Inspire

The Official Journal of The Association of Respiratory Technicians and Physiologists

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FIRST WORD

If you missed the Winter ARTP Conference then the next opportunity to hear 'what's hot and what's not' in measurement techniques, clinical methods and equipment developments will be the Summer Meeting in Southampton, 1st - 2nd July. Again the ARTP will be combining with the BTS, not only to bring you the BTS/ARTP Joint Symposium (topic: Bronchial Challenge Techniques), but also to devise and host a number of parallel sessions of interest primarily to ARTP members. The Winter Meeting was a great success - there were some excellent talks and much audience interaction with plenty of opportunities to discuss techniques, clarify areas of uncertainty and learn from colleagues. There was also the opportunity to re-charge the batteries with a great conference dinner and dance band (many were still dancing at 3.00 am!). More details of the Summer Meeting may be obtained from the BTS (Tel: 0171 831 8778).

The Winter Meeting included a session on professional issues. There are several ongoing initiatives which Sue Hill is carrying forward (see last issue of INSPIRE). Concerning state registration, Sue has had preliminary talks with the Chairman of the Council for Scientists in Healthcare and, following these talks, the Clinical Physiology Group is considering the creation of a Registration Council for all clinical physiologists i.e. an umbrella for physiological measurement as a whole. This is the first step towards state registration. The whole process will be long and complex, it is unlikely that things will happen overnight. However, the Government has set great stall on the process of clinical governance with much of its policy of quality healthcare delivery relying on this process. As a Profession we shall be required to show accountability and good governance of our clinical practices. These issues will not go away and it is up to us all within respiratory physiology to exploit the situation to our advantage. We need to build a strong profession which has continuing education at the forefront and a career and remuneration structure which reflects the need for continuing professional development, the knowledge and responsibilities of the work practices. See Health Services Journal 15th April for an update on PAMs and state registration

The deadline for articles, letters and any other contributions for the next issue of INSPIRE is 20th July 1999. Please write to me:

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DATES FOR YOUR DIARY

8th - 10th June 1999
Asthma: the agenda for the next millennium
London

14th - 16th June 1999
COPD: new developments and therapeutic opportunities
London

1st - 2nd July 1999
ARTP/BTS Summer Meeting
Southampton

13th - 15th September 1999
Conquering airway inflammation in the 21st century
London

13th - 17th September 1999
Advanced Course for Respiratory Physiology
Coventry University

6th October 1999
Allergy in laboratory workers
London

9th -13th October 1999
European Respiratory Society Annual Congress
Madrid

18th - 19th November 1999
Occupational and environmental lung diseases; recent advances
London

See page 5 for more details

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QUICK ROAD TEST:
Continuous Positive Airway Pressure Machines:

B.G. COOPER

Breas 101 (Deva Medical), Respironics Remstar Plus LX (Medic Aid), Healthdyne (S.L.E. Ltd), Sullivan V (ResMed UK), Horizon LT (Sunrise DeVilbiss), REM+eco (Mallinkrodt)

KEY: Best [1] . . . Worst [6]

MODEL Supplier	Breas 100 Deva Medical	Tranquility Quest S.L.E.	Remstar Plus LX Medic Aid	Sullivan V Resmed	Horizon LT DeVilbiss	REM+eco Mallinkrodt
List price (excl VAT)	3 (£275)	6 (£330)	1 (£260)	4 (£280)	5 (£325)	1 (£260)
Size (W x L x D)(cm)	3 (18x10x28)	4 (11x20x26)	1 (14x12x25)	5 (11x24x28)	2 (10x20x26)	6 (15x22x30)
Weight (kg)	5 (2.4)	3 (2.1)	4 (2.3)	2 (2)	1 (1.5)	6 (3.4)
Sound level	5	3	3	1	1	5
Ease of set up	5	6	6	1	2	5
Controls	4	3	5	1	2	5
Total	25	25	20	14	13	28
Delay timer (mins)	Yes	0-30	0-45	5,10,20	0 or 20	20
Pres range: (cm H20)	4-16	3-20	4-20	4-20	3-20	4-19
Pressure indicator	No	No	No	No	No	No
Hour meter		-	-	Yes	-	Yes
Compliance meter	Yes	Yes	Yes	No	Yes	No
Power (115-240 V)	Yes	Yes	Yes	Yes	Yes	No
Consumption (VA/W)	40VA	??	??	120VA	40W	70VA
Battery option/adaptor	Yes	Yes	Yes	Yes	No	No
Reliability	Unknown	OK	OK	Good	Good	OK
Running costs	Filters	Filters	Filters	Filters	Filters	Filters
Mask	Yes	No	No	No	Yes	No
Tubing	Yes	Yes	Yes	Yes	Yes	No
Valve	Yes	No	No	No	No	No
Headset	Yes	No	No	No	Yes	No
Cable	Yes	Yes	Yes	Yes	Yes	Yes
Carry bag	Yes	Yes	Yes	No	Yes	Yes
Warranty	1 year	2 years	2 years	2 years	2 years	1 year
PHONE NUMBERS	(01928) 565836	(0181) 681 1414	(0124) 384 0888	(0800) 318527	(01384) 446718	(01869) 32270

This time, my personal review is of similar "entry level" CPAP machines and covers the 6 more commonly used devices. Remember, this is not as good a thorough scientific comparison, but it briefly summarises the details of each machine and will hopefully help you to make your own decisions about what you buy.

OVERALL VERDICTS:

The factors important to patients (noise, size, weight, ease of use and price) have been arbitrarily scored and I have to say the result does fit my "gut feeling" about the different machines available. Prices quoted are always negotiable depending on the number of machines bought, whether consumables are included or other incentives.

Breas 100

This machine is cheap, quiet and comes with all the fittings necessary to be up and running immediately. Other Breas machines are certainly reliable, but I don't think this CPAP has been out long enough to know its long term reliability. It certainly looks like a bargain given all the features available. As they say in "Which?" magazine - well worth considering! Note, it only has a 1 year warranty.

Tranquility Quest

This is a nicely engineered machine with a lot of nice features - although I don't really understand the Q-effectTM blower, and I'm not convinced a patient would tell the difference either. It is probably over-priced as an entry level machine. It is manufactured by Respironics and is not yet sold through MedicAid.

RemstarPlus LX

Although a fairly compact machine now, this Remstar is still a bit fiddly to set-up compared to some of the competition. It does have a lot of well-thought through features and is cheaper now than Respironics have been for a long time. It has an Altitude compensation feature which maybe useful if you use a lot of pillows!

Sullivan V

This quiet, light and easy to use machine is very good value. Patients like its compactness (for suitcases) and the optional Mirage masks can be an advantage for patients with nasal bridge sores. The lack of a carry bag as standard is a failing although the supplied bag is to a very high standard. The Sullivan has an excellent power management feature which is ideal for world travellers.

The hour meter doubles as a pressure set-up meter.

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Horizon LT
This machine runs a close first to the Sullivan V. It is probably the quietest of the machines here - although I haven't conducted an official trial. Reliability of DeVilbiss CPAPs is generally good. It is the lightest of all the CPAPs here, but is let down by being a little bit expensive - so remember to negotiate.

REM+eco
This machine is perhaps the worst of the bunch, but it is cheap. It doesn't have a compliance meter or battery option and the headgear and mask will cost you extra. It is essentially a SEFAM machine underneath, who were one of the first companies to produce a home CPAP machine, thus it is fair to say their equipment is reliable and well made, so the one year warranty may not be a problem.

