I wish you all the very best of luck.

Regards,

Andy Robson

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ARTP Conference 2005

Much to the delight of our members north of the border, the 2005 ARTP Annual Conference was held at the end of February in the Thistle Hotel in Glasgow. The Annual Conference is a unique event in the calendar of Clinical Physiologists and others involved in respiratory function as it is the only time during the year that we can get together to form a critical mass.

The theme of the meeting was "Taking the High Road" which not only reflected the Scottish theme this year but allowed participants to consider the idea of taking the "high moral ground" in terms of the standards of respiratory function tests offered by the membership.

The meeting, as always was a combination of clinical and non-clinical sessions, starting off with a very lively session on Respiratory Physiology in Primary Care. This is, of course, a hot topic with the introduction of the new GP contracts. An update on Respiratory Pharmacology was followed by the traditional lunchtime workshops, which allow members to obtain up-to-date information on a range of specialist topics. Professor Mike Hughes gave a fascinating lecture on the history and development of the carbon monoxide transfer factor. Professor Hughes is a longstanding supporter of the ARTP and his support was recognised this year when he was presented with the ARTP Special Achievement Award.

The ARTP Annual Conference is not only about work: to round off the first day the ARTP Forum was held – this is a light-hearted quiz with two teams this year representing the Highlanders and the Lowlanders. In a close-fought contest the Highlanders won by a whisker, much to the relief of the home crowd (and your Editor, who maintained his 100% record in the Forum!).

The second day of the conference started with a session on tumours, mucus, chronic infection and biological warfare – just the thing after a hearty breakfast! Following this session the other current hot topic was presented – oxygen therapy. The new guidelines for oxygen therapy were discussed and the implementations this would have for respiratory function labs were highlighted. The keynote speaker for the conference was Dr Paul Enright, who until recently was a member of the ATS committee involved in updating the respiratory function testing guidelines. His very entertaining presentation highlighted the changes that we are likely to see in the soon to be published joint ATS and ERS guidelines.

Following plenary sessions on sleep medicine and paediatric testing the members prepared for the annual Conference dinner, which was followed by a ceilidh and disco. One of the highlights of the Conference is the Chairman's speech. Dr Brendan Cooper is always a very entertaining speaker, taking every possible opportunity to poke good-natured fun at members of the profession and equipment manufacturers who (as always) were staunch supporters of the Conference. The dinner also gives the ARTP an opportunity to recognise members who have successfully completed the Part 1 professional examination. Certificates were presented to successful candidates by Dr Cooper and Dr Rob Angus, who was representing the BTS. This year Brendan was also able to recognise the outstanding contribution made by two members of the ARTP Executive committee who were stepping down from their positions, namely Julie Lloyd (Honorary Treasurer) and Angela Evans (Chair of the ARTP Education Committee). Both Julie and Angela have worked tirelessly for the ARTP for many years and will no doubt be looking forward to a little more free time.

Survivors of the Conference dinner gathered on Saturday morning to participate in the Annual General Meeting, followed by the final sessions of the Conference. Research presentations highlight the high standard of research being carried out in labs throughout the country. A wide variety of topics were presented, including research on current hot topics, such as spirometry in primary care and the development of protocols for the assessment of ambulatory oxygen provision. The final session of the conference is traditionally used for an update on lung diseases, this year asthma, SARS and the respiratory complications of bone marrow transplant were the topics under discussion.

The membership of the ARTP considered this years conference a massive success, mainly due to the hard work of a few dedicated people, including Mrs Pat Mitchell (Meetings organiser) Mrs Jackie Hutchinson (Executive Business Services) and members of the ARTP Executive Committee. Plans for the 2006 meeting which will be held at the Hilton Hotel in Brighton are now well underway. This meeting will celebrate the 30th anniversary of the ARTP.

The Multiple Breath Inert Gas Washout

Emma Scrase, Respiratory Laboratory

Great Ormond Street Hospital for Children NHS Trust. London.

The multiple breath inert gas washout (MBW) has been used for many years in adults and school-aged children (6-16 years) to assess small airway function. Recent modifications have now made it possible to measure MBW in infants (0-1 years) and preschool-aged children (2-5 years).

The original MBW test was a nitrogen washout, introduced in the 1950's, where the subject inspired 100% oxygen in order to dilute nitrogen resident in the lung to 1/40th of its starting concentration. The method discussed here uses an inert tracer gas, sulphur hexaflouride (SF6). Each measurement consists of a wash-in and washout phase. During the wash-in phase the subject inspires a dry gas mixture containing 4% SF6, 4% He, 21% O2 and balance N2. The gas is provided via a bias flow apparatus, with flow set at a level greater than the maximum tidal inspiratory flow produced by the subject, so that rebreathing does not occur. Wash-in continues until the inspiratory and expiratory SF6 concentrations are stable and equal (Fig 1, A). At this point the bias flow is stopped during an expiration, either by disconnecting the bias flow manually, or by switching a valve. The subject subsequently inspires room air and the washout begins (Fig 1, B). The washout phase continues until the end-tidal SF6 concentration is below 1/40th of the starting concentration i.e. below 0.1%.

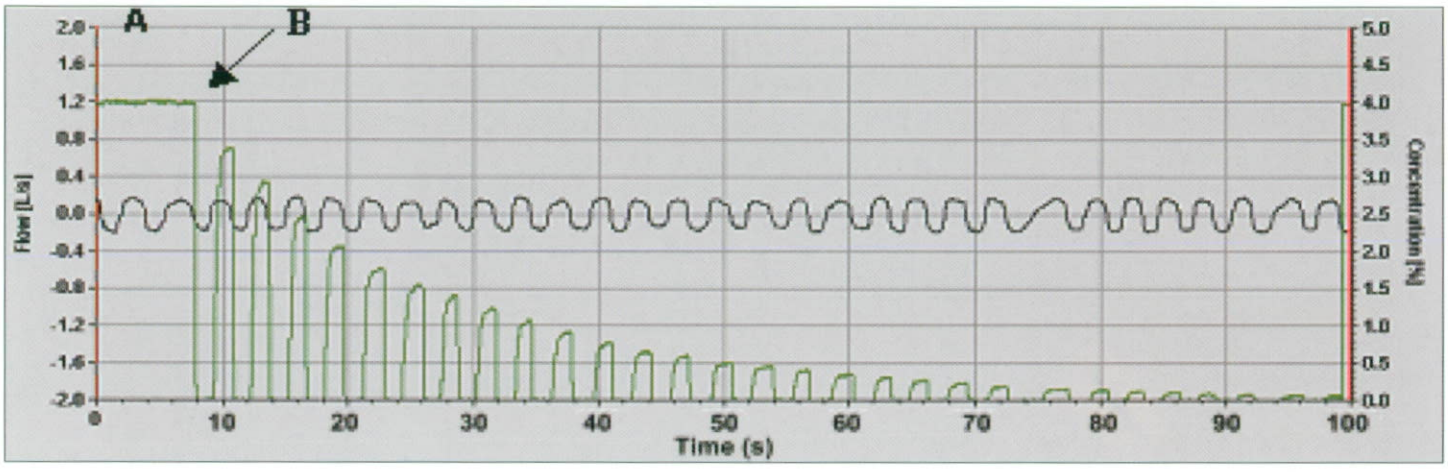


Figure 1. Washout curve

An example of a washout curve is shown in Figure 1, where flow (black trace) and SF6 concentration (green trace) are plotted against time. Flow is measured through a Fleisch pneumotachometer (PNT) attached to a Validyne differential pressure transducer. Gas concentrations are measured by a respiratory mass spectrometer, through a capillary tube sampling from the airway opening. This washout curve is from a healthy preschool-aged child. In general, healthy subjects complete wash-in and washout within 1-2 minutes, whilst those with lung disease may take in the region of 5 minutes [1].

It has been demonstrated that MBW is suitable for testing all age groups, as the measurements are made during tidal breathing and require no additional manoeuvres. Adults and school-aged children breathe through a mouthpiece connected to the PNT and wear a nose clip. Preschool-aged children and infants breathe through a facemask, applied to the face with therapeutic putty to ensure an airtight seal and held in place by the operator (Figure 2). Infants are measured during sleep, whereas measurements of preschool-aged and school-aged children are performed whilst awake and seated. A video is played to distract them and encourage steady tidal breathing. At Great Ormond Street Hospital (GOSH) we perform three tests and report the mean value for each variable, but further research may find two tests are sufficient.

The most commonly reported outcome from the washout test is the lung clearance index (LCI). The LCI is the number of lung turnovers required to dilute end tidal gas concentration to 1/40th of the starting concentration. Where a turnover is the cumulative expired volume (CEV) divided by the functional residual capacity (FRC) from the washout. (LCI = CEV/FRC).

Unlike many lung function tests, the LCI is independent of age and body size, and results are relatively constant from preschool to school-age in healthy children. However, in children with cystic fibrosis (CF) LCI increases with age indicating progressive lung disease.

A raised LCI is indicative of inefficient or inhomogeneous gas mixing, and is thought to reflect abnormal peripheral airway function. The LCI can be reported from SF6 and from He, currently at GOSH we only report the LCI from SF6. We are developing more detailed analysis of the relationship between SF6 clearance and He clearance, to give us more information regarding the site of disease within the lung.

Recent studies have established that MBW is more sensitive than other lung function tests in early detection of lung disease. Studies in adults, school-aged children and now preschool children have demonstrated that abnormal LCI results are seen in

subjects with CF before any changes are seen in spirometry (Figure 3) [1,2,3,4,5]. This makes MBW a particularly important test for young children with CF, enabling early interventions to be made to potentially delay the progression of small airways disease. At GOSH we have been using the MBW to detect early changes in lung function in CF patients and in children post heart and lung transplant.

