

scottish intensive care society

annual report  
2004-2005

# editorial

This year should have produced the Scottish Intensive Care Societies 10th Annual Newsletter. The ever increasing scale and scope of the Societies activities has meant, however, that in recent years the Newsletter has increased so much in size and content that it belies its own title. We have decided therefore to resist the temptation to produce a landmark 10th Newsletter and instead replace it with a new publication entitled the Annual Report. This better reflects the character of the publication. It aims to be an account of the Societies various activities over the year. It should provide a more accurate record the scope and ambitions of the Society and may even prevent people throwing it into the bin. I should be grateful to receive any feedback on the change in the status of the publication and delighted to pass any comments on to the new editor. After three years I have spiked my last article and am about to hand over editorial control to Rory Mackenzie.

Philip Oates

# president's report

Becoming the 7th President of the SICS at the AGM last January was a great honour of which I am very appreciative. The Society is in extremely good health and our membership is growing year on year. The Society grows not only in size but in the breadth of the front on which it operates. Having started as a club back in 1992 it has slowly grown into an organisation. This has been an organic process with new buds and sprouts, it seems, appearing at regular intervals. I see no reason why we should not continue the progress made under the canny guidance of your last President, Dr Alf Shearer, who directed the considerable energies of your Council. The expansion we are experiencing will, I believe, increasingly lead to the Society being identified as the legitimate voice of Scottish intensive care. Inevitably this will result in an increasing workload for the Council and a need for structures to be put in place to support and encourage our development.

I would just like to highlight a few areas and activities which you will find described in more depth in other reports. Our finances are healthy under the watchful eye of Dr Michael (fiscal prudence) Fried. This, I believe, is very important and a certain small reserve is necessary to cover potential financial difficulties in the unlikely event of any of our meetings being less financially successful than in the past. This reserve also gives us the potential to broaden some of our activities when required.

The SICS Audit Group (SICSAG) has been the backbone of the Society for many years. The data which the audit produces underpins nearly all discussions the Society has regarding intensive care activity in Scotland. Simon MacKenzie and Fiona McKirdy are to be congratulated on their hard work. The last year has seen some changes in personnel. Further changes are also afoot. A move to come under the umbrella of ISD is under discussion and some loss of autonomy may be the price to be paid for a more secure funding stream. The governance of the audit is also under consideration. Further consultation with our members will be required in deciding the future direction of the audit, with process as well as outcome being prominent. The future of care bundles remains a subject for discussion. The strength of SICSAG, as

always, has not been in uniformity but in the cohesion and collaboration of all our members. It is an excellent example for Scotland of small being beautiful.

Many of you will have noted from the website that the SICS guidelines on Activated Protein C (APC) have been withdrawn and have now been superseded by NICE guidelines. The audit group are also about to embark on a liaison with the Scottish Audit of Surgical Mortality (SASM). Firstly they hope to become involved in developing the paperwork which will allow the audit of the intensive care of those surgical patients who die and are audited by SASM. Secondly it is also hoped that the group will collaborate in the development of surgical governance reports and a pilot of such a scheme is likely to be set up.

Tim Walsh has demonstrated an admirable Collegiate and inclusive approach in the critical care trials group and the group is showing a willingness to embrace and learn from models in the not so new world of Canada, Australia and New Zealand. The trials group have arranged a meeting, again this year, in June and the programme looks top drawer.

The major focus of our year's activity was, as always, our meeting in Bridge of Allan in January. Record numbers attended and, in fact, it is likely we will have to seek a new venue for the coming year. John Kinsella, Tim Walsh and Sandy Binning did sterling work in organising this meeting which was a resounding success. We were well supported by the Trade and Jeanette McBride deserves our gratitude for all her hard organisational work. Sandy Binning has also been the local organiser of the Spring meeting of the ICS which has just taken place in Glasgow. This has also been a great success. Well done again Sandy. Liz Wilson takes the credit for organising the successful Trainees meeting.

The Education Group under Steve Stott remains active and Graham Nimmo adds clinical simulation as an extra dimension to the group's activities. It is likely the group is on the threshold of further initiatives.

The RCA has traditionally had an annual meeting with the Chief Medical Officer for Scotland who at present is Dr Mac Armstrong. The AAGBI has also in the recent past taken



*Dr James Dougall*

part in this meeting and this year, for the first time, I was asked to represent the SICS. This is a small meeting with a very limited agenda. However, the problem of transport of the critically ill was raised and discussed at some length. It may be with central support that there will be a move towards a national co-ordinated and integrated service. Much, of course, depends on the central direction taken in reconfiguration of our health services. Dr Mike Fried has been very active this year in securing proper representation for intensive care in the development of ambulance services and most particularly in the recent aircraft procurement exercise. He has also been pivotal in finally bringing to fruition the manufacture of a standardised trolley for patient transfer in Scotland.

I have been privileged to represent the Society on the Scottish Transplant Group and also as a co-opted member of the Council of the ICS UK. The ICS was formed in 1974 and is now a very mature and effective body. We have much to learn from the way in which they interact with the Royal Colleges, Intercollegiate Board and Government regulating and advisory bodies. They have been involved in discussions about non-medical practitioners, outreach, integrated manpower planning. In many ways the lay representation on CRITPAL is a very effective way of having the voice of the Society heard. The voice of patients carries much extra weight. It is hoped to separate the Scottish data from the ICS manpower census which is currently taking place and I would encourage you all to co-operate with that as it will help Scottish intensive care.

Mo al Haddad has kindly agreed to take on the updating and modernisation of our website. This is an important first point of contact for many people with our Society and I am grateful to Mo for taking this on. Log on and check out Mo's improvements.

It is good to see the regional intensive care groups continuing to flourish as it is from these groups that our regional representation springs.

It is with great sadness that we heard of the death of Dr Greg Imrie. Greg was a very senior officer in Aberdeen intensive care and was a stalwart supporter of our Society at its inception and during its early years. He will be greatly missed both for his direct no nonsense approach, his sense of humour and as a companion on the golf course.

On a more cheerful note we are very pleased to see Steven Cole return from illness. How anyone as fit as Steven could become ill remains a physiological conundrum.