FINAL COMMENT:
The UK CPAP market is unusual, because on mainland Europe you can rarely buy a machine for under £700 - so the prices charged here mean profit margins are tight and basic entry models rarely have many frills. Eventually, I suspect CPAP machines will probably cost somewhere around 66% of the price now - but the market will be huge - like some of the patients! Nevertheless, our patients get a low-cost, high volume treatment - and so this should continue. I personally favour the Sullivan V or Horizon LT, because they are value for money and have a quality feel about them. For departments starting out strapped for cash - the Remstar or REM+eco are cost-effective options. The real bargain basement is the Breas 100 - but I wouldn't buy in huge numbers until its reliability is proven. Finally, the Tranquility Quest is perhaps marketed slightly higher than "entry level", and is subsequently quite an expensive package to buy. In honesty, these differences are slight and could be well swamped by personal preference. When in doubt - haggle!

Clinical Science Success for Students

CLINICAL SCIENCE HI-FLIERS

Nescot Tutor Dr Christine Biggs (centre) and Course Leader Tony Teal (extreme left) with students (from left to right) Satpaul Purwaha, Helen Kerslake, Davinder Bual, Sharon Osterfield, Emma Robinson, Paula Slater, Margaret Ashford, Karen Banham and Simon Brader.

Hospital physiologists celebrated in style at the Fairfield Halls, Croydon last February when they attended North East Surrey College of Technology's (Nescot) annual graduation ceremony and were awarded BSc Honours degrees in Clinical Science. Their hard work and dedication was fully reflected in the high calibre of results that were obtained. Leah Burden from Harefield Hospital together with Helen Kerslake from Musgrove Park Hospital graduated with first class honours degrees while all their colleagues graduated with second class honours degrees ensuring a one hundred percent pass rate.

This continues the excellent success rate of last year's students, who were the first to graduate in either Cardiology or Audiology from the new Clinical Science degree programme at Nescot. Respiratory Physiology is now becoming an important feature of this programme and in the current academic session, more students have progressed into the final years of the course with specialist disciplines now including Respiratory Physiology as well as Perfusion and Nuclear Medicine.

Most of the graduates to-date joined the programme with an HNC in Medical Physics and Physiological Measurement and then "topped" this up to an honours degree by two years part-time study. Students are welcomed onto the course at various stages with a range of entry qualifications including National Certificates, A-levels and professional qualifications. The associated assessment and recognition of students with advanced standing is an important development in this area.

For further information and details of the course or an informal chat about the aprogramme, contact the BSc Clinical Science Course Leader at Nescot, Reigate Road, Ewell, Epsom, Surrey KT17 3DS (0181 394 3285).

"ON THE BLOWER" – Manufacturers News

1. Looking after the Business

At the time of writing the Budget has just been announced. Fortunately, in their wisdom the Government has decided not to raise the duty on alcohol, but has opted to raise tax both on cigarettes and large engined road vehicles. As respiratory measurement specialists we should be up in arms! The Government is about to choke our very supply of pundits - the smokers (lung cancer and COPD sufferers) and pollution affected wheezers (asthmatics)!! Any other profession would write letters to *The Times* and *Daily Mail* complaining bitterly of the threat to their livelihoods!! If all the smokers give up in a rash of nicotine patches and all the pollution affected asthmatic children breath easily on their walk to school - what will we have left to measure? The coalminers I hear you reply - but apart from a few hundred thousand retired men now, the future is as bleak for finding more coalminers pneumoconiosis as it is for a canary on its first day at *The Carbon Monoxide Detective Company!!* To make it worse, the day after the Budget was National No Smoking Day which most of us supported in a flurry of handouts, displays and publicity. Are we mad? Do we see Longbridge carworkers promoting public transport and the closure of motorways?? We are one of the few professional groups who promote the active reduction of the amount of work we have to do. Fortunately for us, the ever-powerful tobacco industry pumps several times the amount of money that goes into fighting smoking related diseases into promoting the use of the *wicked weed.* (Maybe we ought to get them to sponsor our Winter meetings?). However, enough of this cynicism, the Department of Health is also about to launch an initiative to encourage smoking cessation. The key aim is to send out a consistent message, based on sound evidence, that smoking can be stopped by use of nicotine substitutes, alternative treatments and a consistent health-carers approach to promoting the benefits of cessation. It is up to the respiratory function technologists, technicians, scientists and others to re-dress the balance of a powerful pro-smoking lobby and encourage those people who want to *Take the Plunge,* to give up smoking for good. It's just as well drink doesn't do you any harm!

2. Trade Stand

Pharmaceuticals

Drug companies where were you?

At the winter meeting in Doncaster, only one representative of the pharmaceutical industry was present - fortunately it was Ian Tilston from **Medeva Pharma.** He is of course delighted because he gets a free hand at educating ARTP members in the benefits of their (CFC-free!) Clickhaler devices. Whilst ARTP members do not yet prescribe inhalers, they can certainly influence their use in hospitals by patient education and demonstrating objective benefits of the treatment.

We received over 10 enquiries from the membership via the meeting appraisal forms as to why Astra, Boehringer and Allen & Hanburys were not present. I suspect this is part of the "hard times" that the drug companies are going through at the moment, as a pre-requisite to the proposed squeeze on prices by the NHS . It is ironic that we work so closely with them on guidelines and advice regarding lung function measurement, and the ARTP/BTS Certificate in Spirometry and yet they deem it low-priority to attend and support ARTP meetings.

Lung function equipment

I contacted **Morgan Medical** recently to speak to Kevin Hogben only to be told by several people that he was recovering from a hernia operation. I presume this means he will be registering himself as an **NHS truss** in the near future! We wish him a speedy recovery - no doubt the time at home will be spent finishing off MDAS Version 4.0 which was first mentioned in this column in summer 1998, but has still not materialised! Kevin Budd reported a flourishing end of financial year rush in sales, and that the Transflow is selling well in the USA. I believe the ex-Collins GS system is now fully CE compatable as is the MedGraphics body box system. New products are being developed for the next generation of PFTs in 2000. I am still hearing reports of poor communication and back-up by Morgan from departments around the country, so I am planning to meet with the company in the near future.

I had a productive meeting with representatives of EME/SensorMedics earlier this month, where I was able to put forward the points of view and complaints I have received from the membership. For clarification, it was explained to me that EME are agents for SensorMedics in the UK and vice versa in the USA. Like many of the lung function companies in the UK, EME/SensorMedics have just gone through a difficult time, but are committed to making an improvement (see Watchdog below).

A point which is relevant to all buyers of lung function equipment is that the UK market is worth about £1-2 million in sales each year, whereas somewhere like Germany or Italy has a market of the order of £8-10 million each. With this larger market goes better profit margins, more expenditure on training, customer support and sponsorship, etc. Presumably, when we do have a Single European market, the UK will only benefit from the even expenditure and increased competition across Europe, although I suspect prices will inevitably increase. Incidentally, we can already buy equipment in Euros if we wish. Worth 64p, the Euro is about equivalent to a quarter of jelly beans - which will undoubtably become Euro-beans, that's if they are not genetically modified and to add up to the "hill o' beans" Humphrey Bogart was going on about in *"Casablanca"* (Those of you who have not seen this film need to take an hour or so off to watch one of the great man-woman interactions of all time - or maybe its not - as Barry Norman would say!)

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Sleep study and associated equipment
See the Quick road test on CPAP machines. I am unaware of any new and major developments in the sleep measurement area at the moment.

Erratum
The Sullivan VPAP II Bi-level machine which was included in the comparison in the last issue is not actually over 3 metres long! However it has occurred to me that a bed of similar proportions which doubled up as a CPAP machine could be the long-term answer for the more chronic OSA patients.

3. Complaints Database and WatchDog.

I have received a concern from Dr MacIntyre at Victoria Infirmary, Glasgow about poor engineer support from **EME/SensorMedics.** As mentioned earlier in this article, EME are aware of problems they have been having and are trying to improve the situation. This column will keep people informed of any change in the situation, but any comments will be gladly received.