Figure 2. Preschool aged child performing MBW, watching a video (wash-in phase, breathing gas mixture).

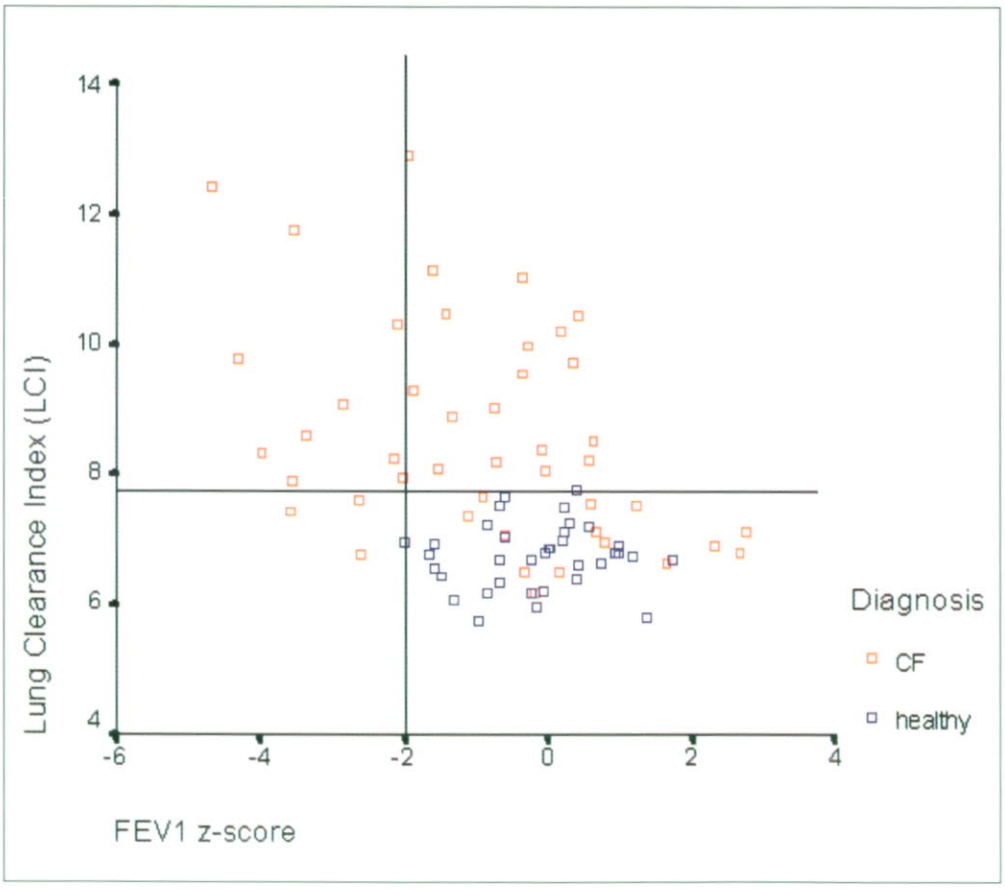


Figure 3. Lung clearance index vs. FEV1 z-score in healthy (blue) and cystic fibrosis (red) preschool age children. The solid lines mark the normal limits; the children in the top left area had an abnormal LCI and an abnormal FEV1 (< -2 z-score). Note there are a large number of children in the top right area with an abnormal LCI but with normal FEV1 results.

1. Aurora, P., Bush, A., Gustafsson, P., Oliver, C., Wallis, C., Price, J., Stroobant, J., Carr, S., & Stocks, J. 2005. Multiple-breath Washout as a Marker of Lung Disease in Preschool Children with Cystic Fibrosis. Am.J.Respir.Crit. Care. Med. 179, 249-256.

2. Gustafsson, P. M., Aurora P, & Lindblad A 2003. Evaluation of ventilation maldistribution as an early indicator of lung disease in children with cystic fibrosis. Eur. Respir. J. 22, 972-979.

3. Habib, R. H. & Lutchen, K. R. 1991. Moment analysis of a multibreath nitrogen washout based on an alveolar gas dilution number. Am. Rev. Respir. Dis. 144, 513-519.

4. Kraemer, R., Blum, A., Schibler, A., Ammand, R., & Gallati, S. 2004. Ventilation inhomogeneities in relation to standard lung function in patients with cystic fibrosis. Am.J.Respir.Crit. Care. 171: 371-378.

5. Aurora, P., Gustafsson, P., Bush, A., Lindblad, A., Oliver, C., Wallis, C. E., & Stocks, J. 2004. Multiple breath inert gas washout as a measure of ventilation distribution in children with cystic fibrosis. Thorax 59, 1068-1073.

E-MAIL FORUM DIGEST

Ciaran McArdle, Birmingham Childrens Hospital

For the benefit of those members who do not yet have access to the E-mail forum here is a synopsis of some of the messages and discussions that have been 'posted' between 01/09/2004 and 31/03/2005.

The theme which seemed to dominate this period was alcohol *(and that was even before we got to the conference in Glasgow!!!).*

This ranged from suggestions that a that ten year old single Malt is a suitable alternative to Algipan as a capillary vasodilator (Andy Robson) whilst Helen Corrigan wanted to know if it would have a *significant* effect on lung function tests? Adrian Kendrick quoted one paper that claimed it caused a fall in TLco, however this was disputed by a subsequent study and therefore more research was needed. *(Now why did they never have research projects like that when I was a student).* Both Neil Martin and Kevin Hogben pointed out that the vapour seemed to interfere with the gas analysers on newer systems and so it might be having a technical rather than biological effect on readings.

On a similar note Matt Cox observed that their system's He analyser (and to a lesser extent the CO) went haywire when a mobile phone came within half a meter of the housing. Mark Atkins reported a publication in 'Sleep' which showed that they caused interference in the EEG signal even when they were in standby mode. This obviously can cause problems with any automated analysis. Unfortunately Mark could not remember the actual reference *(is this the effect of too much phone use or too many sleep studies?)*

An innocent question from Andy Pritchard on the effect of caffeine on the transfer test prompted the more masochistic members of the forum to appear. We learned that the Wingate test performed after a mega dose of caffeine caused subjects to turn green and vomit (Andy Pritchard), that coffee named 'rocket fuel' feels "like it's burning a hole in your gut" (Roy Dean) that "bicarb with orange juice makes wonderful fizzy drink, probably delays onset of AT and gives the poor subjects wonderful loose bowel movements 24 – 48 hrs later" whilst 'Buzz', an American drink "increases cardiac frequency to really fun levels and may give the feeling of a heart attack" (Adrian Kendrick). Meanwhile Brendan Cooper, before the days of Ethics Committees "altered the pacemaker rate in a group of patients who had implanted pacemakers and measured their transfer factor at two different rates and showed a significant change in gas transfer"

Simon Thompson launched an interesting discussion on what constitutes an acceptable desaturation during a 6 MWT. Andy Robson and Roger Carter went for 2 or 3% respectively whilst Paul Thomas suggested that anything greater than 2% was significant. This then turned to a general discussion about the best protocol to use. Gary Nolan recommended a useful link to the ATS standards site http://
www.thoracic.org/adobe/statements/sixminute.pdf.

Alan Moore, Brendan Cooper, Derek Cramer and Andy Robson got involved in a high brow discussion after Vicky Cooper asked whether there were different correction factors for the effect of Hb on TLco between, men, women and children. The upshot appears to be that for the vast majority of patients seen their Hb will be between 12 – 16 g/dl and as such it is unlikely to affect the clinical interpretation of the results (Brendan Cooper). However there are different correction factors (published in the 1995 ATS statement on TLco) embedded in most computer systems (Derek Cramer) and in those centres who perform serial measurements on patients undergoing procedures like peripheral blood stem cell transplants (Andy Robson) or chemotherapy (Alan Moore) then it is important to quote Tlco (corr) on reports to correct for significant changes in Hb and thus allow sensible assessment over time.

Nicola Jenkins asked for clarification on the FEV1 criteria following various challenge tests, "do you take the highest or lowest reading at each point?". This caused much discussion with some people favouring the lowest (ERS guidelines) and others the highest (ATS guidelines). Everyone agreed that acceptable technique and 100% effort were vital as well as having a set protocol. Alan Moore however *(in a rare diplomatic moment)* suggested the use of a fudge factor, using the mean.

Finally Damian Muncaster launched an appeal for information about the history of the ARTP. Amazingly loads of reminiscences poured in about its origins way back in 1974 (Kevin Hogben, Derek Cramer, Karen Eyres, Paul Thomas). Given the length of time elapsed (and therefore the ages of the participants) the amount of details remembered was impressive until Roger Carter let everybody down by admitting to senile dementia and organising the 25th anniversary in 1998 rather than 1999. However pride of place went to Doreen Russell who actually admitted to having a copy of the minutes from the first ARTP meeting and the first newsletter. *(This certainly says something about ARTP membership, I'm just not certain what!!!).*

The email forum is an excellent opportunity for ARTP members to get up to the minute information on what is happening in the profession and it can also be a bit of a giggle from time to time. If you don't already subscribe to the Forum, see the ARTP website (www.artp.org.uk) for details.

ARTP SCOTTISH FORUM SPRING MEETING

JAMES FRIEND SEMINAR ROOM, ABERDEEN ROYAL INFIRMARY

Joyce Leys, Aberdeen Royal Infirmary

As the fairly new Northern representative of the Scottish ARTP Forum I was asked to organise a meeting "up North" for the Forum. The agreed date was 22nd April in Aberdeen, which seemed such a long way away at the time, however it came round very quickly in the end.