Until this year Fiona McKirdy was our only Honorary member. As proposed at the AGM Drs. Mike Telfer and Peter Wallace have been offered Honorary membership and I am very pleased to say that both have accepted.

Our Society will hopefully remain the focus for all the energies of the many active intensivists in Scotland. This should be especially true of the younger cohort who have benefited from more directed training in Intensive Care Medicine. The SICS is vibrant, new blood is coming in all the time and our progress is steady and sure.

Dr James Dougall  
*President , Scottish Intensive Care Society*

# annual scientific meeting

Once again the familiar environment of the Stirling university Pathfoot Building was the venue for the SICS Annual Scientific Meeting.

Professor John Marshall of Toronto General Hospital, and Canadian Critical Care Trials Group fame, was first on the podium to deliver a presentation entitled “New Insights into Sepsis”. After epidemiological data on the impact sepsis has in the USA, where it now rivals acute myocardial infarction as a major cause of death, he put forward his question. Is infection or the host response to blame for all this? A mouse model of transgenic mice following bone marrow transplant showed that a certain allele configuration could confer immunity from lethal bacterial lipopolysaccharide infusion. Studies have shown that the degree of host response has a better correlation with outcome than the type of infection. There are over 300 alleles responsible for the neutrophil response to infection. It is therefore no surprise that research has shifted to understanding the host response and potential targets for therapy.

There have been 53 clinical trials targeting the host response. The identification of patients not mounting an appropriate adrenocortical response to sepsis led to the success of corticosteroid replacement during septic shock in reducing mortality. The association of the host inflammation and coagulation cascades led to the discovery of the importance of protein C in the response to sepsis. The PROWESS trial showed that recombinant human activated protein C given to patients with severe sepsis resulted in an absolute reduction in mortality of 6%. However, we were also reminded of the recent early termination of the ADDRESS trial which showed no benefit for patients with sepsis and an APACHE score less than 25. Less successful trials have included those looking at nitric oxide synthase inhibitor and anti-TNF therapy.

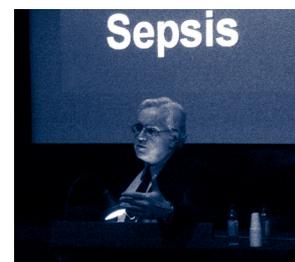
Given the heterogeneity of sepsis and the host response the most appropriate method of classification is also unclear. For 2 decades we have used the Systemic Inflammatory Response System (SIRS) which identifies the host response without any reference to the part played by the infection. The PIRO system - an acronym for Patient characteristics, type of Infection, host Response and Organ

dysfunction – looks at both host response and insult and might be more useful for case definition. Patient characteristics such as genotype have been shown in twin studies to have a profound effect on sepsis mortality and certain gene polymorphisms have been identified that are associated with improved outcome. Studies at present use the host response to define septic patient groups such as the APACHE score for rhAPC and ACTH response for steroid administration in septic shock. Organ dysfunction scores have already been used for patient selection in sepsis therapy studies, such as anti-TNF therapy and more recently rhAPC.

The future of research into sepsis depends on dedicated investigator led research, international collaboration, new RCT modelling and more transparency from the pharmaceutical industry.

Dr Andrew Bodenham, of Leeds General Hospital, was next with his personal view on “Safer Central Venous Access”. An early reminder of acute complications related to insertion and maintenance of central venous catheters (CVC), included figures from the USA where a recent study found a morbidity of 7%, increased length of stay of 4 days and increased costs of \$17,000 associated with pneumothoraces following CVC insertion. An observational study in Leeds showed procedural complications were not recognised nor documented and were related to operator inexperience, poor facilities and patient suffering. Good clinical practice should be ensured by appropriate education, facilities and specifically the use of ultrasound directed access.

This latest note would dominate the rest of the talk. NICE UK has recommended routine use of ultrasound for central venous access and evidence-based medicine for internal jugular access has shown decreased failure rate, complications, costs and time when performed under ultrasound visualization. A frightening slide illustrated the considerable anatomical variation of the relationships of both the femoral and internal jugular veins, present in the population. We were then able to see an example of the speaker's technique in a neat video display during which we were reminded to use a gentle popping action, rather than an aggressive stab! Since there is a learning curve



*Professor John Marshall of Ontario asks major questions about the origin of sepsis*



*Dr Andrew Bodenham delivers his view on safer central venous access*

with all techniques we were asked to practise frequently on all cases and not wait till we have a difficult case. We also saw how ultrasound can be used for access via the axillary vein. This is safer than the subclavian approach, but can prove difficult in obese, requires use of longer CVCs and 10% travel up the neck. The subclavian vein can prove difficult to visualize due to high anatomical variability and poor ultrasound windows. The final comment was that anaesthetists are often split into early and late adaptors as seen with spread of the Seldinger technique, which is now common practice.

Optimal positioning of the CVC tip was the next topic Dr Bodenham tackled. The complications of malposition and frequency of different positions were mentioned with reference to anatomical studies. The relationship of the common positions to the carina as seen on chest radiography is well known. This might not be enough as the contact made with vessel walls, the importance of the tip lying parallel to the wall and the effect of patient movement and respiration can all result in complications even with correct position on chest radiograph.

Long-term venous access, although still not formally defined is now more commonly requested for oncology or gastroenterology patients. Anaesthetists are not responsible for insertion of these catheters in all hospitals with 42% of UK departments providing a service and 18% having a formal list. An understanding of the issues related to catheter care and implications of differences between various types of catheter are relevant to all anaesthetists and intensivists. Just in case anyone was thinking what could be so hard about providing a service we were shown impressive contrast venography imaging of gross anatomical distortion and stenosis of the central veins in a patient with several previous long term catheters!