Jaeger UK have eventually discovered the source of a problem with their Masterscreen measuring single breath gas transfer. The error only comes to light when the system is compared against either their own MasterLab or other equipment. The ARTP have discussed with Morgan Medical, EME and Jaeger that comparative data between lung function systems should be held independently by ARTP and available via the internet to all purchasers. The collection of this data should be supported by the manufacturers. Whilst the differences can be shrugged of as "minor or inconsequential", to the physician, seeing an apparent sequential drop in volumes of 500ml - this is clinically important and enough to falsely start steroid therapy in a patient.

ARTP Manufacturer's Liaison will continue to represent the membership collectively, and where appropriate arbitrate in disputes between companies and departments.

When writing to the Complaints Database and WatchDog, please state ***(i) exact dates, (ii) names of people you dealt with and (iii) state clearly your grievance.*** *Also, give a* ***summary account*** *of the history of your complaint (a maximum of one page of A4). There is no need to send photocopies of correspondance at this stage.*

Dr Brendan Cooper
(ARTP Manufacturer's Liaison Officer)
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CALENDAR OF FORTHCOMING EVENTS

8 - 10th June 1999
Asthma: the agenda for the next millennium
London
The National Asthma Campaign
Tel: 0171 226 2260

14th -16th June 1999
COPD: new developments and therapeutic opportunities.
National Heart and Lung Institute, London.
Course organiser: P Barnes
Tel: 0171 351 8172

1st - 2nd July 1999
ARTP Summer Meeting in tandem with the BTS
Southampton University
BTS/ARTP Symposium: Assessing Bronchial Hyperactivity
Full programme details, application form and prices from the BTS Tel: 0171 831 8778
(early registration concessionary rate £20 per day.
Quote your ARTP membership number).

13th - 15th September 1999
Conquering airway inflammation in the 21st century
National Heart and Lung Institute, London
Course organiser D Rogers
Tel: 0171 351 8172

13th - 17th September 1999
Advanced Respiratory Physiology
Coventry University
Topics:- Bronchial challenge and skin testing, Gas transfer and measurement of lung volumes, respiratory muscle measurement and flow-volume loops, invasive and non-invasive blood gas measurement. Respiratory and cell physiology.
Course FEE - **£150** for week (or **£30 /day**)
10% reduction for ARTP members
Quote ARTP membership number on application form.
Contact Anna Kovalchuk (Biology Office) for application form on 01203 631313

6th October 1999
Allergy in Laboratory Workers
National Heart and Lung Institute
Course organiser S Gordon
Tel: 0171351 8172

9th-13th October 1999
European Respiratory Society
Madrid, Spain
Information ERS HQ, Lausanne
Tel: 00 41 21 617 2865

1st - 2nd November 1999
Respiratory Medicine 1999
The Royal Marsden Conference Centre
London
For course programme and application form contact Sarah Powell on 0181 678 5322

18th - 19th November
Occupational and environmental lung diseases
National Heart and Lung Institute
Course organiser AJ Newman Taylor
Tel 0171 351 8172

PRACTICAL NOTES: A POINT WORTH NOTING !

Rita Harkawat and Lesley Murray

Pulmonary Function Laboratory, Royal Victoria Infirmary, Newcastle upon Tyne

We recently came across a problem regarding manual calculation of gas transfer. In my new role as the technician in charge of the lung function laboratory I was keen to maintain the good laboratory practice and high quality standards of my predecessor. In a fit of enthusiasm I decided to add a few extra quality checks into our QC programme. I was taught as a student not to trust or depend entirely on computers and that as good laboratory practice we should compare, from time to time, the computer generated lung function results with the manual calculation using the raw data.

We calculated a gas transfer result using the raw gas analysis data from the summary sheet printed by the Morgan Midas software (Morgan Medical, Kent, UK). We found that although both computer and manual calculations of the VA were identical there was a discrepancy with the TLCO(sb). We investigated further and found the discrepancy was inconsistent - sometimes the manual and computer results matched and sometimes they did not.

It was not until we carried out a manual calculation using the measurements taken directly from the analyser that recognised the problem. The gas analysis is measured to three decimal places whereas the summary data sheet rounds the values to two decimal places. Although we had recognised this right from the outset we had not imagined that this could produce such large discrepancies (table 1). However, since 3 dp has a large effect as a logarithmic number this is likely to account for the differences. Sources of variability have been covered by Cotes (1) and are described in the ARTP/BTS guidelines (2). This problem could be one of the factors that may lead to the 40% error in TLCO values quoted in the guidelines.

Table 1

TLCOsb	Computer (3dp)	Manual (2dp)	% difference
Test 1	8.98	10.65	19
Test 2	9.45	10.81	14
Test 3	9.42	10.19	8

In conclusion the summary data sheets were misleading since the results had not been calculated from the raw data printed alongside each result as might be suggested. Additionally, the rounding up or down of the gas measurements was mathematically incorrect e.g. an expired CO of 0.079% was quoted as 0.07%. To ensure we have the capacity to perform thorough QC programmes, and also the capability to examine past results for whatever reason (e.g. research, undetected computer malfunction, legal reasons or clinical governance !) we, and the manufacturers, should be confident that patient results can stand close scrutiny.

1. Cotes JE. Lung Function: Assessment and Application in Medicine. Fifth edition. Blackwell Scientific Publications 1993.

2. Guidelines for the measurement of repiratory function. Respiratory Medicine 1994; 88:165-194.

Health and Safety

ALL CHANGE FOR COSHH !!

The 1999 COSHH regulations were laid before Parliament in March. The 1999 Regulations replace those of 1994 and sees the removal of the Schedule listing the substances assigned Maximum Exposure Limits (MELs). A HSE representative has said the removal of MELs from the Regulations is one of the most important structural changes made to the COSHH Regulations since they came into force. In the past, much of the impetus for amending COSHH has come from the need to make changes to the list of substances assigned MELs. The list has doubled since 1989 - from 30 to 60 - and continues to increase.

The list of MELs will continue to appear in HSE's publication 'Occupational Exposure Limits' which is revised annually. MELs will still be legally binding, but the new Regulations will avoid the need to amend COSHH every time a change needs to be made to the list of MELs.

Congratulations

to the successful candidates of the 1998 ARTP/BTS National Assessment in Respiratory Physiology

Jayne Hall, Rotherham District General Hospital, (distinction and Sally Gough Award).

Lee Hinchliffe, Doncaster Royal Infirmary (merit).

Lindsey Hancox, Queen Elizabeth, Birmingham (merit).

Sally Dubois, Stoke-on-Trent.

Justin Adams, Chesterfield and North Derbys Royal Hospital (merit).

Martyn Bucknall, Bromley Hospital, Kent.

Susan Howard, Royal Shrewsbury Hospital (merit).

Rachel Clarke, Good Hope Hospital, Sutton Coldfield, (merit).

Judy Russell, Conquest Hospital, St Leonards on Sea.

Emma Wenlock, Manor Hospital, Walsall, (merit).

Samantha Whitticase, Royal Bournemouth Hospital.

MINUTES OF THE ANNUAL GENERAL MEETING OF THE ASSOCIATION FOR RESPIRATORY TECHNOLOGY AND PHYSIOLOGY HELD AT DONCASTER RACE COURSE, DONCASTER ON 24th JANUARY 1999.