I tried to think of the specialities unique to Aberdeen, and a suitable range of topics and speakers for the meeting, which perhaps had not been covered before. I also included topics which I myself was interested in - perhaps one of the few advantages in organising a meeting yourself.

The other big advantage for our department was the cost involved. Normally only one person can attend a meeting out with Aberdeen, as the travel costs are quite expensive for the trust. On this occasion, every member of staff from the department was able to attend, at a relatively low cost, and have a certificate for their CPD file. Looking to the future and the need to show continuous professional development, this is surely an advantage.

The agenda, interspersed with appropriate coffee and lunch breaks, which were kindly sponsored by Artemis Medical, who had on display a Tosca machine for monitoring transcutaneous C02 levels, was as follows:

What You Can Learn from High Resolution Imaging of the Lung. – Professor Jamie Weir, Radiology Department, Aberdeen Royal Infirmary.

An excellent talk on HRCT imaging of the lungs and the additional information gained from HRCT compared to X ray, and the uses of imaging in various lung conditions.

Offshore Hyperbaric Medicine – Dr J Ross, Senior Lecturer in Environmental and Occupational Medicine, Aberdeen.

Dr Ross gave a very interesting talk on the effect of diving on the lungs, and the increased work of breathing when diving, and the difficulties this can bring.

Update on lung cancer – Dr J S Legge, Chest Consultant Aberdeen Royal Infirmary & Current President of the Scottish Thoracic Society.

Dr Legge gave a very informative talk on detection of cancer from first presentation, through diagnosis, pulmonary function testing and cancer staging to treatment.

Monitoring Occupational Lung Disease - Alison Scaife, Research Technician Environmental and Occupational Medicine, Aberdeen.

Alison gave a very informative talk on a bespoke package used to monitor workers, both at home and in the workplace, and confirm or otherwise if the patient has occupational lung disease.

NIV, CPAP, & BIPAP - Dr Roger Carter, Consultant Clinical Scientist, Glasgow Royal Infirmary.

Roger gave a very interesting talk on the specific use of various types of ventilator/ positive airways pressure machines for different disease processes and situations

Business meeting- Update on current issues.

Christine Downie, Secretary of Scottish ARTP Forum is moving on to bigger and better things, as the national ARTP Secretary. I am sure she will keep Brendan Cooper in order, just as she did with Roger Carter. Congratulations and well done Christine! No nominations, or volunteers, were received at the meeting for her post.

It was felt that there was a need to have someone responsible for working to promote the work of the Clinical Physiologist to Schools and School leavers. As a result Heather Ambler from Gartnavel Hospital was voted and accepted for this position.

Roger Carter advised that working towards State Registration, everyone must have a portfolio of evidence for Continuous Professional Development. Which should be kept up to date with any certificates of attendance for meetings attended and teaching done etc.

The programme I felt (although I may be every so slightly biased!) was well balanced and had something for everyone, and the speakers pitched the level of the talks very well for the Clinical Physiologists attending.

Despite warning everyone of the difficulties of parking at the ARI site, most delegates found no problems in this respect.

All in all a successful meeting, with 25 delegates (not bad for a meeting "up North") despite a last minute change of speakers, and an accident on the A90 which delayed a few of the speakers.

One great achievement is, that after discussion with Roger Carter, Dr J S Legge has agreed to have a joint Scottish Thoracic Society meeting with the ARTP.

Would I do it again? Without a doubt. The worries over the meeting are far outweighed by the rewards of positive feedback on the day. Any volunteers for the next one?

PETER LOCKWOOD

5/7/29 – 27/6/05

It was with great sadness that I learned of the death of Peter Lockwood after a long illness.

Peter trained as a biochemist and was appointed at Harefield Hospital on February 1st.1961, initially to perform blood gas measurement on patients undergoing open-heart surgery. Peter was then asked to carry out lung function tests, on patients with heart and lung disease, junior medical staff had previously carried out this function. So the Respiratory Physiology Department was set up in a small room, which was shared with the chief cardiology technician. The equipment that Peter had available at that time were two old Palmer spirometers, a Godart katharometer and an EIL pH meter. Spirometry and lung volume measurements were carried out and when a carbon monoxide meter was obtained, Peter devised a set up for measuring steady state diffusion.

As cardiac surgery became more commonplace Peter found that he was spending more and more of his time in the operating theatre making blood gas measurements. So that when, in 1967, a new theatre block was opened a respiratory technician was appointed and the old blood gas equipment replaced with an "Astrup" trolley. Peter decided that rather than spend time in the operating theatre, arterial blood samples should be brought to the department for analysis, this enabled him to devote more of his time to carrying out respiratory measurements.

In 1974 a consultant in Respiratory Medicine was appointed, and some much needed funding for equipment purchase was made available. In 1975 a new technician was appointed and a second one employed. During the following years there was a rapid increase in the departments' workload, which resulted in to a move to larger accommodation. Extra equipment was purchased and additional staff appointed.

Peter continued as Head of Respiratory Physiology at Harefield until his retirement in 1991 when he was able to devote more time to his love of music and painting watercolours. Peter was a founder member of the ARTP and was made a life member. He wrote many articles, presented papers and organised the spring meeting of the Association at Harefield in 1980.

It is somewhat ironic that in his later years, as his health began to fail, that Peter became a patient at Harefield and in his old department. Peter will be remembered for his expertise in respiratory physiology, as well as for his kindness and support to friends and colleagues.

Hugh Lloyd

DATES FOR YOUR DIARY

September 17th – 21st
European Respiratory Society Annual Congress, Copenhagen

October 7th & 8th
Joint ARTP/ARTI Meeting, Dublin

December 2nd
ARTP Heads of Department Meeting, Queen Elizabeth Hospital, Birmingham

December 7th – 9th
British Thoracic Society Winter Meeting, QEII Conference Centre, London

26th – 28th January 2006
ARTP Annual Conference, Hilton Metropole, Brighton

Minutes of the Annual General Meeting

held at the Thistle Hotel, Glasgow on Saturday 26th February 2005.

Executive members present

Dr Brendan Cooper, Honorary Chair

Miss Julie Lloyd, Honorary Treasurer

Mrs Jane Caldwell, Honorary Secretary

Mr Keith Butterfield, Vice Chair

Mr Nigel Clayton

Mrs Pat Mitchell

Dr Adrian Kendrick

Dr Rod Lane

Dr Andy Robson

Mr Damian Muncaster

Mr Alex Perkins

Mrs Christine Downie

The Honorary Chairman welcomed the audience of approximately 100 delegates to the Annual General Meeting.

Introductions included thanks & acknowledgments to EBS Ltd for organising this event, the Manufacturers for their continued support, the delegates for attending & also to the hotel staff for their superb hospitality.

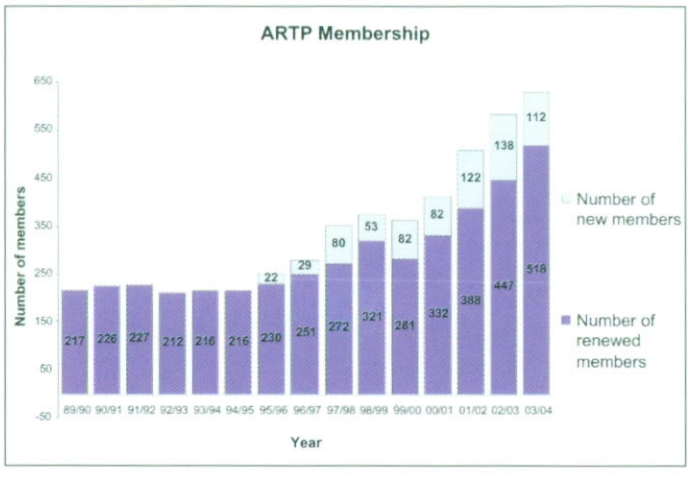
A review of 2004 shows that the ARTP's achievements exhibit many forms of "bridge building" (theme from last year's conference) had taken place over the year amongst the membership and particularly with our allied healthcare professionals, which include:

- Alliance with the BTS Liaison Group
- ARTP/BTS interpretation course for SpR's & Physiologists
- Lung function quiz at BTS Summer Meeting, (which would be a regular future event)
- BLF/BTS Joint Statement on World COPD day
- Active participation at the British Meeting Point at ATS, Seattle, USA (Pat Mitchell was thanked for her role as ATS Meeting point Co-ordinator)
- ARTI/ARTP liaison with another Meeting scheduled for Cork, Ireland, on 8-9th April 2005
- ARTP Advisory Board from continued support from fellow Specialists
- ARTP links with IPS, RCCP, FHCS, ACS, (with special thank to Gina Martin and to outgoing RCCP representative Julie MacWilliam & incoming rep Clare Hill)
- Healthcare Scientist Awareness Week (special thanks to Damien Muncaster)
- Manufacturers' Liaison group (with special thanks to Alan Moore & Nigel Clayton, particularly with respect to their involvement in the recent safety bulletins on the Breas' CPAP machine & the Precision Mouth pressure meter equipment)
- ARTP Regional Groups: The National QA Scheme is under way, leading towards Lab Accreditation (special thanks to Rod Lane and all Regional Groups).

ARTP REPORTS:

Membership Report

The ARTP membership had continued to increase:



Financial report

A review of expenditure & income over the last two years shows that the financial status of the ARTP is very healthy with substantial assets. A financial plan over the coming years, to make good use of these assets will include:

- More non-profit making courses
- Increase in number of bursaries to the membership
- Potential subsidising of future conferences to keep delegate cost down
- Discounts for handbook
- Possibility of employing a trainer to train allied professionals in Spirometry

Thanks to **Julie Lloyd (outgoing Hon. Treasurer), Jackie Hutchison, ARTP Administrator & all the EBS staff** for their direct input into maintaining the healthy state of finances.