After the coffee break Dr Richard Beale, from Guy's and St. Thomas' Hospitals, gave a presentation on the "Metabolic Control in Sepsis". Metabolic dysfunction is always present in severe sepsis and metabolic support, in the form of glucose control, corticosteroid supplementation and nutrition, is offered to most of these patients once admitted to intensive care. Critically ill patients tend to have a high basal metabolic rate, early protein breakdown and decreased lipid oxidation. This picture is further complicated by gut failure and frequently malnutrition. Dr Beale could go on at great length on all these topics but today

concentrated on glucose control. The landmark study of Greet Van der Berghe showing tight glucose control results in improved survival and less morbidity has changed perception of glucose control in all intensive care patients. The clinical feasibility of tight glucose control was a problem requiring training of nursing staff, input of more resources and perseverance from all involved. The disbelief among clinicians stemmed from the different patient population in that study from our everyday practice, fear of biochemical hypoglycaemia in practice and the initial supplementation of enteral feed with dextrose until enteral feed was established. There was also the suggestion that any benefit seen with the new protocol was a result of higher insulin usage rather than tight control of blood glucose. This was answered when a logistic regression model showed that it was definitely the lower mean blood glucose. Referring to the recent surviving Sepsis Campaign guidelines, which he himself was involved in drawing up, he agreed that there was good evidence that keeping blood glucose <6mmol/L was more beneficial than 6-8mmol/L. However he said the guidelines recommended control <8.3mmol/L to encourage universal adoption of glucose control due to the initial problems mentioned above. Further interest in insulin administration in critically ill patients has led to more questions being asked. More work has shown that high insulin lowers triglycerides and low-density lipoproteins while raising high-density lipoproteins. The study showed that mortality was affected by increasing age, a higher APACHE II score and high LDL levels. Survival in critically ill patients has been shown to be inversely related to the level of low-mannose-binding lectin and high insulin levels result in depression of this acute phase reactant. Dr Beale wound up his talk by listing the practical issues related to the tight glucose control regime including, nutrition, steroid administration, time to stop regime, when to treat hypoglycaemia and problems with point-of-care glucose monitors.

## Workshops

This year delegates had a better deal as they could choose to attend two of four workshops compared to one from three workshops last year.

Dr Paul Murphy, of Leeds General Hospital, dealt with the concept of "Non-Heart Beating Organ Donation". Heart-beating organ donation requires brain-stem death with around 2000 cases a year and providing 90% of solid organ transplants. This limited pool must be supplemented, as

xenotransplantation is not yet a reality, by considering non-heart beating organ donation. On the other hand there are 100,000 cardiac deaths, in the 15 to 64 year age group, and 20% of the population are registered organ donors but there were only 73 donors in 2003. The results of controlled NHBOD renal allograft program in Leeds shows encouraging results. Problems faced by NHBOD are the apparent conflict of interest faced by the caring clinician, uncertain donor potential and unclear legality of all retrieval-directed interventions. Practical problems during the process include definition of the time of death, coordination of multidisciplinary teams, timing of withdrawal of futile therapy until the retrieval team is present but prolonging agonal period for relatives; the necessity of trial of withdrawal; tissue typing and aortocaval cannulation before death. The issue of resuscitation, from inotropes to advanced CPR, should death occur before retrieval team arrives. Several other points were mentioned but Dr Murphy concluded saying that there is a clear desire to donate organs among the community, we must serve the best physical and psychological interests of our patients. There will have to be more clinical, ethical and legal progress in this field to guide clinicians in the future.

Dr Richard Beale, after his morning presentation, led a group discussion on "Outreach". To his surprise, a show of hands among the audience led him to conclude that Critical Care Outreach in Scotland is less common than south of the border. We know Outreach has not resulted in less ITU admissions nor less cardiac arrests. Its role is to foster improved clinical education and communication and experienced ITU nurses seem to be involved most often. Dr Beale then took the opportunity to promote the Surviving Sepsis Campaign sepsis bundles. The main question is which patients and in which department should sepsis bundle data be collected. Applying the methodology used by Rivers et al is impractical so we must compromise. Audience participation was excellent and most felt ITU would take charge, funding will be required, continuous audit is not essential, ITU patients could be scored for bundle compliance first but eventually other departments and the Outreach Teams would have to apply the bundles to hospital patients. Dr Beale accepted that measurement tools would need to be tailored to each institution and the SSC will give advice on changes to the bundles in the future.

The final presentation of the meeting was appropriately the most entertaining and it was

up to Dr Hugh Montgomery, of UCLH, to conclude with "Genetics in the ICU". The first part of the talk was about the physiology of hypoxic adaptation in the animal kingdom including examples of interspecies adaptation differences in ventilatory drive and hypoxic pulmonary vasoconstriction. The topic was tied in with genetics when we were told that acclimatization boils down to a single allele in mountain yaks. It would not be difficult to imagine that different genotype could affect the host response to critical illness which is often intricately linked to cellular oxygen supply. This led to Dr Montgomery presenting his interesting work on the genetics of the renin-angiotensin system. The angiotensin-converting enzyme genes are known to influence physiology, especially minute ventilation and metabolic efficiency. The genotype exists as II or DD alleles and the former is associated with greater oxygen utilization efficiency as the workload increases. Studies on healthy volunteers showing the metabolic advantage of the DD genotype were remarkable. He wondered if we would agree that this presented an excuse for those II phenotypes who failed to improve their workout performance despite their best effort. From the clinical perspective the DD genotype has been associated with poor outcome in a few studies. Children with meningococcal disease had higher mortality and length of hospital stay; the DD allele was associated with increased incidence and mortality from ARDS and DD trauma patients fared worse too. The implications of genetic tests for patient care are diagnostic, prognostic and could determine best therapy. This science is developing fast and might soon influence clinical decisions.

Michael Buttigieg



*Dr Hugh Montgomery concludes the meeting with his presentation 'Genetics in the ITU'*

# annual research meeting



*Another full house for the Annual Research Meeting*



*Lesely Morgan publicises the TracMan trial*

This well attended meeting on January 24th 2005 was not without its technical hitches and in a change from the programme opened with a report on the SIGNET pilot study by Dr Peter Andrews.

This is a prospective randomised blinded control trial of 500 patients requiring Total Parenteral Nutrition (TPN). The Trial will involve four patient groups, selenium only, glutamine only, a combined selenium and glutamine group and a control group. The TPN will be in a volume of 1500ml, 12g Nitrogen and have 2000Kcal/day. Ideally all groups should have a seven-day treatment time, although five days may well be the average. Variability in the groups is the exact distribution of the amino acids in the TPN due to the need for it to be isonitrogenous. The outcomes to be measured will be mortality in ICU and at six months, episodes of new infection, antibiotic use, length of stay, assessment of quality of life and ICU costs. Subgroup analysis will include: speciality (medical vs. surgical), age (<65, 65 and over) and level of nutrition (undernourished, normal, obese).