EXECUTIVE MEMBERS PRESENT

Dr Brendan Cooper (BC), Chairperson, Manufacturer's Liaison Officer
Miss Julie Lloyd, (JL)Treasurer
Dr Sue Hill (SH) Past Chairperson, ARTP/BTS Liaison Officer
Dr Sue Revill (SR) Inspire Editor
Mr Steve Scholey (SS) Membership Secretary
Miss Claire Thomas (CT) Examination Officer
Mrs Pat Mitchell (PM) ARTP Meetings Officer
Mr Nigel Clayton (NC) Executive Member
Ms Jane Benson (JB) Acting Secretary, Bursary Secretary, Public Relations Officer
Mrs Evelyn Smith (ES) Educational Chairperson

Approximately 92 members were present at the meeting in addition to the Executive Committee.

APOLOGIES FOR ABSENCE

Gill Butcher, Member of ARTP Executive Committee. No other apologies were received.

REVIEW OF 1998-1999

Brendan Cooper welcomed members present and opened the AGM with a review of the 1998 objectives, which were set at the last AGM during the 25th Anniversary Meeting, in Birmingham.

These objectives included:

- To maintain the status of the ARTP Winter meeting as a major clinical meeting with a major Manufacturer's exhibition. (ACHIEVED)
- To review, reform, develop and put in place the Constitution of the ARTP before the next AGM in 1999. (ACHIEVED)
- To establish closer links with other UK Organisations with regards to the development of applied clinical science in NHS and academic centres. (ACHIEVED)
- To establish a solid financial basis before the next AGM. (ACHIEVED)
- To ensure that the proceedings of the 25th Anniversary Transcripts are published before 30th April 1998.
- To ensure a new ARTP Executive Committee structure fit for the future. (ACHIEVED)
- To establish the ground work necessary for Continuing Professional Development (CPD) recognition for all lung function staff before the end of 1998. (ACHIEVED)
- To publish 4 copies of Inspire per year with increased advertising to cover costs. (PARTIALLY ACHIEVED)
- To prepare an equipment survey of Lung Function Laboratories in conjunction with the BTS before 31st December 1998.
- To run another NEC type Workshop with the Manufacturers.
- To establish a Web-site for ARTP on the Internet and to investigate the possibility of video-conferencing within the Executive Committee.
- To establish an initiative to have stronger links with Lung Function Measurement Bodies in Europe.
- To increase Membership to above 400 during 1998/99. (ACHIEVED)
- To establish the ground work necessary for state registration of lung function laboratories and lung function staff before 31st September 1998. (PARTIALLY ACHIEVED)

BC stated that the majority of these objectives had been realised, two partially achieved and the remaining objectives transferred to 1999.

BC then gave a detailed account of several of the 1998 objectives :

BC reported that the Speakers' Transcripts from the 25th Anniversary ARTP meeting were near to completion and once finalised would be forwarded to the membership (Free Of Charge). These transcripts were not only to celebrate and mark this special meeting, but could be used as a source of educational reference to the membership.

The Practical Handbook designed to accompany the ARTP/BTS National Assessment is at the printers and will hopefully be released to be forwarded to the membership in approximately two weeks.

After the success of the format of the 25th Anniversary meeting, it was decided at the last AGM that subsequent meetings should continue in this same vein, but hopefully would be more profitable. BC stated that this meeting as anticipated was to the same standard but more profitable, with some important financial lessons learnt from the last meeting. Suggestions for future venues and programme content for the next AGM were requested by post /fax directly to BC from the membership.

As promised at the last AGM the Constitution of the ARTP had been revised. This should have been received by the membership in time for a formal vote of approval during this AGM. However, several members stated that they had only just received these proposed constitutional changes and therefore members were asked to forward any comments to Miss Julie Lloyd, Good Hope Hospital, before the 28th February 1999. A postal vote would follow in due course. **(VOTE DEFERRED TO POSTAL VOTE)**

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BC stated that after much consultation and discussion it had been agreed by the Executive Committee to keep the Association's title i.e. ARTP, but change it to the **"Association for Respiratory Technology and Physiology".** This would need ratification by the membership, but an opinion vote was taken at the meeting and the majority of members present agreed to this change. No votes were received against. **(OPINION VOTE AGREED BY MAJORITY OF MEMBERS PRESENT)**

BC also discussed recent developments and prospective changes in the NHS including State Registration, Occupational Standards and Mapping of the Technical and Scientific workforce.

An opinion vote was taken with the membership present, regarding whether members wished to consider State Registration. A majority vote expressing approval of State Registration was demonstrated, with no votes against. A postal vote to all members would occur in due course as this issue developed. **(OPINION VOTE AGREED BY MAJORITY OF MEMBERS PRESENT)**

State Registration would require the need and development of BSc and MSc courses and BC discussed prospective developments regarding these courses at Birmingham, which would add to those already at Nescot (ARTP approved) and Westminster (pending ARTP approval).

Following this review, BC then informed the membership that following postal notification and subsequent response the Posts for Treasurer and Secretary would now be addressed during this meeting:-

ELECTION OF OFFICE BEARERS

BC informed the membership that one nomination for election had been received for the Treasurer's Post, Julie Lloyd and one nomination for Secretary's Post, Jane Benson. BC duly asked the membership to vote on these nominations:

A majority vote was obtained for both the Treasurer and Secretary's Posts. No votes were received against these proposals. Julie Lloyd was thus formally re-elected into the Treasurer's Post and Jane Benson was elected into the Secretary's Post. **(MAJORITY VOTE APPROVED ELECTION OF POSTS FOR TREASURER AND SECRETARY'S POST)**

Following the elections to office BC then asked for members of the Executive Committee to present their respective reports to the membership:

REPORTS

a. ARTP/BTS Liaison given by Dr Sue Hill, ARTP/BTS Liaison Officer

SH reported that the ARTP had strengthened its links with the BTS over the previous year and several major issues had been developed which include:

Integration of the ARTP into the Summer BTS meetings (Joint Seminars)
Reduced rates for BTS meetings and reduced Membership fees for ARTP members
Revision of existing ARTP/BTS Guidelines
Development of further joint Guidelines
Establishment of ARTP/BTS National Certificate in Spirometry
Manpower Survey of Technical and Scientific Workforce
Training and Assessment Survey for Technical and Clinical Scientists
Occupational Standards Survey
Bursaries for ARTP members
Joint ARTP/BTS Short Courses

SH explained to the membership that over the next few months, several questionnaires would be forwarded to the membership. This data is critical for the liaison group work and therefore SH urged the membership to return them accordingly.

b. Membership Report given by Mr Steve Scholey, Membership Secretary

SS presented a review of the membership figures showing a substantial increase in numbers over the last ten years to the present figure of 376 members. SS, on behalf of the Committee, expressed the importance of increasing the membership and urged members present to encourage recruitment amongst their workforce.

SS also reported that because of several problems with payments for membership fees, in future payments would be via either cheque or official order and that standing order payment would no longer be available.
SS took this opportunity to thank his staff at Pontefract, for their assistance in maintaining the data base of the membership and receiving and forwarding post.

c. Financial Report given by Miss Julie Lloyd, Treasurer

JL presented the financial statement to those members present and confirmed that a copy of this should have been received by all the membership.

JL explained that the 25th Anniversary Meeting had utilised a large amount of the Society's reserves, but this decision had been taken by the Executive Committee to deliberately raise the profile of the Association and had been successful. At present the financial situation had improved substantially with a dramatic increase in membership fees; increase in monies obtained from ARTP courses and via job adverts.

JL also explained that sponsorship from manufacturers had increased substantially and with this added source of revenue an anticipated income over expenditure of approximately £7000 was expected.