The Membership voted to accept the financial accounts which had been forwarded to the membership by post previously. There was **unanimous acceptance of the financial accounts for 2003-4.**

Website Report

Despite good use of the ARTP website there needs to be a drive to increase the number of members on the ARTP forum as only 300 members are signed up currently, from potential membership of 650. A male 3:1 ratio dominated the forum presently and this would hopefully be addressed in the future as well as more "protection" to new members joining, who may feel intimidated when making enquiries. Also the "members only section" will be developed over the coming year.

Acknowledgements were expressed to **Keith Butterfield** (ARTP Webmaster) for his direct role in providing and maintaining the ARTP website.

Scottish Forum

The Scottish forum group continues to grow from strength to strength, with their own regular meetings and objectives. Thanks were expressed to the Scottish Forum Co-ordinator **Dr Roger Carter,** and **Christine Downie,** Scottish Forum Secretary.

Education Report

The Education Committee activity was reviewed which shows a busy year of courses and examination which is central to the core business of ARTP. The forthcoming years activity was outlined and future courses are available on the ARTP Website. New courses in sleep, exercise and muscle studies will follow.

NOS: Special thanks to all NOS Committee Members spearheaded by **Jo Shakespeare and Trefor Watts.**

The presentations of the Certificates for the BTS/ARTP National Assessment 2004 had taken place at the previous night's Gala dinner. (See separate article in *Inspire* for details of winners).

ARTP Constitutional Changes

It was reported that both the Hon. Secretary & Hon. Treasurer posts are up for election as **Jane Caldwell** and **Julie Lloyd** are resigning from today.

Christine Downie, (Monklands), had applied for the Hon. Secretary's post and the membership were asked to vote to accept or reject this proposal. **Unanimous acceptance of this proposal.**

Martyn Bucknall, (Bromley) had applied for position of Hon. Treasurer and the membership were asked to vote to accept or reject this proposal. **Unanimous acceptance of this proposal.**

The objectives of the ARTP over the past & coming year were briefly discussed (see later) Many achievements had been made and more would continue to be made on behalf of the membership.

To conclude the AGM, thanks were expressed for Doreen Russell 's work on the history of the ARTP. We confirm that next years' AGM would be the 30th annual ARTP conference and there will be a special and spectacular celebration. Details of where this would take place would be released shortly.

The AGM meeting closed at approximately 10 15am.

Minutes taken by Jane Caldwell, (Past) Honorary ARTP Secretary.

Objectives for 2004

Continue to assist the IPS & RCCP and to take forward as many ARTP members as possible to achieve full state registration with HPC.

Develop the College of Respiratory Physiology and to publish ARTP Handbook (Part Two).

Maintain and develop a solid financial basis before next AGM and to explore development options for an ARTP Centre and a partnership with Co-Alliance Partnership.

Further develop ARTP Web-site and to increase ARTP Forum membership to be >90% of ARTP Membership.

Strengthen links with manufacturers and establish a manufacturers survey for lung function and related equipment providers before 2005.

Assist in the development of Job descriptions and to support ARTP members regarding the implementation of Agenda for Change

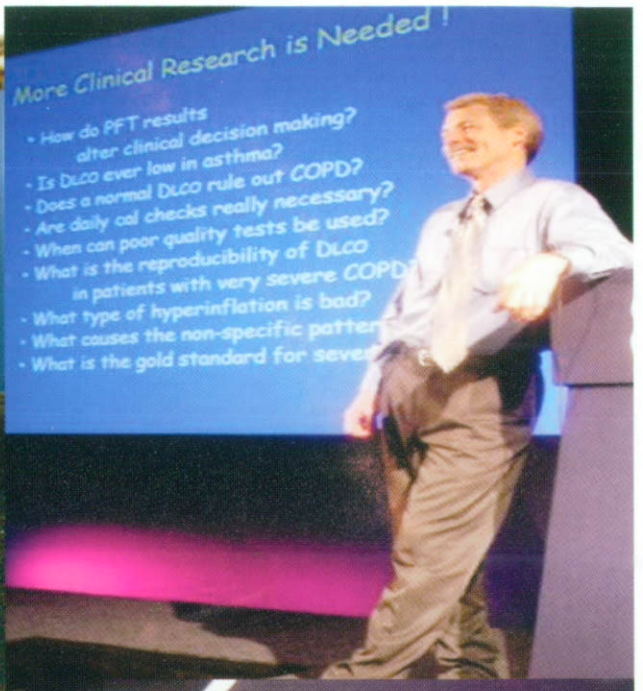
Promote the National Examination in Respiratory Physiology and to work with BTS and BLF establish the ARTP/BTS National Examination in Spirometry as the standard of practice in Spirometry throughout the NHS within 5 years.

Further develop communications with Regional Groups throughout the UK, and facilitate this resource to support national initiatives such as NOS, examinations, etc.

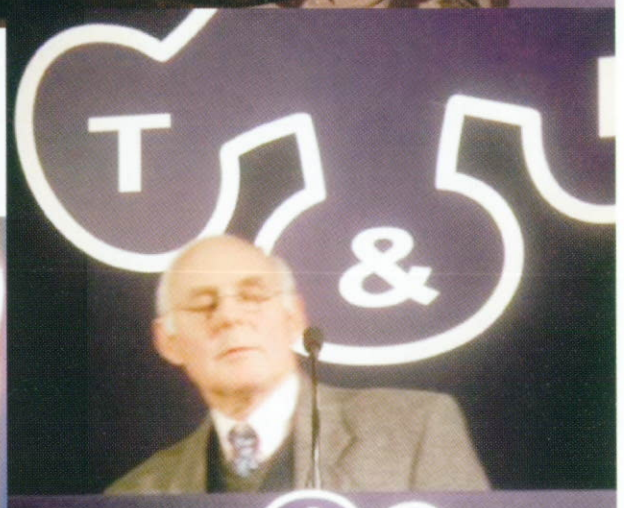
Set up Working Groups for Standards of Practice

Objectives for 2005

1. **Complete Regulation with HPC.**
2. **Publish ARTP Handbook (Part Two) before summer 2005.**
3. **Financial stability, ARTP Centre and a partnership with Co-Alliance Partnership to achieve the financial plan.**
4. **ARTP Membership renewal >90% of 2004 Membership.**
5. **Complete Working Groups work and publish Position Statements before 2006 AGM.**
6. **Plan 5 year strategy for ARTP.**
7. **Develop Spirometry Assessment for national roll out across UK.**
8. **ARTP Website to be expanded to provide training materials and information for members only section.**
9. **Work with BTS and help produce BTS Sleep Consortium Training programme.**


More Clinical Research is Needed !
- How do PFT results alter clinical decision making?
- Is DLCO ever low in asthma?
- Does a normal DLCO rule out COPD?
- Are daily cal checks really necessary?
- When can poor quality tests be used?
- What is the reproducibility of DLCO in patients with very severe COPD
- What type of hyperinflation is bad?
- What causes the non-specific patter
- What is the gold standard for sever


The Jiggers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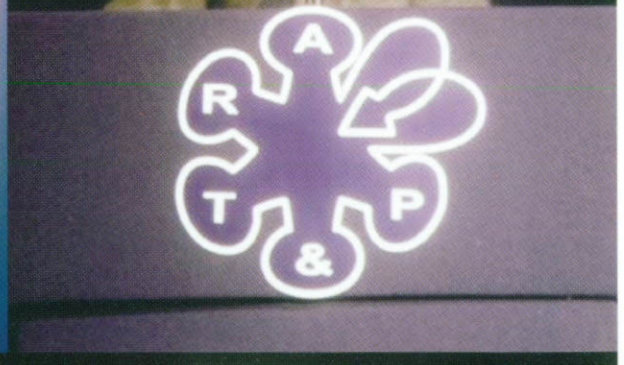
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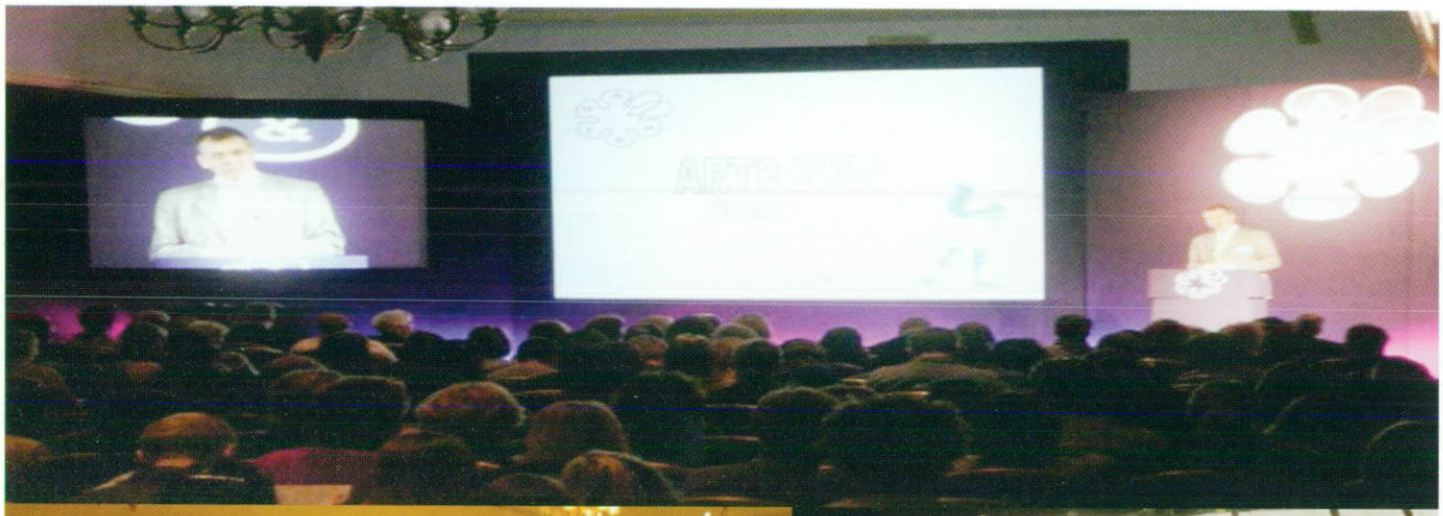
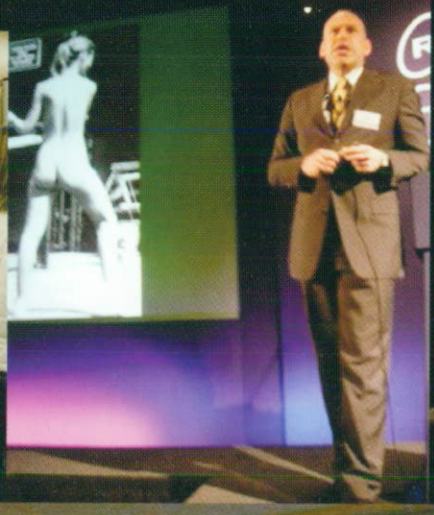