The pilot study involved two sites and twenty patients and served to assess recruitment methods, randomisation, data collection, staffing requirements and delivery of trial nutrients. In terms of recruitment 60% of eligible patients were recruited. No problems with randomisation and data collection. The level of information collated appears to be about right and comprehensive. Main problems were discussing recruitment with relatives and subsequent follow-up. There were initially problems with supplies of the trial nutrition. In the pilot 50% of patients had episodes of new infection.

An application to the MRC for funding has been submitted. Some funding may come from Fresenius Trials. Recruitment time for 500 patients in 9 sites will be 2.5 years.

Dr Tim Walsh then gave an update on The Resolution of Anaemia after Critical Illness Study (TRAC)

This is a prospective exploratory study into the time to recovery from anaemia associated with critical illness and what factors limit the recovery time. The primary outcome is the time period between ICU anaemia and

resolution of anaemia. Thirty patients were recruited, the inclusion criteria requiring the patients to have a haemoglobin level <10g/dL and having required level 3 care for greater than 24 hours during their stay. Patients were reviewed on weeks 1,3,6,9,13, and 26. Data collated included Hb levels, Fe, B12 and Folate levels, erythropoietin response and IL-6 levels and each patients transfusion history. Overall, patients showed a variable but consistent rise into normal levels of haemoglobin. At week 1 some patients' anaemia had resolved, yet they still exhibit an inappropriate erythropoietin response. Iron deficiency is present but acutely this is difficult to interpret. No patients had a B12 or Folate deficiency. At three months 40% of patients had Hb <12 g/dL with 18% still <10g/dL. Further study is required and proposed to look at functional ability of patients during critical illness, and if being anaemic stops a patient from surviving critical illness.

Dr Brian Cuthbertson then reported on a Pilot study looking at Fluid loading and High dependency Care for High Risk Surgical patients.

This proposes to look at two systems of High Dependency care and fluid loading on outcome, in high-risk surgical patients. The plan is for a multi-centred prospective study, of greater than three centres. The process involves a baseline quality of life assessment and recruitment to the study; the patients undergo pre-operative fluid loading and then are randomised to either level 1 or level 2 post op care for 48 hours. Grade 4 Cardiac patients will be excluded.

The patients are centrally randomised. The primary outcome measure is quality of life. Secondary outcomes include 30-day mortality, major morbidity, costs to NHS, QALY cost to patient and family. The primary outcome measure is made by the SF-36 at 1-month, 3-month and 6-month intervals.

In the pilot study 150 patients were assessed, of these 40 were high risk. 25 were recruited to fluid loading, and a further 24 of those were randomised to the second stage i.e. either ward or HDU care. 23 survived hospital but 2 were removed from the study by clinician refusal. The conclusions are that the protocol is safe and acceptable.

The final part of the morning session discussed the future direction of the Scottish Critical Care Trials Group.

This part of the research day involved discussion about how as a group the problems of conducting research could be addressed. Dr J. Norrie presented the work of the Centre For Healthcare Randomised Trials (CHaRT). The trials unit provides access to dedicated staff for trial management, plus statisticians, research nurses and IT specialists. The problems of conducting research include to development of clinical networks, creating RCT's and gaining the necessary regulatory and ethical clearances. In terms of the SICS conducting trials, it has an established clinical network, easily identifiable potential participants as a group, already collects large amounts of data routinely and has provided examples of "best practice " to date. The main problems facing the SICS is a feeling of lack of "ownership" by a funding organisation. Another is the difficult environment to conduct research in, with a heterogeneous population, difficulty in standardising treatment, problems with long term follow-up, and the need for large populations to answer questions. Dr P. Warner from the Medical Statistics Unit, Edinburgh added the society maybe at a disadvantage by being perceived as a "new kid" to research. It currently lacks a charitable benefactor. In terms of authorship a Canadian model of maintaining the Group as an author can reduce friction between clinicians, but is not encouraged by publishing journals which prefer one named author.

The debate continued concerning how best to decide what clinical question as a society we should try to answer, with consideration of the ICS method of canvassing members to respond with a question, then a single pick from the most commonly submitted questions to decide on a particular topic.

A further point was that it may prove difficult to find a question that can be answered by a RCT and that an observational study may be necessary.

Overall, it was felt that this year's SICS Trials Group meeting a decision should be made concerning what question should be pursued.

In the afternoon 5 Critical Care Presentations competed for the Trainees Prize.

1. Jim Ruddy (A Binning) HSV in Respiratory Tract of Critically ill patients
2. Simon Young (Lynne Newman) Short Synacthen Test and Etomidate in ICU Patients

3. Michael Buttigeig (Magnus Garrioch) ICU Surveillance of Infection Study
4. S. Manawarthe (A Longmate) Hospital acquired Infection in ICU
5. Paul Campbell (A Davidson) ICU Drug Budgets

The First Prize went to Dr Paul Campbell for a presentation on rationalising the drug costs of two ICU's in a single Trust Division and the potential savings this can provide. Second Prize was awarded to Dr Simon Young for a study of the effect of Etomidate on Short Synacthen Tests in critically ill patients.

The Principal Speaker of the day was Professor John Marshall, Toronto, Canada – President of the Canadian Critical Care Trials Group

Professor Marshall gave a review of the history, ethos and work of the CCCTG. From its inception in 1989 it has tried to foster multicentre research and provide a venue for education in research methodology. The CCCTG has three meetings a year split across the country and has an association with the Canadian Critical Care Society. The CCCTG has an ongoing policy of protocol review whereby a new study is critiqued in terms of the clinical question it hopes to answer, the associated abstract, the proposed methodology, plans for pilot work, funding and execution. Ongoing studies are reviewed periodically for progress and future plans.