Executive Committee costs had decreased over the year, despite an increase in the number of meetings. Travel costs and expenses were discussed and a vote was taken from the membership regarding the mileage allowance claim. It was put to the membership that the mileage allowance should, following consultation with the Automobile Association, be increased from 20p/per mile in line with the lowest AA recommendation of 36.p/per mile. A vote was taken an a majority vote was received to action this proposal. No votes were received against this proposal. **(MAJORITY VOTE AGREED BY MEMBERS PRESENT)**

JL also informed the membership that a "Trading account" for meetings and publications had been opened, which will allow Value Added Tax to be sorted more easily. This account will also enable bank charges acquired from continual account transactions to be avoided.

(Continued on Page 9)

(Continued from Page 8)

d. Inspire Report given by Dr Sue Revill, Inspire Editor

SR reported that a third issue of the Inspire Journal had been produced in 1998 and it is hoped that in future years the number of editions will increase further. This will require increased material/articles from the membership to allow this objective to reach fruition. SR requested that the membership forward any relevant material for Inspire directly to her.

e. Educational Report given by Mrs Evelyn Smith, Education Chairperson

ES informed the membership of the continuing development of ARTP and ARTP/BTS courses. Established and additional courses would continue throughout 1999 and into the Millennium. ES stated that the Nescot BSc was in its third year and that they now offered a two year BSc "top up" course to students following an HTec course, which the membership may be interested in.

ES reported that the ARTP/BTS National Assessment had been successfully completed by eleven candidates. ES stated that the number of candidates undertaking this assessment had doubled since Claire Thomas had taken over as Examination Secretary. ES thanked Claire, on behalf of the membership, for her efforts in organising and controlling this very difficult and time consuming role.

The presentation of the Certificates followed, which were presented by Dr Martin Allen, BTS representative and Dr Brendan Cooper, ARTP representative.

In conclusion, BC thanked all the members of the Executive Committee on behalf of the membership, for their continued efforts in their respective roles.

BC concluded the AGM meeting with a brief discussion on the ARTP objectives for 1999. These objectives will be reviewed at the next AGM.

He then instructed the membership to go forward and "SET THE STANDARD"

The AGM closed at 11.55am, 23rd January 1999.

The next AGM will occur during the next Winter Meeting of ARTP.

Minutes taken by C. Jane Benson, Acting Secretary ARTP Executive Committee.

Images of the Winter AGM at Doncaster – January 1999

ARTP/RESMED (UK) LTD. BURSARY 1998

BRITISH THORACIC SOCIETY WINTER MEETING

Queen Elizabeth Conference Centre, London, December 1998

Karen Dakin, MTO2, Lung Function Dept, Nottingham City Hospital

As a result of winning the Resmed (UK) Ltd bursary I was able to attend the winter BTS meeting. I was asked to report on two presentations made at the meeting, which involved assisted ventilation, and that would be of interest to readers of Inspire.

The first abstract by M P Highcock (Thorax 1998) at the Respiratory Support and Sleep Centre at Papworth Hospital, Cambridge was 'The Effect Of Inspiratory Effort On Bilevel Ventilators Designed For Non-invasive Positive Pressure Ventilation (NIPPV)'. This comparative study involved four different machines i.e. Nippy2 (Friday Medical), Quantum PSV (Healthdyne), BIPAP ST30 (Respironics) and Sullivan VPAP II ST (Resmed).

Bilevel ventilation is used to assist both parts of the ventilatory cycle. On inspiration it 'tops up' the inspiratory effort (IPAP - inspiratory positive airway pressure). On expiration (instead of passive relaxation) the positive airway pressure either maintains a patent upper airway, or allows the small airways to remain open, thus preventing the lung from collapsing at the end of a breath.

In order to assess the effect of different inspiratory effort each machine was connected to a patient simulator consisting of a bellows contained within a rigid box. A negative pressure pump connected to the box was set to simulate patient effort of variable rate (16, 20 + 24 breaths per minute) and duration (T = 0.25 or 1 second).The NIPPV machine settings were standardised (rate = 12, inspiratory pressure = 20cmH_2O, expiratory pressure minimum) and the minute volume (Mvol) measured as a baseline.

RESULTS

With a short inspiratory time (Ti = 0.25s) each machine produced a minute volume below those expected from the increase in rate. The NIPPV 2 and Bipap ST30 failed to trigger consistently at the highest rate. Early expiratory trigger led to low minute volume at all rates for the Quantum PSV at both rates (Ti 0.25 and 1.0 seconds). Overall the VPAP II ST responded most consistently to simulated patient effort.

CONCLUSION

Although all the NIPPV machines were Bilevel pressure preset devices with flow triggering, they responded differently to simulated effort. This should be considered when choosing a ventilator, particularly for a breathless patient.

DISCUSSION

In the discussion which followed questions were raised about why minute volume was used instead of other measurements. It was felt that Mvol is more practical and applicable in the 'real world'. It was also highlighted that the trigger failure may be due to the artificial setup having a smaller surface area. This produces smaller flows which suggests that the artificial model may not be directly compared with the clinical situation. However, the overall finding that NIPPV triggering may not be the same in all patients is a worthy take home message.

The second abstract by Paul Plant (Thorax 1998) at the Dept of Respiratory Medicine, St James' University Hospital, Leeds was 'Non-Invasive Ventilation (NIV) in Acute Exacerbations Of COPD - The Yorkshire Non-Invasive Ventilation Trial'. This was a thirteen centre randomised controlled trial. It aimed to determine whether ward based non-invasive ventilation using a standardised protocol, reduces the need for intubation and in-hospital mortality in COPD patients with mild/moderate acidosis.

The inclusion criteria were clinical diagnosis of COPD, respiratory rate >23/min and a pH 7.25 - 7.35 inclusive with $PaCO_2$ >6kPa on arrival on the ward. Patients requiring immediate intubation were excluded from the trial. Patients were randomised to standardised treatment (antibiotics, steroids and nebulised β2 agonist and ipratropium bromide) with or without the addition of NIV.

Nurses initiated ventilation using the bilevel VPAP II ventilator (Resmed UK) in spontaneous mode according to a set protocol (EPAP 4cmH_2O, IPAP started at 10cmH_2O for comfort then increased to a target of 20cmH_2O). Four different masks were available and the NIV was made more user friendly by the use of simple, clear informative stickers. SaO_2 was maintained at 85 - 90% in both groups.

Criteria for treatment failure i.e. indicating need for intubation/ventilatory support were:-

a) pH<7.2
b) pH 7.2 - 7.25 on 2 occassions 1 hour apart
c) Glasgow coma scale <8 with $PaCO_2$ >8.0kPa
d) PaO_2 <6.0 despite maximum tolerated FiO_2
e) Cardiorespiratory Arrest

RESULTS

233 patients were recruited (115 standard, 118 NIV). There was no difference in baseline characteristics between the two groups; mean age 69 (S.D. 7.6), M:F 1:1, mean FEV1 0.72 (S.D. 0.36), gases at enrolment showed pH 7.31 (S.D. 0.028), $PaCO_2$ 8.7kPa (S.D. 1.63), PaO_2 7.8 (S.D. 3.08). At 1 and 4 hours pH and $PaCO_2$ were significantly better than at enrolment for both groups ($p<0.01$). However the change in pH was greater in the NIV group ($p<0.05$). On an intention to treat basis 35 (30%) of the standard group and 22 (19%) of the NIV group met prior criteria for treatment failure ($p<0.05$), 13 (11%) vs 7 (6%) were intubated (NS) and 23 (20%) vs 12 (10%) died ($p<0.05$).

CONCLUSION

NIV leads to a more rapid correction of acidosis, reduction in treatment failure using a priori criteria and a reduction of in-hospital mortality in patients admitted with COPD and a respiratory acidosis (pH 7.25 - 7.35).