MANUFACTURERS REPORT FROM THE ARTP GLASGOW CONFERENCE

By Nigel Clayton, ARTP Manufacturers Liaison

Snow seems to be an essential element for a successful conference. Just as the conference began last year, this year was no exception, with heavy snow showers falling throughout Wednesday.

Preparation for the exhibition began on Wednesday afternoon with several hundred metres of masking tape being used to mark out the hall. By late afternoon most of the exhibitors had arrived and were rapidly assembling their stands in what can only be described as organised chaos. By adding an extra day to the conference, the manufacturers were able to maintain more of a presence than ever before.

Thursday morning arrived and 30 impressive stands filled the large hall, including several new exhibitors. The delegates were keen to get to grips with the free gifts on offer before the conference began. The sound of mugs clinking together could be heard all around the conference. Competitions were a key feature of this year's exhibition, with great prizes on offer, such as a weekend away and bottles of Scotch whisky to be won.

Unfortunately **Stowood Scientific** were unable to make the exhibition due to the inclement weather. If you were unlucky enough not to make it to the conference this year or were unable to visit the entire exhibition, here is a brief overview of what the manufacturers have to offer us for 2005.

Boehringer were one of two drug companies supporting the conference this year. A paper published in Chest (124/5/Nov 2003) has shown that Spiriva (tiotropium), reduces the Thoracic Gas Volume at rest and improves Inspiratory Capacity. This supports the concept that changes in dyspnoea are related to improved lung mechanics due to a reduction in lung hyperinflation. This explains why many patients often claim to be less breathless following treatment, even though no improvement in spirometry is observed.

Another drug company, **Cephalon** were promoting Provigil (modafinil), a drug designed to promote wakefulness. It is marketed as a treatment for excessive daytime sleepiness found in sleep apnoea and narcolepsy.

Vitalograph appear to have taken on board the ARTP message that after sales support and service are vital when it comes to keeping our patient waiting lists to a minimum. Trustworthy and reliability was the main message being promoted by the company. If service and reliability come first, then so will customers. Vitalograph also offered three prizes in the first competition they have held at the ARTP conference. One lucky winner came away with a Vitalograph 2120 spirometer, with the runners up winning a food hamper and malt whisky.

Tomcat Clinical Systems were exhibiting for the first time this year. They offer systems designed to manage all clinical and administrative records for cardiothoracic departments. A feature of the system is the Respiratory module which allows lung function data collection from most lung function analysers. The system will be compatible with the new Electronic Patient Record which is being introduced shortly throughout the NHS in England.

Pulmolink had a wide range of analysers on display. The Pulsox 5500 is the latest fingertip pulse oximeter. Using reflectance technology, these spot check monitors are not affected by false nails and nail varnish. At only £175, these represent excellent value for money. Also on display for the first time was the Blue Spiro. (For Adult use only I wonder!) This features a pneumotachograph linked to the PC via a wireless Blue Tooth connection. Software looks simple and easy to use and allows the user to configure the design of the final report and all predicted values.

Featuring amongst the full test systems was a new 12 lead ECG system which may be interfaced with the Medisoft exercise system and a rather eye catching paediatric body box painted in bright yellow. Whilst it may be designed for children our chairman managed to squeeze into it after a couple of beers.

S-Med's latest products include a portable version of the somnoscreen sleep system which is ideal for use on the ward or in the patients home. Software upgrades for the system are offered free of charge to all users. The system is also capable of handling data transfer between all types of sleep systems using the European Data Format.

If you are into nutritional analysis, exercise testing and sports medicine, then **Cranlea** had plenty to offer. The range of Cortex exercise testing equipment allows tests to be performed either in

the laboratory or out in the field using portable technology. The Cortex equipment is competitively priced, with many units being sold in the UK during 2004. Cranlea also act as UK agents for Hans Rudolph and Lode ergometers and treadmills.

Incidentally, if ever you need a decent metal sprung autoclavable nose clip, Cranlea also supply these.

New products on display from **Viasys** this year included the Flow Screen desk top spirometer. This features the Jaeger pneumotach and comes complete with built in HP printer. The software has incentive animations, which is of great value when trying to get reproducible results out of children (and some adults). One lucky delegate actually won a Flow Screen II in the Viasys prize draw.

Also on demonstration was the latest Jaeger Jlab5 software. This features connectivity options for interfacing with hospital networks and databases. It also allows sharing of Jaeger and Sensormedics data between systems.

Mentioned in the last edition of Inspire, the Vmax Encore was also on display for the first time.

Clement Clarke were promoting the Medix Actineb. Competitively priced, this is a new nebuliser compressor which is manufactured in the UK and comes complete with a three-year guarantee.

Also being promoted was the new European standard peak flow meter, which come complete with predicted charts. If you wish to find out more about the new EU peak flow scale then have a look on the website www.peakflow.com.

Albert Waeschle act as agents for the MIR range of spirometers. Manufactured in Italy, the Spirobank spirometer now features the world's first low cost disposable turbine, which is ideal for use between patients. If required, all results acquired by the Spirobank may be transmitted by phone to the test center. The Spirotel has an additional feature which allows up to 24 hours of SpO2 and heart rate data to be recorded. This data may also be transmitted via the telephone.

During 2005 we will all need to become familiar with oxygen assessment and the different methods of oxygen administration. This includes concentrators, cylinders and liquid oxygen. **BOC** were exhibiting all these options together with a range of oxygen conservers.

BOC also supply Heliox, a gas mix comprising 21% oxygen 79% helium. Driving a nebuliser with Heliox has shown improved distal aerosol deposition in airways obstruction. This is achieved as helium is less dense than nitrogen, thus allowing smoother gas flow in the airways.

Announced during 2004, **Micro Medical** was demonstrating the latest touch screen Super Spiro II, together with the Spida expert software. Also on display was the Respiratory Pressure monitor capable of measuring maximum inspiratory / expiratory mouth pressures and Sniff Nasal Inspiratory Pressure. Micro Medical also produce an EU standard peak flow meter.

Radiometer had plenty to show off this year. Mentioned in the last edition of Inspire, the ABL800 Flex blood gas analyser featured as the focal point for the stand. Using the Windows XP software platform the analyser can provide blood gases, electrolytes, oximetry and metabolites on just 95 uL of blood.

The new TCM40 monitor was also on display. This provides continuous, non-invasive transcutaneous monitoring of oxygen and carbon dioxide, together with oxygen saturation.

Finally, the ABL77 is one of those portable blood gas / electrolyte analysers which may be taken to the patients bedside or out into the community. With the requirement for oxygen assessment to be provided by secondary care, I'm sure more portable analysers will be sold than ever before.

Tyco Healthcare was displaying two new bi-level ventilators. A humidifier is also available to fit these extremely small, quiet machines. Also on display was the latest improved Breeze headgear.

Tyco are also in the liquid oxygen market. Featuring a built in conserver, the Helios portable oxygen system weighs just 1.5 Kg and can supply 8 hours of ambulatory oxygen at 2 litres per minute.

Intersurgical's latest products on display included the TriNeb reusable nebuliser range. It is available in three different kits: standard, high flow and breath enhanced. The kits are designed for twelve months use and the nebulisers can be cleaned safely in the dishwasher.

Respicheck is a novel oxygen mask which incorporates a small ball indicator. As the patient breathes through the mask it is possible to check the respiratory rate by observing the ball moving up and down. This is available for high flow and standard oxygen concentrations.

In addition to producing bacterial filters, **Air Safety** has now entered the mouthpiece market. Known as the bite grip, the new flanged type mouthpiece is autoclavable and only costs around 40 pence. A new non flanged disposable mouthpiece has also been developed at a cost of just 25 pence.

Beaver Medical continues to market the Medgraphics range of cardiorespiratory products. The latest product that caught my eye was the Spiro Express. This standalone desktop spirometer features a Pentium processor, colour touch screen and virtually unlimited data storage via a 20 GB hard drive. Using the "Breeze " software the user is able to configure reports and transfer data via USB flash cards. Medgraphics also produce the CPF S/D portable spirometer. This is a full function lightweight spirometry system which plugs into the USB port of any computer. This also comes complete with "Breeze" software with options to purchase bronchoprovocation and interpretation software. At just £750 this represents excellent value for money.