Some of the studies undertaken include stress ulcer bleeding rates and prevention, Withdrawal of Life Support issues and rates, PROTECT study comparing unfractionated and LMWH in prevention of VTE, ABLE study (Age of Blood Evaluation) and the effects of older blood on mortality rates, to name but a few. Professr Marshall outlined that in his opinion the main reasons for the CCCTG's success has been related to focusing on questions that clinician's want answered, fostering a generous collegial mentality, maintaining the review and mentoring process, utilising a programmatic model of research and avoiding pharmaceutical involvement. The challenges facing the Group will be gaining sustainable sources of funding, improving education and mentoring, increasing the membership, developing international collaborations and investing in research about research. He thanked the SICS for the invitation to speak and wished the Society every success for the future.

Paul Harrison



*Professor John Marshall of Toronto, principal speaker of the day, reviews the history of the CCCTG*



# annual spring meeting of ics uk

This years Annual Spring Meeting took place in Glasgow. The two days of lectures followed on from the skills for intensivists day and the earlier trainees meeting. 300 delegates gathered in the famous Scottish Exhibition and Conference Centre to hear a wide collection of world experts, network amongst peers and catch up on the latest research and innovations.

The SECC, the so called Armadillo, represents part of the continued development of the former shipyards and for a few minutes each year manages to catch the sunset for the now ubiquitous photographs. My last visit to the SECC had been to Kylie's Showgirl tour the previous month. Aside from the extravagant costumes and meticulous choreography, this was an outstanding address by one of the leaders in her field. I wondered if the ICS could compete?

Not all delegates who arrived at the first session had joined the 7am charity fun run along the river. The session on comprehensive critical care kicked off the meeting. Prof Joynt from Hong Kong presented some work from his unit that perhaps reassuringly provided evidence that intensive care units do provide an outcome benefit. The evidence base for outreach was reviewed by Dr Cuthbertson (Aberdeen) who firmly argued that outreach does not work and that intensive care units should be with secure walls and running to capacity. From those four walls however, the registrar must emerge to join the hospital at night team; Dr Coakley (London) spoke of his, largely positive it seems, experiences of these and emphasised the large culture shifts these set-ups must entail.

A parallel session on the airway in intensive care ran after coffee. Dr McCloskey (Belfast) explored the potential problems that we run into in the process of intubating our ITU patients and how this differed from the theatre environment. Once intubated, means of preventing ventilator-associated pneumonia were discussed by Dr Swan (Edinburgh). Much of the evidence for these, and much else, is available on the Scottish Intensive Care Society web site ([www.sicsebm.org.uk](http://www.sicsebm.org.uk)) in easily digested reviews (CATS).

A generous lunch allowed for perusal of the posters and trade stands as well as the surviving sepsis campaign symposium. With

bright lunch boxes balanced on knees we heard the basis of the bundles, the practicalities of their implementation and perhaps for some, ammunition for the debate on Friday. The research and clinical practice posters were to a high standard with the authors keen to engage in further discussions. The varied trade representatives impressed upon us the continued innovation and development at a corporate level, including, for example, an external lung driven by the patients own cardiac output.

The afternoon was split initially to parallel sessions on non-invasive ventilation and electronic ITU. The take home from the NIV session was that when NIV works, it works well. There are outcome benefits and that its scope may broaden.

Headline act, Prof Gattinoni (Milan) addressed the whole conference on ventilation in ARDS. This included discussion of much of the background to current ideas, a lot of which was established in the 1970s; as well as current thoughts and controversies. To round off the first day, the recently retired Dr Wallace (Glasgow) returned from the golf course to entertain us all with his many experiences, good and bad, of over 30 years as a leading light in intensive care medicine.

The annual dinner that first evening must have been a success for the number of glasses of water circulating first thing. The morning session on infection considered bacterial resistance to cephalosporins; ways to prevent central line infections and the microbial ecology of the ITU. These humbly reminded us that we are not the only ones at home in our ITUs. Professor Joynt shared his first hand experiences of the front line of the recent SARS outbreak and the profound effect that it had on all those involved.

Four abstracts had been selected for discussion by their authors. Dr Cadamy (Glasgow) presented his data on the relationship of b-type natriuretic peptide on ITU mortality and explored some of the potential avenues for his work. The prize-winning presentation by Dr McKechnie (Edinburgh) was his research on the effects of hyperoxia on trans-differentiation of alveolar epithelial cells; his immunofluorescence techniques certainly gave very dramatic slides.



*The famous Armadillo in Glasgow, location of Annual Spring meeting of the Intensive Care Society UK*

Surgical colleagues Dr Ramsay (Maastricht) and Mr Carter (Glasgow) discussed the management of acute severe pancreatitis. The recent consensus expert guidelines on this provided at least a foundation for the discussion, but we witnessed that debate on many aspects of the treatment of pancreatitis is very much active.

The final two parallel sessions were on life after ICU and hot topics. In hot topics we heard from Prof Singer (London) that the PAC-MAN study had just been accepted for publication and there was not a difference between the two groups. The polyneuropathy of critical care is likely to be underestimated and is of unclear causation according to Prof

Hinds (London). The meeting rounded off with a debate on whether to adopt the surviving sepsis bundles. Both Dr Beale and Prof Singer argued their cases with skill and wit and perhaps the same inter-unit rivalry exists in London as it does in Glasgow!

So on reflection, costumes may be lacking but the meeting was meticulously choreographed and we heard many world leaders sing, a credit to the organisation of Dr Sandy Binning and the rest of the ICS team.

Richard Price, SpR, Western Infirmary,  
Glasgow

---

## west of scotland intensive care society report

The year started with a change in personnel leading the Society. Dr Brian Cowan completed his tenure as President, as did Dr Phil Oates as Secretary. Both take with them the gratitude of the Society for their work and support.

Dr John Kinsella took over as President, Dr Rory MacKenzie joined the Committee and I took on the responsibilities of Secretary.

The Society has had a good year with an increase in membership and good attendances at the meetings.

The first meeting of the season was "Intensive Aftercare After Intensive Care" from Dr Carl Waldemann from the Royal Berkshire Hospital. He gave an excellent insight into their post intensive care support and clinic program. This is an extremely topical area, although one which has not been addressed extensively in the West of Scotland.

As is usual the second meeting in February was the Registrars' Presentation. This year we had 5 entrants, all of whom presented their work to the Society. Dr Andrew Cadamy from Glasgow Royal Infirmary won first prize for his presentation: Brain Natriuretic Peptide: a useful marker... or just another 'serum rhubarb'?