This excellent presentation provided clear evidence for the role of NIV in the acute hospital setting as an addition to conventional treatment. It showed that although NIV will not be suitable for all patients, when approached in a systematic manner with clear goals and failure criteria NIV will reduce mortality, morbidity and the need for ITU.

. . . BURSARY REPORTS . . .

A View from the ARTP Winter Meeting

Doncaster Racecourse January 1999

Rachel Clarke (Lung Function Department, Good Hope Hospital, Sutton Coldfield)

I wanted to attend the meeting to receive my ARTP examination certificate. Additionally, it was a valuable opportunity to continue my education and development as a Respiratory Physiologist and keep up to date with the new methods and techniques.

This was to be my first national meeting and I was looking forward to the wide variety of topics in the programme, and particularly topics that are new to me. I was also looking forward to hearing about the professional issues and the profile of R&D in the NHS. When working in the laboratory on a day to day basis it is easy to separate oneself from the professional issues at stake in our area of work.

My views of the programme - at present I am working on my HTec project which is a comparison of lung volume measurements and so I found the lung volumes symposium especially informative. I made some detailed notes on the various methods of measuring FRC that I do not use routinely. The gas transfer symposium discussed the measurement of VA which is also included in my project.

The breathing disorders during sleep presentation was especially interesting since I hope to have more practical experience of this area of work following a recent jobs move. The presentation from Dr Ian Smith concerning sleep disorders was excellent and again I took some notes for my own development in this area.

ON A LIGHTER NOTE

Following the hard work and concentration of the day, and the anxiety about collecting my certificate it was time to unwind and relax with colleagues. I was very impressed with the accommodation at the Moat House Hotel as were many others speaking to colleagues at the Gala Dinner. I found other ARTP members extremely friendly and welcoming. I thoroughly enjoyed the dinner and dance. It was entertaining to watch the speakers of the day getting on down to the music (or was it falling down from overindulgence !). Overall we had a very enjoyable evening, such a pleasant contrast to the busy day.

MY THANKS AND A FINAL WORD

I would like to thank the ARTP for their financial assistance and making it possible to attend the meeting. I would encourage other technicians, of all grades, to attend the ARTP meetings as they are both informative and fun. The presentations are aimed at different levels so there is something for everyone. Finally a word on the ARTP Assessment - to say the exam wasn't too hard would be an underestimation, but it is worth it when you collect the certificate at the meeting. The pride outweighs all the hard work put in. So have a go it is well worth it - speaking from experience.

MEMBERSHIP UPDATE

Report from Steve Scholey

Membership now stands at 388. Over the next year we aim to increase this to 400 and hopefully by 2000 have 500 members. I have had problems with the standing order method of payment and so from this year we are scrapping the scheme. However, as from this year I will accept official orders from Departments which quote an order number.

At the risk of overstating the state registration line, all practitioners of respiratory function will have to show membership of the appropriate controlling body for the profession i.e. the ARTP. So if you know of people who are not members please encourage them to contact me. It is not all take - there is a lot to gain from ARTP membership, the cost of membership can easily be recouped by attending a couple of meetings a year at the concessionary rates

FEES:

FULL: £25 Student: £15 Corporate: £45

The fees for departmental membership will be calculated on a sliding scale depending on the number of members in the department and each member will receive a copy of INSPIRE.

Enquiries to: Steve Scholey, ARTP Membership Secretary, Chest Unit, General Hospital, Pontefract, West Yorkshire, WF8 1PL.

FAX: 01977 606401

ASSESSMENT OF PATIENTS WITH HYPERVENTILATION SYNDROME

Martyn Bucknall, Chief Technician, Bromley Hospital, Kent.

WHAT IS HYPERVENTILATION SYNDROME?

Hyperventilation occurs when ventilation is in excess of that required to eliminate the carbon dioxide (CO_2) produced by tissue metabolism. This results in reduced blood levels of CO_2 (hypocapnia) and respiratory alkalosis. Some of the common symptoms associated with hypocapnia include disproportionate breathlessness, chest tightness, paraesthesia, chest pain, dizziness and sweating. Work by Rafferty et al[1] suggested that a sudden onset of symptoms of hypocapnia occurs at a level of CO_2 of 2.9 kPa(20mmHg). There are many conditions and factors from which hyperventilation may arise. Some of these are listed in Table One.

TABLE ONE: Common causes of Hyperventilation

Interstitial Lung Disease	Obstructive lung Diseases (e.g. asthma,emphysema)
Anaemia	Pregnancy
Drug Induced (e.g. aspirin)	Panic/stress/anxiety
Exercise	Heart Failure

Hyperventilation Syndrome (HVS) is generally used to describe symptoms caused by episodic or chronic hyperventilation in the presence of anxiety states. An example of episodic hyperventilation is a patient who attends our department and describes some of the above symptoms whilst driving on the M25!

Hyperventilation syndrome is believed to contribute to the presenting symptoms in about 10% of hospital outpatient referrals[2]. Often the diagnosis may go unrecognised, with the patient subsequently undertaking further, often expensive and time consuming investigations which may fail to reach a diagnosis. It is therefore practical that suitable screening tests are available to help in the diagnosis of hyperventilation syndrome.

HOW DO WE DETECT PATIENTS WITH HVS?

HVS is often identified by exclusion of organic/ physiological causes of hypocapnia.

In addition, many Pulmonary Function laboratories have designed their own tests to assist the diagnosis of HVS. These include arterial blood gas analysis and transcutaneous monitoring. However, no standardised test has been adopted.

The aim of this article is to describe the test performed in our laboratory and call for feedback from other departments regarding the type of procedures practiced nationally.

THE BROMLEY HYPERVENTILATION TEST (BHT)

All referrals for hyperventilation tests are sent from the Respiratory and Cardiology Consultants. The patient is then sent an appointment outlining the nature of the BHT. Upon arrival at the Pulmonary Function laboratory, patients are asked to fill in a short questionnaire in order to identify any symptoms occuring during the previous eight weeks and their frequency. The questionnaire lists 29 symptoms known to be associated with hypocapnia. Spirometry is performed and the nature of the hyperventilation test is explained to the patient.

The equipment (SensorMedics VMAX 229) is calibrated prior to performing the test. The mass flow sensor is calibrated at high and low flow rates using a three litre syringe. End-tidal carbon dioxide levels ($P_{ET}CO_2$) are measured by a fast responding infrared sensor, with breath by breath measurements. The CO_2 sensor is calibrated using a calibration gas (4% CO_2, 16%O_2, Bal N_2) with regard to accuracy, response and transit times.

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The patient is then connected to the lung function equipment (SensorMedics VMAX 229) via a mouthpiece and asked to breathe normally for two minutes. The nose is sealed with noseclips. Measurements of $P_{ET}CO_2$ and respiratory rate are recorded at 30 second intervals.

After two minutes, the patient is instructed to breathe as fast and deep as possible for 60 seconds to produce hypocapnia. Measurements of $P_{ET}CO_2$ and respiratory rate are recorded at 15 second intervals. In order for our test to be valid, we aim for a reduction in CO_2 levels of greater than 50% of their baseline values.The patient then returns to normal breathing for approximately ten minutes (or until CO_2 levels return to their baseline value). $P_{ET}CO_2$ and respiratory rate are monitored at 30 second intervals. At the end of the test, the patient is asked to fill in a questionnaire to identify any symptoms that may have occurred during the test.

Analysis of Results

The Hyperventilation test is considered positive if the following conditions are achieved:

1. There is a positive recognition of symptoms following the period of voluntary hyperventilation.
2. Baseline measurements of $P_{ET}CO_2$ are less than 4 kPa[3].
3. There is a delayed recovery in $P_{ET}CO_2$ levels following hyperventilation. The $P_{ET}CO_2$ is less than 4 kPa after ten minutes[3].