Also on display was the Ultima PFX full test system. Using the one piece of equipment it provides full lung function test capabilities together with the addition of being able to perform cardio respiratory exercise testing.

New to the conference this year, **Aerocrine** was displaying the Niox Mino hand held exhaled nitric oxide analyzer. By measuring exhaled NO it is possible to monitor the level of airway inflammation. The latest analyzer uses a pre calibrated nitric oxide sensor and so does away with the need for expensive calibration gas.

Vital Signs/BREAS were exhibiting the latest range of iSleep CPAP machines which include the conventional CPAP 20, the autoadjust CPAP20i and the Bilevel 22. All are available with an optional integrated heated humidifier. Also displayed were the VIVO range of BiLevel ventilators, all available with optional heated humidifiers.

With the domiciliary oxygen service being transferred into the acute setting in 2005, **DeVilbiss** are one of several companies which now supply concentrators, ambulatory oxygen, liquid oxygen and conservers.

DeVilbiss also demonstrated the RPM 9054 AutoAdjust CPAP. A pulse oximeter, with 72 hours of data storage, features as an optional extra to the system and may be used for assessing the clinical effectiveness of the therapy. Results may be downloaded via a PC and the system is also designed to be integrated into the laboratory sleep analysis system.

Recently we received a dummy S8 CPAP machine from **Resmed** filled with chocolates. Unfortunately it was being promoted as the smallest CPAP unit in the UK, so there weren't many chocolates to go round.

The real thing was on display at the conference. Featuring a data capture card capable of storing 180 days of data and an onboard patient management system this certainly appears to be a very versatile system.

Resmed now supply Swift nasal pillows (not the sort you lie on) for those patients who cannot tolerate the usual CPAP / Bilevel face mask interface. Packaged in three sizes allows easy fitting to just about any size hooter.

Air Products continue to offer the complete oxygen service including oxygen concentrators, ambulatory oxygen, liquid oxygen, and oxygen conservers. The latest product is the lightweight portable oxygen cylinder which can supply oxygen for up to seven hours at a flow rate of 2l/min via a conserver.

Now that **Profile** has become part of Respironics, many new products have been added to their well-known CPAP and ventilator ranges. Profile now sells the Threshold Positive Expiratory Pressure (PEP) device. By exhaling against a resistive load, it claims to create a positive pressure which opens up the airways and allows increased mucous clearance. The Threshold Inspiratory Muscle Trainer (IMT) device claims that inhaling against a resistive load increases respiratory muscle strength and endurance.

Profile also offers Vapotherm 2000i high flow nasal cannulae. These are capable of delivering oxygen at up to 40 l/min and 100% humidity via the nose.

In addition to the Nonin finger pulse oximeter, **Intermedical** now supply the Sim range of pulse oximeters. Another new product on display was the Chess i2m oscillometer. This technology is based on the forced oscillometry technique for assessing respiratory mechanics, resistance and elastance, during normal tidal breathing. By using tidal breathing it is possible to use this method in children as young as two years.

Draeger have been in the ventilator field for more than 100 years. Many delegates were attracted to the stand not just to view the new Camena home ventilator, but also to enter the free competition to win a weekend break for two The Camena is the latest in home ventilators and features almost silent operation, pressure/flow curves, volume guarantee, remote service, internal battery and 12 volt DC operation. Draeger also act as agents for the Compumedics range of sleep analysis systems.

It was good to see **Bayer** exhibiting at the conference. The rapid point 400 point of care analyser was on display and is claimed to be completely maintenance free utilising a cartridge based system. This analyser can perform all blood gas measurements together with electrolytes and CO-oximetry. Automatic QC is also incorporated into the analyser. Another product being marketed was the Rapidlyte blood gas sampler. This features a pre-heparinised syringe which comes complete with a specially designed needle sheath. This enables the needle to be enclosed completely once the blood has been collected, avoiding needle stick injuries.

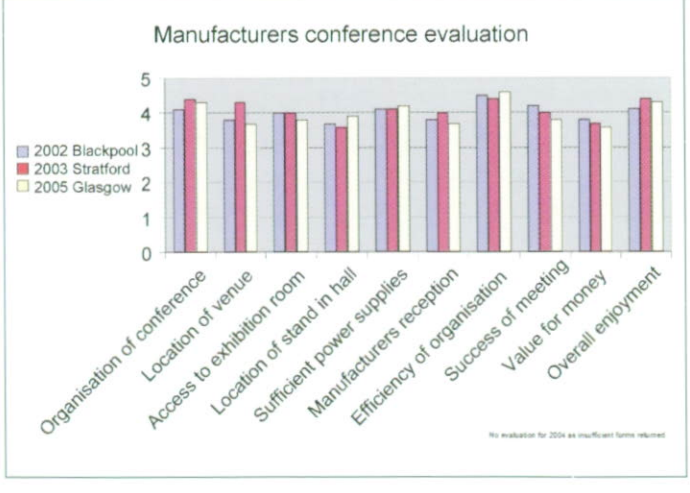
In addition to the familiar range of full testing kit, **Ferraris Respiratory** was demonstrating the KoKo legend spirometer mentioned in the last edition of Inspire. Featuring a touch screen, built in printer and the capability to store more than 7,000 tests, this looks a smart device.

The Piko 1 PEF / FEV1 device was also on display and is now available on prescription. This device fits neatly in the pocket and can record up to 96 tests. Once returned to the investigating center the Piko net software is available for tracking and trending the data.

Hilex have now released the latest Prism 6 software, which has additional functionality and fulfills the national dataset requirements. The system is primarily aimed at cardiology departments, however it has been developed to allow direct interfacing with lung function investigation equipment, enabling the data to be available to the clinician once an investigation has been completed. The system can also be used for ordering tests, appointment scheduling and monitoring patient attendance and waiting lists.

To end the report I wish to thank the following manufacturers for supporting the lunchtime workshops, sessions and general conference sponsorship: **Profile, Viasys Healthcare, Draeger Medical, Respironics** and **Micro Medical.**

And finally, not only do we ask the delegates to complete conference evaluation forms, we also ask the manufacturers to do the same. Shown below is a summary of the manufacturers feedback compared to that obtained from the conferences held in 2003 and 2002. On the whole we seem to be getting good feedback from the exhibitors, with most of them stating that this is one of the most enjoyable meetings of the year.



HEALTHCARE SCIENCE AWARENESS WEEK 2004

Damian Muncaster, Homerton Hospital, London

Healthcare Science Awareness week was held from the 15th of November and provides us with the ideal opportunity to raise the profile and awareness of Healthcare Scientists (HCS) at a national, regional and individual trust level with the aims of the week being to;

1) Acknowledge the important contribution made by all the Healthcare Scientists in the NHS,

2) Educate young adults, the media and other NHS staff about the different roles played by Healthcare Scientists in healthcare today.

3) Promote HCS careers to GCSE (and above) science students and possible returnees.

Healthcare Science Awareness Week gives us the chance to showcase our talents and the important role that we play in contributing to the patients care.

In 2004 a wide range of events occurred all over the country ranging from simple poster board displays to the grand event of the pan London group held at the House of Commons.

The internet was used as a means of broadcasting information, a month long science web forum was launched targeting GCSE and A level students. The site was opened with a live Q and A session at St Olaves School in London where A-level students provided the questions about HCS careers to a panel of experts.

Other highlights of the week included the National Blood Service inviting local students to visit their centres across the country. The launch event of the week was held at St Guys and St Thomas's, opened by Sue Hill and attended by the local press. In Manchester. In what was one of the largest events of the week saw the launch of the greater Manchester healthcare science network. Hosted by the Science Museum, the morning programme was filled with guest speakers, outlining the aims of the network, followed by an afternoon for the students of Manchester, who received presentations and practical demonstrations from various HCS groups.

The pan London group organised a series of events throughout the week which culminated in an event at the House of Commons, hosted by Siobhan McDonagh MP, as various HCS careers including respiratory physiology which was presented by ARTP member Simone DeLacy were showcased to various members of parliament and a select audience. The highlight being an impromptu speech from John Hutton the Minister of State for Health acknowledging the role HCS play now and in the future.

The British Audiology academy held its inaugural conference, attracting over 600 delegates. In Birmingham about 150 students found out about the 30 different professions in HCS at a Healthcare Science Conference at University Hospital. "Getting up close and personal with MRSA" was also held at Birmingham and was open to the public as well as NHS staff.

Addenbrookes Hospital held its Science day at the local specialist science college which had an audience of over 300 students who were able to engage in interactive demonstrations, be entertained by the local radio station and enjoy an address from an eminent scientist....Lady Mary Archer!

Other events on not such a grand scale saw a trailer visits various locations throughout London including shopping centres, schools colleges and the like. Homerton Hospital held an open day and invited a local celebrity to open the event, and in some trusts a poster board display was produced and placed in prominent areas so that other staff groups are able to get a feel for HCS roles.

To support the day NHS careers and the DoH produced a whole range of resources for the day which were available for everyone to utilise and will be available next year.

So the feedback....well one of the difficulties of these types of initiatives is finding a tool that can gauge the level of success. In conversations with the organisers of the events everybody felt it was worthwhile experience and definitely a success more than fulfilling the original aims of raising the profile and awareness of HCS's at trust regional and national levels

The week provided the vehicle for HCS to access a much wider range and larger of students than ever before.