The third and final meeting of the year is scheduled for May 24th when Professor Bellamy from St James University Hospital

will address the topic of liver failure. This is a disease which we are all very familiar with here in the West. The AGM will be held after the meeting.

The Society's Travelling Fellowship has been awarded to Dr Andrew Cadamy to enable him the travel to Aarhus University Hospital in Denmark to study the use of transthoracic echocardiography in the ICU there. We look forward to hearing his report next February.

Meetings are open to all staff involved in intensive care, members and non-members alike. There is complementary buffet prior to the meeting, a CME point during and, usually, an optional beverage at a local hostelry afterwards.

Membership enquiries should be directed to myself.

Malcolm Booth  
*Consultant Anaesthetist, Department of Anaesthesia, Royal Infirmary, Castle Street, Glasgow G4 0SF*

Telephone: 0141 211 4620

email: malcolm.booth@northglasgow.scot.nhs.uk

## south east scotland ITU group

There were several changes in personnel over the year. Dr Bob Malcolm (Queen Margarets, Dunfermline) took over as SICS representative from Mike Fried. Dr Brian Cook (Royal Infirmary, Edinburgh) replaced Alasdair MacKenzie as Treasurer.

As in previous years a series of meetings were hosted by the individual departments throughout the region. The focus had been to encourage greater trainee participation from a "wider" background of parent specialities. This proved to be moderately successful with greater attendances and increased enthusiasm and approval (via informal feedback).

The first meeting at the Western General Hospital involved Dr Ian Grant giving an erudite review on the "difficult to wean" patient, including considerations made for the initiation of home ventilation. St. Johns Hospital presented several interesting cases

and discussion ensued on the use (and timing of use) of vasopressin in catecholamine-refractory shock.

The Royal Hospital for Sick Children hosted the next meeting – presenting several cases relating to the general theme of severe infections. Professor Emili-Milic from Montreal (a mentor of Gordon Drummond) was sponsored by the group in delivering a lecture at the Royal Infirmary considering what lessons from physiological research into COAD could be applied to acute lung injury.

Dr Tim Parke from the Southern General Hospital, Glasgow gave the final talk of the year examining potential changes to the early management of patients with suspected sepsis in the Accident and Emergency Department. A vigorous and illuminating discussion ensued thereafter.

David Semple

---

## scottish intensive care society audit group report

### Annual Audit Meeting

The Society's 10th Audit Meeting was held on 12th November 2004 in the Education and Conference Centre, Stirling Royal Infirmary. The 100-strong audience had the privilege of listening to Professor Mitchell Levy, Rhode Island, who was our guest, international speaker. His contribution to the meeting was excellent; firstly, presenting the *Surviving Sepsis Campaign*, participation in which ICUs in Scotland must investigate and discuss. We were fortunate to have Mitchell finish the day with a very thought-provoking presentation on *End of Life Care*.

As well as welcoming the delegates, Simon Mackenzie gave an overview of audit activities and the Annual Report. He presented suggestions as to the possible future work of SICSAG, including the application of the 'Sepsis Care Bundle'. The sepsis care bundles have been tested in the Royal Infirmary of Edinburgh and some very positive results from

this were presented by Julia Critchley, a 4th Medical Student who had worked on the bundle with Dermot McKeown. During Simon's review of the Report, Louie Plenderleith stepped in and described the introduction of Statistical Process Control to data analyses as a means of assessing clinical outcome.

Gill Harris presented an update on the level of participation of HDUs in the audit. She was able to present comparative results on HDUs' activities for 2002 and 2003. The HDU nursing staff were praised for their continued interest in the HDU audit, which they conduct with little support from medical colleagues. There were discussions about the changes to the minimum Augmented Care Period (ACP) dataset, which will better address description of HDU activity as well as enable objective classification of levels of care in both ICU and HDU. The modifications are well underway on the audit software, as detailed by Brian Millar (Critical Care Audit LTD, Yorkshire). Brian also

updated the audiences on the changes to for the surveillance of hospital-associated infection and Malcolm Booth reminded us about this important study.

Over the last few years there has been an increase in the number of Outreach teams and integration of early warning scoring systems in various hospitals. A very informative and interesting session on early warning scoring systems generated animated discussion. Ian Thomson (Outreach and Shock Team Co-ordinator) reviewed North Glasgow University Hospitals' experiences of MEWS, including the process involved and the audit results. Implementing early scoring systems in acute medicine has so far been challenging. The NHS Quality Improvement Scotland Illness Severity Scoring Subgroup has, however, developed and piloted an early warning score in acute medicine in Lothian. The background, process and results of this pilot were presented by Ruth Paterson (Practice Development Nurse, Lothian). Crucially, the results in these presentations demonstrated a significant increase in documentation of physiological parameters and a reduction in mortality post-introduction of the charts. An important point Ian and his colleague, Judith Roulston, made was the requirement for continued support and monitoring to maintain momentum of ward staff. That the early warning tools described by Ian and Ruth (as well as those implemented in other hospitals) varied slightly was not seen as detrimental; the mere fact that there is a process in place that encourages greater recording of physiological variables, enhances early recognition and prompt, appropriate treatment is the most important feature of early warning tools.

Evaluation of the meeting was very good.

**Date for your diary: Annual Audit Meeting, Friday 28th October 2005.**

## Annual Report

The Annual Report was published in September 2004. As well as reporting on ICUs' activities, we conducted an in-depth review of the transfers of patients to ICUs, overall, within NHS Boards and across NHS Boards. We continue to work with Scottish Pharmacists and reported on the variation in the use of, and expenditure on, sedative and neuro-muscular blocking agents in 16 ICUs. For the first time, we presented outcome data in the form of a Statistical Process Control chart. Copies of the report were available for delegates at the Annual Audit Meeting and an electronic version was included on a CD-ROM

in each delegate's pack. A series of graphs were compiled for each ICU's data that complemented the national data described in the annual report. Each series of slides was emailed to the ICU consultants and nurses for whom the audit group has email address. A memo containing the unit's identifiers for the anonymised data in the Report was included in the email. The Report is available to read or download from the website.