Case Studies

The following case studies briefly summarise the results of two patients.

CASE A

Reason for Test Hyperventilation studies were requested on this 36 year old female who presented with shortness of breath (especially at night), chest tightness and tingling sensations in the fingers. Lung function tests were normal with FEV_1 129% predicted, TLC 130% predicted and TICO 89% predicted.

Hyperventilation Test There was positive symptom recognition for dizziness, hot flushes and chest tightness following the period of voluntary hyperventilation. Baseline measurements of $P_{ET}CO_2$ were 2.9 kPa. Ten minutes after the hyperventilation, CO_2 levels had only partially recovered to 2.2 kPa.

Conclusion Positive hyperventilation test.

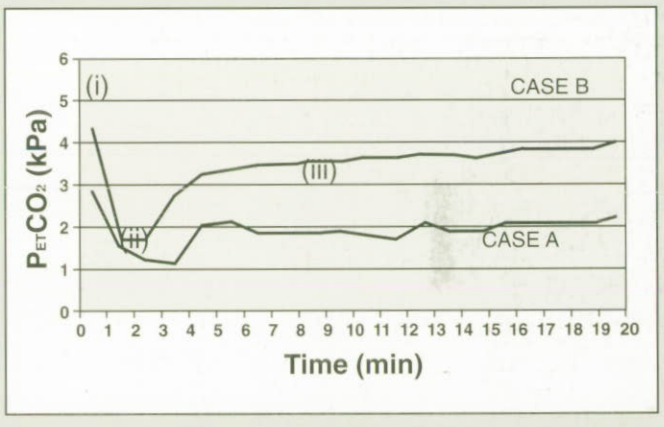
CASE B

Reason for Test 58 year old female with chest pain and tightness. Spirometry showed FEV_1 of 100% predicted.

Hyperventilation Test There was no symptom recognition following the period of voluntary hyperventilation. Baseline measurements of PETCO2 were 4.3 kPa and there was a normal recovery in CO2 levels following the hyperventilation.

Conclusion Normal test, no evidence of hyperventilation syndrome.

FIGURE ONE:
Hyperventilation profiles for Cases A and B. These show $P_{ET}CO_2$ levels (kPa) versus time.



Note the three phases during the test: (i) Baseline, (ii) hyperventilation and (iii) recovery of CO_2 levels. In A there is a reduced $P_{ET}CO_2$ (2.9kPa)at the start of the test. Following hyperventilation there is a delayed recovery in the CO2 levels indicating a positive test. In B there are normal baseline values of $P_{ET}CO_2$. Following hyperventilation the CO_2 levels return to baseline after eight minutes indicating a normal test.

Summary

There are many features which may suggest hyperventilation syndrome. These include breathlessness at rest (without obvious cause) and the regular occurrence of the many symptoms of hypocapnia. If hyperventilation syndrome is suspected, hyperventilation tests may play a useful role in assisting with the diagnosis or its exclusion.

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Hyperventilation tests have their limitations and the interpretation must take these into account. For example, some studies have shown that patients showing positive symptom recognition on a hyperventilation test also showed positive symptom recognition on a placebo test[4]. It is important that tests are interpreted with respect to other clinical evidence.

Once a diagnosis of hyperventilation syndrome has been reached, appropriate treatment regimes can be implemented. These may include relaxation, breathing retraining or rebreathing from a bag.

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4. ***Hornsveld HK, Garssen B, Fiedeldij MJC, Van Spiegel PI, de Haes JCJM. Double-blind placebo-controlled study of the hyperventilation provocation test and the validity of the hyperventilation syndrome. Lancet July 1996:348;154-158.***

CHARITY NEWS

National Asthma Campaign

London H/Q tel no for enquiries or leaflets
0171 226 2260

Excellent advice is contained in the latest leaflet from the NAC, called Living with Hay Fever it helps individuals minimise their symptoms over the summer months. Free copies of the leaflet may be obtained from 0171 971 0444.

The Asthma Agenda can be found on the charity's web site at http//www.asthma.org.uk.
The web site carries all the latest up to date news, statistics and research concerning asthma.

British Lung Foundation

For tickets and information contact
The BLF London office on 0171 831 5831.

National BLF Awareness Week
29th May - 6th June 1999.

. . . COMMITTEE NEWS . . .

EXECUTIVE UPDATE -

news from Julie Lloyd

Welcome to another edition of Executive Update which aims to keep you in touch with your Executive Committee.

Another winter meeting has come and gone and Doncaster is still recovering (as are one or two of the membership!). The results of the quality survey are very encouraging and it is nice to know what we got right as well as what we got not so right.

Plans are being finalised for the summer meeting to be linked with the BTS in Southampton. There are reduced rates for ARTP members. The Committee is checking out venues for the Millennium Meeting so watch this space for further information.

The final version of the updated Constitution will be posted out to you in the near future. It has incorporated the many comments received from the membership - a fairly awesome task. There will be further updated versions of the disciplinary code and codes of conduct later in the year when discussions concerning occupational standards and state registration are finalised.

The Executive Committee has continued to expand its role and numbers and would like to welcome Dr Adrian Kendrick from Bristol and Ms Melanie Marshall from Castle Hill (Hull) to their ranks. Dr Sue Revill, from the Glenfield in Leicester, has agreed to act as Vice-Chair and following the AGM at Doncaster Jane Benson from Rotherham has been elected Secretary and I continue in the role of Treasurer (so the finances can't be that bad !).

On the financial front things continue to look very positive. Following the cash flow problems as a result of last year's winter meeting it was decided to open a trading account for meetings which would be VAT registered. This should simplify the finances (hooray) and ensure more cash is made available to the membership in the form of sponsorship and bursaries.

Plans for a European Research Forum for technicians and scientists continue and tentative discussions had taken place concerning the first meeting of such a group. No firm plans have been made thus far. The BTS/ARTP Liaison Committee met in January and several key issues are being undertaken by the members including revision of the Guidelines (1994), a generic lung function report, and a review of the COPD guidelines - should keep everyone busy.

And finally (this is becoming a bit of a cliché (it is a cliché - Ed)) -

Congratulations to Sue Bradbury, from Stoke and Dr Duncan Hutchison, from Kings College London, who were the first recipients of the ARTP Lifetime Achievement Awards for their outstanding contributions in the field of Respiratory Physiology. The awards were presented at the Conference Dinner, Doncaster.

EDUCATION UPDATE -

the news from Claire Thomas

So what's going on in the education world ? The big focus at present is the National Assessment in Respiratory Physiology. Again I would like to congratulate those candidates who successfully passed the assessment last year. They all probably heaved a large sigh of relief as they collected their certificates at the Doncaster meeting. I am sure they will have every sympathy for those unsuspecting candidates who have applied to take the assessment this year. It looks like it is going to be a record breaking intake with 23 candidates already registered and currently beavering away on their worked-based assignments.

We are considering altering the timetable of the Assessment so that it falls within the academic year and registration will begin in September as opposed to January. We can see arguments for and against this proposal so maybe you can let the Education Chairman - Evelyn Smith - have any comments to help us make the right decision.

It is encouraging to see that the National Assessment is becoming more popular and as such a recognised and respected qualification. It is good to know that both employers and technician/scientists are keen to set standards which help to maintain our professionalism. This is something the Executive is striving to achieve but obviously needs the support of the membership and the NHS management. The new National Assessment in Spirometry is part of the push in the same direction and we are trying to ensure that everyone performing spirometric measurements is doing so to an acceptable level. I would ask any of you who are aware of people performing spirometry to check that an adequate standard is being achieved and if not encourage people to register for this qualification.