All members of staff found the experience of being involved rewarding, in such that they were being recognised for day to day task's, enjoyable as it meant staff were in a different environment and an entirely motivating experience.

With the press on board it helped immensely with pre and post event publicity.

As I mentioned one aspect which needs to be addressed for next year is looking at ways to objectively measure the success of the week.

So onwards to next year and hopefully you will feel inspired and motivated to host an event later this year.....On the whole in all these events we didn't have a massive representation from respiratory physiologists which must change for next year, as this is the ideal opportunity to show our colleagues the important role that we play.

Healthcare Science Awareness Week has now been confirmed for 14th - 20th November. My advice would be start early - my first planning meeting for my open day was in May. The first step has to be to create a Healthcare Scientist forum for your trust, this requires a fair degree of enthusiasm as peoples first impression is yet another meeting and yet another demand on their time, so incentives need to be devised but please stick with it as the end will more than justify the means. It is important to get HR on board, involve your local WDC and make sure people at board level are aware of your group.

The planning for your HCS Awareness week events can then act as a springboard to discuss further common issues such as creating an HCS register, looking at detailed local workforce planning issues, SEA, work experience schemes, state registration and CPD funding and interactions with your PCT.

This ultimately will leave you better placed at a local level to meet the demands of the NHS plan.

"ON THE BLOWER"

Company Acquisitions

Respironics

For those of you who did not know already, Profile is now wholly owned by Respironics. The company will still continue to trade as Profile within the UK. One would have expected to see product prices become more flexible given that dealerships, which Profile were, normally add a margin of in the region of 30% to direct sales prices (the dealer has to make a profit somehow). There is however little evidence of that happening to date although one has to acknowledge that profit margins in the UK for the type of products being sold are significantly less than in the rest of Europe which typically pays twice as much as us (and quite rightly too !). **AM**

Viasys

Viasys have recently made 2 major acquisitions. On 1st March they bought Oxford Instruments Medical which is predominantly a neuro company. On 15th March, and this is the one you will be interested in, they acquired MicroMedical for $39 Million. See where humble beginnings as a service engineer (yes, Danny used to be our service engineer and a very good one at that) can lead to? Good luck to you! **AM**

Conference Shenanigans

Once again the Manufacturer's Exhibition was a fabulous success at the 2005 Conference. Many thanks to all of our commercial colleagues for putting on a great show. We have some exciting plans for next year's conference so watch this space! The more astute amongst you may have noticed that, on the evening of the Manufacturers Reception at our Glasgow conference, representatives from a certain CPAP company arrived in the hotel and, it is reliably reported, proceeded to meet a number of delegates and take them off for some corporate hospitality. Now, there would normally be nothing wrong with that – except one small inescapable fact. Again, the more astute amongst you will have noticed that one company chose not to exhibit at the Glasgow conference. So, having chosen not to exhibit, they had the temerity to invade our conference when they shouldn't even have set foot in the hotel to collect folks and take them off to allegedly wine and dine them. The company concerned, needs to hang its corporate head in shame! ARTP Conference Committee expect the company (and you know who you are) to contact us about exhibiting at next year's conference and offer some sort of apology! **AM**

Poor Performance

Manufacturers Liaison continues to receive reports of poor company performance. Indeed, there is a company out there in the therapies sector who I have recently fired an absolute broadside at personally, not on behalf of ARTP, and I have told them I will buy no further products from them given the awful performance of the company in dealing with complaints. The full details are known to Nigel and Brendan as part of Manufacturers Liaison. The company's response has been to acknowledge poor performance and to promise better – but they did that over 12 months ago as well and things have not improved. The company knows who it is and, might I dare to suggest, if radical improvement in customer service is not delivered over the coming months, then naming and shaming in this column is a distinct possibility. **AM**

Equipment News

Muscle Testing

I have recently had a demonstration of MicroMedical MicroRMA (respiratory muscle analyser). This is basically an experiment with the Rint technology and produces a software controlled breathing transducer which can allegedly be used to test respiratory endurance and respiratory strength. The manufacturers are trying to sell it as the "treadmill for the lungs", and only time will tell whether they are onto a winner. If ever there was a product looking for a clinical test this is it!. It is a very clever piece of kit that induces the most uncomfortable sensations of breathing in and out against an incremental constant resistance that I have ever experienced. (As you can imagine, I have been the subject of some pretty whacky experiments in physiology over the years!!) The problem with it is that there is no standardised protocol or clinical test that has been assessed and validated to use it on. However, as a research tool, it is very exciting concept. I have thought of one or two areas where it might be useful. I'll keep you posted. **BC**

PFI, "Managed Equipment Services" and Equipment Selection

It has been brought to my attention that several PFI projects recently requiring "kitting out" with lung function equipment have been determined at levels above the technical base of the physiologist. In several projects where the Heads of Department have recommended a preferred supplier at the demonstration or even quotation levels, they have been over-ridden by an imposed choice.

A common denominator in these circumstances may have been that the PFI consortium in each case included a company whose specific brief is to commission all equipment and, in some cases, to provide a managed equipment service. Examples of companies who have been involved in many PFI consortia are GE and Draeger. They are able to provide the very expensive capital equipment like MRI scanners, CT scanners, X-ray and Ultrasound from their own manufacturing base but take on the contractual responsibility for commissioning all other equipment. The companies negotiate with others when they do not manufacture equipment lines themselves and enter into partnerships at discounted prices relating to future installation.

The other scenario that is increasingly common is that of a Healthcare Purchasing Consortium (HPC), of which Trusts are required to be members, being given the responsibility

for the entire equipment procurement for a PFI scheme and they go out and find a deal according to a generic specification for equipment. That specification may not have been produced by the Head of Department. Indeed, HPC's will normally go straight to whichever likely supplier is Purchasing and Supplies Agency (PASA) approved. At least one of the "Big Four" has PASA approval for its capital equipment stock. One has to remember that those working in HPC's have no knowledge of the equipment they are purchasing – they are professional buyers and all they care about is buying goods at the lowest possible price matched against whatever generic specification they have been provided with.

Both the above scenarios override the professional choice of the expert healthcare scientist and will ultimately result in monopolies and less choice for us as customers and independent experts. This sounds like it is very anti-competitive and should be open for public scrutiny. However, it is perfectly legitimate under both PFI and Model Standing Financial Instructions for Trusts. I'm sure the new Freedom of Information Act can supply even more evidence of this process.

As an intermediary company appears to have already secured a "deal" for Respiratory Equipment Supply with a sole provider at levels above the lung function departments, then we are all wasting time, effort and money on demonstrations for PFI hospitals.

Choosing new equipment is difficult because on paper, asked if one instrument is better or worse than another, the argument becomes futile, as no instrument on the market should be giving incorrect results and if it is then the manufacturer must attend to the problem, so in this regard all instruments will measure the same so from a management level the only question is that of price.

The only angle left for purchasers to play is after sales service and technical and training support. This, as we have seen in recent years, has been crucial to the UK respiratory physiology equipment market. So the possibility of choice in the UK may have already been eroded at levels above the scientific level of individual hospitals. Whilst you can see the good status on standardisation the monopoly does exclude choice and ultimately once competition is removed you can be sure the price will not stay low! As a professional body, it appears to me to be a national outrage that NHS and Government "bean counters" are selecting physiological equipment over the judgement of scientific expertise.

ARTP wishes to know via ARTP Watchdog or other direct form of communication (but under no circumstances on ARTP Forum) of any problems any of you have incurred or are currently incurring in relation to Capital Equipment Purchase whether it is in relation to PFI schemes, so called Managed Equipment Services or Healthcare Purchasing Consortia.

The others of you in the "Big 4" who may not have been involved in these dealings, please note. It is in the interests of the industry to kill this dead and the sooner the better.
BC

Contact the ARTP Manufacturers Liaison Committee via watchdog@artp.org.uk

A Comparison between Total Lung Capacity and Effective Alveolar Volume in Patients with Restrictive Lung Disease.

J. A. Stockley, B. G. Cooper and J. Shakespeare.
University Hospital Birmingham Foundation Trust, Birmingham.

Introduction

The British Thoracic Society[1] suggest that spirometric values (of which Vital Capacity is the most appropriate) and gas transfer and should be used to monitor patients with restrictive lung disease, as these give a reasonable measure of the extent of the disease. The measurement of static lung volumes is not suggested, although this is almost always performed in conjunction. It would be expected that, in patients with restrictive lung disease, measurements of Effective Alveolar Volume (Eff_{VA}-), obtained from the single breath gas transfer test, should be comparable to Total Lung Capacity (TLC). If this is the case, static lung volume measurement could potentially be eliminated from routine lung function tests in this patient group. This could theoretically reduce testing time, increase the number of patients seen in a day and subsequently reduce appointment waiting time.

The aims of the study were to compare measurements of TLC (derived from steady state helium dilution) to Eff_{VA} (obtained from single breath gas transfer test) and also Eff_{VA}x1.1 (which assumes Eff_{VA} approximates to 90% of TLC) and then determine whether measurements of static lung volumes are necessary in patients with restrictive lung disease.

Methods

Retrospective measurements of TLC and Eff_{VA} were obtained from 74 patients (51 male, 23 female, median age 57). Patients were selected at random from the University Hospital Birmingham lung function database. They were included in the study only if spirometry showed evidence of a restrictive defect (i.e. FVC/FEV_1 ratio $\geq$ 70% and FVC towards or below the lower limit of the normal range (-1.645 SR) and of static lung volumes and gas transfer were within ARTP/BTS[2] acceptability criteria.