## Ward Watcher Modifications

Changes have been made to reflect the dynamic nature of the audit. The main modifications are summarised below:

- **Augmented Care Period dataset (ACP):** Previously agreed modifications to the ACP dataset have been made and are gradually being installed around Scotland. The ACP changes reflect the need for a single dataset which accommodates both the ICU and HDU audits' needs and the requirement to describe case mix according to standard definitions (levels of care).
- **ICU-Associated Infection:** SICSAG has collaborated with Health Protection Scotland (formerly, Scottish Centre for Infection and Environmental Health) for the last few years to design an ICU-associated infection surveillance system using the national audit software (Ward Watcher, Critical Care Audit Ltd., Yorkshire). Ward Watcher has now been modified and contains a criterion-based dataset compliant with an European initiative, Hospitals in Europe Link for Infection Control through Surveillance (HELICS). The program been recently upgraded in 6 ICUs: Glasgow Royal Infirmary, Ninewells Hospital, Royal Alexandra Hospital, Royal Infirmary of Edinburgh, Western Infirmary and Southern General Hospital. These units will be pilot sites to test the feasibility of conducting the HELICS surveillance in Scotland using Ward Watcher. There have been very positive responses to the ease of use of Ward Watcher for this surveillance. Other sites have expressed interest in the surveillance and it is hoped that they will participate in the future. The surveillance will enable comparison of Scottish data with other European ICUs.
- **SICS Diagnoses:** In 1999, the Society introduced a more comprehensive, common diagnosis list, hoping that a clearer picture of problems requiring intensive care would be available. A

review of the list and identification of missing diagnosis from the 'Other' selection was carried out last year. The list has been updated to make it more inclusive and will be gradually updated across the units.

- **Removal of Extraneous Datafields:** The latest version of Ward Watcher has also seen the removal of extraneous datafields. These include the fields used in the past by the Mortality Probability Model (MPM) II at admission and at 24-hours (middle section of history screen and severity screen fields). Remnants of the prospective sepsis study conducted in 2002 (fields on the ACP screen) have also been removed.

## SIGNET (Scottish Intensive care Glutamine or seleNium Evaluative Trial)

MRC funding for Scotland's first randomised clinical trial in intensive care has been granted. Paramount to this award was the already established ICU audit network and our track record of international publications. The TISS data that were collected in the ICUs during 1999-2000 were instrumental in determining the extent of parenteral nutrition in Scottish ICUs and, along with the length of stay of these patients recorded in the database, was instrumental in powering the study.

## HDU Audit

There are currently 27 HDUs in which the nursing staff diligently continue to collect data. Welcome to Gilbert Bain Hospital in Shetland in which data collection began this year. Six-monthly reports on each unit's activity during 2003 were produced and distributed to the units as well as a summary of their activity throughout 2003. Subsequent discussions relating to the content and relevance of the information contained within the reports have been positive.

## Data validation

High quality data collection is very important – the results from the data are used both clinically and managerially. Gill has highlighted 'age' errors, a result usually of recording an incorrect year of birth – often this is at the turn of a year. This error will be reduced by improvements in the forthcoming Ward Watcher upgrade, however, we encourage your continued attentiveness during data entry.

## Staff

Gill Harris left the SICSAG in March 2005. We thank her for her hard work since November 2001 and wish her well in her new post and her continued active duties as Captain Harris in the Territorial Army.

## Contact us

As always, if you have any queries, please don't hesitate to contact the audit group staff by phone or email.

SICSAG, Queen's Park House, Victoria Infirmary, Langside Road, Glasgow G42 9TY. Telephone: 0141 201 5271.

<http://www.scottishintensivecare.org.uk>

Fiona MacKirdy

*Project Director*

# education committee report

The annual intensive care course is now part of the year calendar. Originally there was three courses a year rotating around different areas in Scotland but recently to match demand there is now the one annual course which is held in Stirling. For the first time last year the course was organised by the intensive care trainees, very ably led by Mo Al-Haddad and supervised by Martin Hughes. It was a resounding success in terms of numbers attending, educational content and (very importantly to me) financial balance. The numbers were increased by very good publicity and also making sure allied health professions were well represented. This produced a very good mix of skills and opinions for the course and made the small group work especially rewarding. The books were balanced by making very good use of pharmaceutical sponsorship while making sure that during the course their presence did not overwhelm the delegates. This is a trend that is very likely to continue as the cost of hiring suitable venues continues to rise. The next course is again being organised by the trainees with Mike MacMillan leading and is to be held on the 25th and 26th of August. Please let all on your units know about it. It is still very good value for money !

The other work of the committee this year is on induction for trainees who are starting intensive care for the first time. We are going to be contacting all units in the very near future to gather information on what is already out there and hope to collate this information to produce guidance on what trainees should be inducted with when they start their intensive care careers. Please feel free to contact us with any ideas that you may have.

Finally, as last year, we are always looking for new members of the group. So, if you feel you want to get involved please get in touch.

Steve Stott

*Chair, Education Group*

# scottish critical care delivery group chairs' forum report

The group continues to be active, meeting twice a year – lately at St John's Hospital, Livingston. Geographically disparate representation continues from Shetland to Dumfries. Close collaboration continues with the SICS, the SICS audit group and the SE Health Department. The principal topics of discussion have been:

1. SICSAG: the importance of the continuation of both the HDU and ITU audits was stressed.
2. Acute service reconfiguration: this is affecting and will affect all parts of the country. Changes have occurred in Fife, Inverclyde, Vale of Leven, Forth Valley, Tayside and West Lothian. Reviews are occurring in Lanarkshire and GGHB. The changes have a direct effect on critical care services. Transport of the critically ill (secondary transport) becomes a live issue (see separate report).
3. Outreach and patient at risk scoring systems: outreach has not been universally adopted not due to the lack of trying but because of the resource implications. A new group has been

established - Critical and acute care outreach interest group for Scotland (COGS) at which Dr Nigel Leary is our link person. Other areas use early warning scoring systems (e.g. MEWS and SEWS).

4. Winter pressures: the under provision of level 3 (average occupancy across Scotland is >80%) and surgical level 2 capacity continues, although we have been able to accommodate the 2004/5 winter pressures. Medical level 2 capacity remains a challenge with the early signs of improvement in some hospitals.
5. I am coming to the end of my 3 year term and by next year we will have a new chair (so this will be my last report!)