Despite the departure of Terry Jones the HTec short course continues at Coventry University. In September there were 15 students and feedback is still very positive. So well done Coventry for making the transition a smooth one for the candidates. See the Calendar of Events in this issue for future dates.

The Birmingham Short Course was well attended in March 98. This course is due to be repeated and you should have already received notification of this with other ARTP mailings. If not please contact the Department at the Queen Elizabeth Hospital Birmingham on 0121627 2088.

The latest update of the NVQ standards were launched in September 1998 so departments are getting used to some changes - good and not so good. The reduction in the number of practical assessments from 16 to 4 can only be good news for both candidates and supervisors. However the O units have thrown some assessors into a panic (well at least in the West Midlands). It will probably take a while to iron out all the problems but I have every confidence we will get there in the end.

There is still no further information regarding the development of the MSc, which a lot of people are waiting for - as soon as we get the launch date we will inform all ARTP members. The Westminster College in London started a BSc course in September '98, and took an additional intake of students in February this year. Evidence of continuing professional development (CPD) is likely to be an essential requisite of state registration. It is important for all members to be aware of the higher courses on offer, and start preparing for the additional requirements of state registration. Medics, nurses and some of the other professions allied to medicine (PAM's) have had a system of CPD in place for a number of years, where it is a legal requirement to continue to practice.

CPD is defined as the maintenance, improvement and broadening of knowledge, skill and personal qualities in order to continue performing your professional activities successfully. There are a number of ways to achieve this, either formally by attending academic or practical courses or informally through incidental learning during everyday practice which could include shadowing, rotation etc. The aim is to keep staff up to date with new developments and current thinking. The obvious financial implications of CPD will need to be addressed by the DOH.

Nationally CPD is undergoing a review to ensure the most appropriate methods are used and that it is benefiting both the professionals and ultimately the patients. The Education Committee will be keeping a close watch on the developments and will begin formulating a CPD program which will suit the requirements of the members and of the departments they represent.

RECENT ARTICLES

The following summarise recently published articles appearing in medical journals which may be of interest to ARTP members

LUNG FUNCTION and DEVICES

Comparison of two new methods for the measurement of lung volumes with two standard methods.

Ian Cliff, Angela Evans, Charles Pantin, David Baldwin. Thorax 1999; 54: 329-333.

This study compares two methods for the measurement of lung volumes - mathematical modelling which uses complex calculations from the flow-volume loop to derive TLC and the nitrogen balance technique which uses atmospheric nitrogen dilution techniques. The new techniques were compared with the standard methods of helium dilution and body plethsymography. A large number of patients were studied using the standard and new methods applied in a randomised manner. Although the new methods worked well for subjects with normal lung volumes, there were marked discrepancies in patients with lung/chest disorders. The agreement between the new and standard methods was poor, (limits of agreement for differences between methods was $\pm$1.8 - 3.4 l). The limits of agreement for repeat lung volume measurements for the standard methods alone were $\pm$0.9 l. The authors concluded that for the new methods at present the techniques were not accurate enough to be clinically useful.

EXERCISE

The endurance shuttle walk: a new field test for the assessment of endurance capacity in chronic obstructive pulmonary disease.

Revill SM, Morgan MDL, Singh SJ, Williams J, Hardman AE. Thorax 1999: 54: 213-222.

This new test was designed to complement the incremental shuttle walk. It is a constant paced field walking test and was used to assess endurance capacity in patients with COPD. The new test was compared with a treadmill endurance test and its sensitivity to changes that occur following pulmonary rehabilitation was compared with the incremental shuttle. The test was simple to perform and offered a standardised protocol and intensity of exercise which are likely to improve longitudinal and between centre comparisons. The test provoked a similar cardiac response to an equivalent treadmill test, though there were differences between treadmill walking and walking around the shuttle circuit. The test was repeatable after one practice, and was strongly sensitive to pulmonary rehabilitation producing a far greater effect size than the incremental shuttle.

NB This test is probably worth considering if you are assessing breathless patients. Test cassette tapes and instruction leaflet available from SM Revill, Dept of Respiratory Medicine, Glenfield Hospital, Leicester.

CPAP

Two months follow-up of auto-CPAP treatment in patients with obstructive sleep apnoea.

Boudewyns A et al. Thorax 1999; 54:147-149.

In this study auto-CPAP was compared with standard CPAP treatment in 15 patients with OSA, who had been treated for a year with CPAP at a fixed mask pressure. Auto-CPAP devices apply at any time the minimally required pressure to normalise breathing. Following a baseline assessment patients used the auto-CPAP for two months and were then re-assessed. Epworth scores did not change and there were no significant differences in the polysmographic values. The authors concluded that auto-CPAP is an effective long term treatment for patients with OSA.

NITRIC OXIDE

Increased exhaled nitric oxide on days with high outdoor air pollution is of endogenous origin.

Steerenberg PA et al. Eur Respir J 1999; 13:334-337.

This study was designed carefully in order to measure the output of NO from endogenous sources only i.e. without contamination from NO inhaled from the atmosphere and subsequently exhaled. The authors deduced that the endogenous production of NO was elevated on days of high atmospheric pollution. The values of exhaled endogenous NO will be overestimated if care is not taken to compensate for the levels of NO inhaled, which will vary according to the ambient conditions i.e. the higher the level of NO inhaled the more remains to be exhaled. The use of an appropriate experimental design should be used to control for this variable. The coincidence of increased NO output with high ambient pollution suggests that NO production is stimulated by atmospheric contaminants. The authors suggest that exhaled NO might be used as a biomonitor of the health effects of outdoor air pollution.

Salivary contribution to exhaled nitric oxide.

Zetterquist W et al. Eur Respir J 1999; 13: 327-333.

This study aimed to determine whether salivary nitrite could influence the measurements of exhaled NO. Ten healthy subjects fasted overnight and ingested 400 mg potassium nitrate. Exhaled and nasal NO were measured regularly using a chemilluminescence technique up to 3 hours after ingestion. Exhaled NO increased as a result of the nitrate load and this was mirrored by increases in salivary nitrite. There was no difference in the nasal measurements. The mouthwash, chlorhexidine acetate, decreased NO release by 50%. The authors concluded that salivary NO formation contributes to NO in exhaled air and a large intake of nitrate rich foods might be misinterpreted as increased airways inflammation.

Orally exhaled nitric oxide levels are related to the degree of blood eosinophilia in atopic children with mild-intermittent asthma.

Silvestri M et al. Eur Respir J 1999; 13:321-326.

Elevated exhaled NO is associated with airways inflammation. This study aimed to discover whether children with mild-intermittent asthma had increased exhaled NO. There were significantly higher NO concentrations in the children with asthma compared to an age-matched control group. There were moderate but significant correlation's between the exhaled NO and blood eosinophils but no relationship with forced expiratory volumes in the children with asthma. The authors suggest that these findings indicate a high proportion of children with mild asthma have airways inflammation.

Exhaled and nasal NO levels in allergic rhinitis: relation to sensitisation, pollen season and bronchial hyperresponsiveness.

Henriksen AH et al. Eur Respir J 1999; 13: 301-306.

In this study the exhaled NO of subjects with allergic rhinitis were examined outside and during the pollen season. Additionally, flow-volume loops, bronchial provocation tests and allergy tests were performed. Exhaled NO was significantly elevated in allergic rhinitis in the nonpollen season, especially in perennially sensitised subjects, as compared with controls, and increased further during the pollen season. Nasal NO was not significantly different from the control subjects. Exhaled NO was increased in the hyperresponsive patients and decreased significantly after methocholine-induced bronchoconstriction, suggesting that NO production occurs in peripheral airways. The authors speculate that these changes may indicate an increased risk for the development of asthma, a hypothesis which may be answered by future studies.