Results

A Shapiro-Wilkes test showed the data to be non-parametric. Therefore, a Wilcoxon Signed-Rank test was performed to compare TLC to Eff_{VA} and Eff_{VA}x1.1. A summary of the results is shown in Table 1:

TLC (L)	EffVA (L)	Eff_{VA} x 1.1 (L)
3.81 (2.90, 4.53)	3.48 (2.62, 4.22)*	3.83 (2.88, 4.64)

*significantly different from TLC ($p<0.0001$)

Table 1: A summary of the comparison between TLC and both Eff_{VA} and Eff_{VA}x1.1, demonstrating how Eff_{VA} only compares well to TLC when multiplied by 1.1. The data are in the form; median (upper quartile, lower quartile).

As expected, TLC was significantly greater than Eff_{VA} ($p < 0.0001$). However, there was no significant difference between TLC and Eff_{VA}x1.1 ($p = 0.170$). The comparison between these measurements is demonstrated graphically in Figure 1:

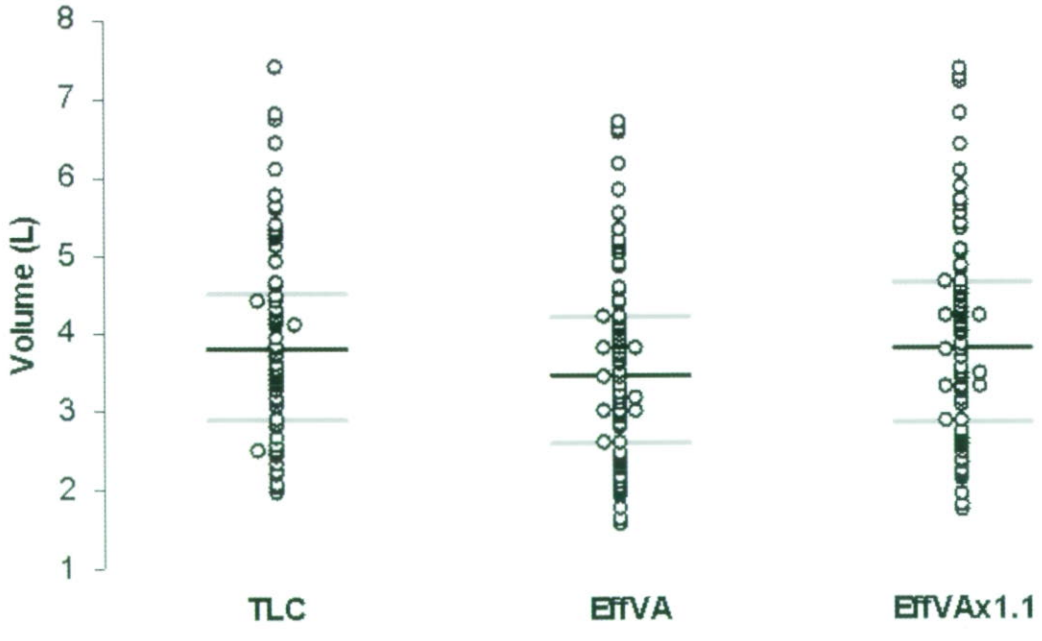


Figure 1: A graph comprising all of the data for TLC, Eff_{VA} and Eff_{VA}x1.1, showing the distribution of data for each parameter, together with the median and the upper and lower quartiles.

In 46 patients (62%), TLC and Eff_{VA} agreed within 10%. These patients had a significantly higher TLC compared to the remaining 28; 4.14L *(IQR 3.33,5.15)* vs. 3.43L *(IQR 2.70,4.27)*; (p = 0.033). This was not related to factors such as disease severity and diagnosis. In contrast, TLC and Eff_{VA}x1.1 were within 10% in 68 patients (92%).

There is a significant negative correlation between the difference between TLC and Eff_{VA}x1.1 and the mean value (r = -0.427; p = 0.0001) such that, at lower lung volumes, the difference is more likely to be positive and, at higher lung volumes, the difference is more likely to be negative. This relationship is demonstrated in Figure 2:

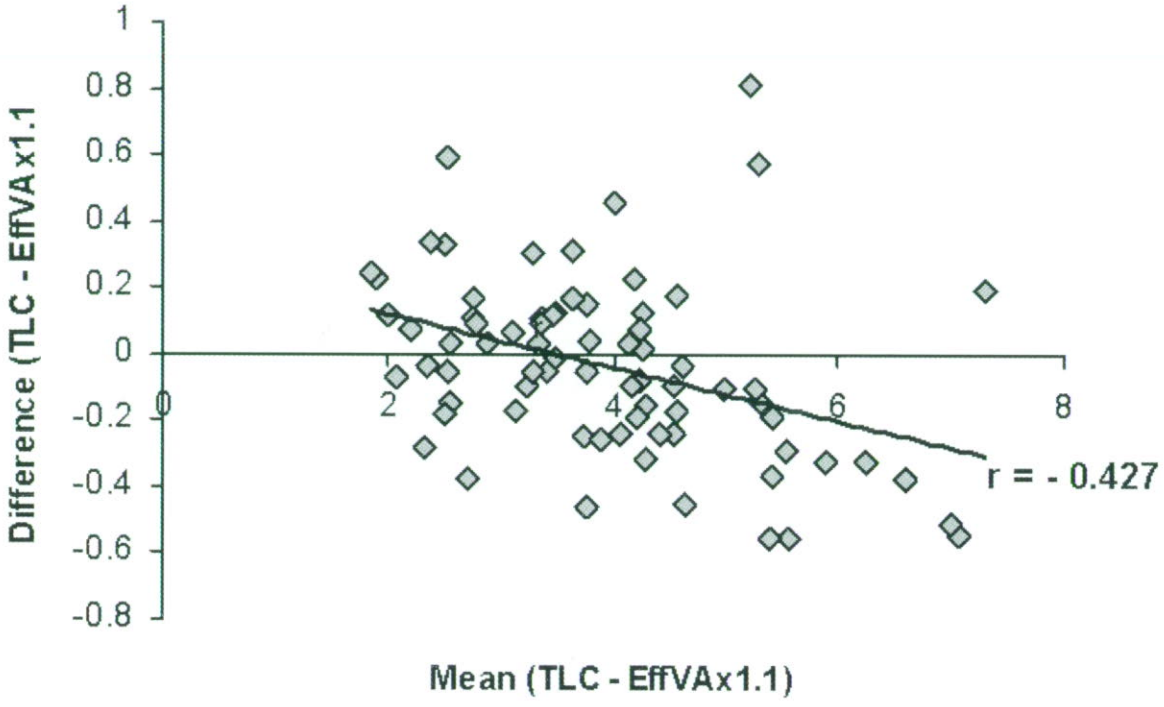


Figure 2: A graph of the difference between TLC and EffVAx1.1 versus the mean value. The trend line illustrates the significant negative correlation between the parameters.

Conclusions

In conclusion, Eff_{VA} can be used as a substitute for TLC in the majority of patients with restrictive lung disease, providing a correction factor of 1.1 is applied. However, in a small number of patients, a marked error (>10%) remains when estimating TLC from Eff_{VA}. Although estimation of TLC by this method is not accurate for every patient, the clinical value of static lung volume measurement, particularly in patients with restrictive lung disease, still remains debatable.

References

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SPIROMETRY AT THE SAGE

Peter Close, Freeman Hospital, Newcastle upon Tyne

This year the summer meeting of the British Thoracic Society was held in the Sage, Gateshead.

Following on from the successes of spirometry testing during other meetings the British Lung Foundation asked Clinical Physiologists in the North East to take part in a similar event at the Sage.

The event was aimed at educating the public about the lifestyle changes they could make to minimise their risk or reduce the severity of COPD including the effective treatments available.

The dates of the BTS were well publicised in local newspapers and on the BBC's local news program *Look North*. Rita Harkawat from the RVI was the star of the show. She will be available for autograph signing at all major conferences near you.

Four booths were available for testing, each manned by a qualified clinical physiologist. The equipment had been kindly provided by Vitalograph and Micro Medical and their representatives were on hand all day for advice regarding their equipment.

The schedule was such that everyone was able to visit the BTS for at least half the day they were there. Due to the out of 'toon' location of the Sage, a slow but steady interest was expected, however this was not the case. Spirometry testing was non-stop from start to finish of the day.

Whilst most patients were from the North East we also tested people from as far South as Kent and Essex, as far West as the States and Canada and as far East as Wallsend. The publicity must have been better than I thought!

It was estimated that over 250 "patients" had been tested over the two days. A number of these were referred to their GP's for further investigation.

Demand was far greater than had been anticipated and the event was deemed a great success by all involved. Many thanks to all the volunteers without whom it would not have been possible.

Volunteers:-

Clinical Physiologists

Jessica Wilson	Freeman Hospital, Newcastle upon Tyne
Peter Close	Freeman Hospital, Newcastle upon Tyne
Maxine Vickers	North Tees Hospital, Stockton
Rita Harkawat	Royal Victoria Infirmary, Newcastle upon Tyne
Vicky Zgardzinski	Royal Victoria Infirmary, Newcastle upon Tyne
Anne Marie Marks	Royal Victoria Infirmary, Newcastle upon Tyne
Alison O'Brien	South Tyneside BGH, South Shields
Paul Stringer	Sunderland Royal Hospital
Barbara Wright	Sunderland Royal Hospital
Sandra Willis	University Hospital of North Durham
Susan Stewart	Wansbeck General Hospital, Ashington

General Support

Bev Wears	British Lung Foundation
Margaret Tait	British Lung Foundation
Karen Heslop	Royal Victoria Infirmary, Newcastle upon Tyne
Katy Elmer	Specialist Registrar, Freeman Hospital
David Gibson	Medical Student

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