In summary the group remains active with good and representative participation. Active "cross pollination" with other organisations such as the SICS and SEHD continues.

Mike Fried

*Chair, Scottish CCDG Chairs' Forum*

# scottish transplant group report

The drive to increase the numbers of organ donors continues. Advertising campaigns in the media to increase population awareness and family discussion have taken place over the year.

The pilots of non-heartbeating donation have begun in the Southern General Institute of Neurological Sciences in Glasgow and in The Royal Infirmary, Edinburgh. It is hoped they will produce a modest increase in donors as indicated in a pre-launch audit. The Single Organ Retrieval Team was officially launched on the same day last October, and so far is proving popular with anaesthetists and intensivists. This is consultant lead and will be carefully audited during this first year. Both numbers of organs and their quality after retrieval will be considerations in a rather more complicated evaluation of the future role and sustainable configuration of this service.

Both the Intensive Care Society and the British Transplantation Society have produced updated guidelines this year and are available on their web sites.

Another group under the Chairmanship of Peter Simpson is looking at revision of the criteria for the diagnosis of death by brain stem testing ( the yellow book ) and also by conventional cardio-respiratory examination. This is more complex and contentious than it would appear at first sight. Hopefully they will report in the next year.

It remains important that we continue to have a voice in the developments

Dr James Dougall

# scottish transport of the critically ill group report

This is a multidisciplinary group (ITU consultants and nursing staff and the Scottish Ambulance Service (SAS)) with geographical representation from across Scotland. It was set up under the aegis of the SICS and the SAS. Its remit is to act as a forum for the exchange of ideas between clinicians and the SAS, the design of a critical care trolley, the formulation of advice to be offered to the SAS, SICS and SEHD on matters of transport, which is gaining progressively greater prominence due to the centralisation of acute services with the clear repercussions that that has for the SAS.

## Achievements

1. The design and development of a new critical care transport trolley (CCT): this has been the result of a solid team approach with close collaboration between the SAS, the trolley manufacturer (Ferno) and the clinicians (in particular Dr Peter Curry, Dunfermline). The trolley is now available for clinical use. The SAS have given an undertaking that it will fit in most front line ambulances by next year. Currently all ambulance stations have at least one vehicle which will accept the trolley. The trolley is secured within the ambulance in seconds! The aim/hope is for the trolley to become the standard CCT across Scotland. The CCT costs £6995 (exc VAT) and is available from:

Ms Andrea Farrow

Ferno (UK) Ltd  
Ferno House  
Stubs Beck Lane, Cleckheaton  
West Yorkshire BD19 4TZ

Telephone: 01274 851999

e-mail: AFarrow@ferno.co.uk

Any questions or problems don't hesitate to contact myself: mike.fried@wlt.scot.nhs.uk

2. We have successfully taken part in the SAS's air procurement exercise consultation and Drs George Smith (Aberdeen) and

Catriona Barr (Shetland) are our "linkmen" in helping to design the new air ambulance service which is due to "take off" in 2006. We are also working on the air/land transport interface which is currently so frustrating.

3. We are currently in active discussions with the SAS and NHS National Services unit in trying to address the question of how we best deal with the secondary (inter-hospital) transport of the acutely ill patient – the required infrastructure (co-ordinating centre, dedicated vehicles, trolleys) and the much more difficult staffing implications (ambulance drivers and medical retrieval teams).

In summary we are busy!

Mike Fried

*Chair, Scottish Transport of the Critically Ill Group*

# sics evidence-based medicine group report

2004 has been a very productive year for the EBMG. There was a significant increase in publications compared with previous years. Five reviews (Therapeutic Hypothermia following OOHCA, Making Changes To Practise, Prevention of Ventilator-Associated Pneumonia, Guillian-Barre Syndrome, Inhaled Nitric Oxide and Prone positioning in ARDS) and eleven stand-alone paper reviews were published on the groups website ([www.sicsebm.org.uk](http://www.sicsebm.org.uk)). This represents a total of 47 newly published critical appraisals, bringing the total published by the group to-date to 80, by far the largest collection of critical care appraisals available on the web today.

The website had grown in popularity over the last year. It currently attracts over 5,000 visitors per month. This has led to a steady rise in the websites world wide rankings with the webs major search engines. Currently when searching under "evidence based intensive care" the site ranks 1st (Google), 2nd (BT.Yahoo), 3rd (AltaVista) and 5th (Yahoo). This reflects well the large amount of work put into the website by many of the group.

There have been several other modifications to the site over the year: a feedback facility, automated updates and a download section.

September 2004 saw the launch of the groups automated email updates. All SICS members should now receive email updates alerting them to new publications or website features. This service is also available to non-SICS members through the website.

The SICS EBMG and CCTG held their first joint

meeting in June 2004 in Bridge of Allan. The meeting was well attended by almost 50 delegates. A wide range of research and EBM topics were discussed.

The following projects are ongoing: Nutrition (Marcia McDougal), Hypothermia II (Chris Cairns), Prevention of CVCrBSIs (David Swann), NIV (Michael MacMillan), SDD (Muthuswamy Pillai).

As always, the group welcomes submissions for publication on the website. All submissions to the group are now peer reviewed by at least two reviewers. The reviewers are named on each publication.

Chris Cairns

*Chair, SICS EBMG*

Five CATS were presented at the Evidence Based Medicine Section of the Critical Care Trials Group Meeting in June 2005. A prize was awarded to Anja Beilharz, an SHO from Stirling, for the best presentation. The winning CAT is published here - see pages 20-21.

# clinical care trials group, emb section winning cat

## OOHCA: Hypothermia may improve outcome

Only a few people sustaining an out-of-hospital cardiac arrest survive with a good neurological outcome. Systematic review of 3 existing studies (varied in methodology and end-points). For every 6 patients cooled (method varies) one more good neurological outcome (95% CI 4 to 12). Level of evidence: 1<sup>-</sup> (SR with a high risk of bias: single not multiple reviews, no testing for heterogeneity))

**Citation/s:** [Hypothermia for neuroprotection after cardiac arrest: Systematic review and individual patient data meta-analysis, Critical Care Medicine 2005;33; 414-418.](#)

**Lead author:** Michael Holzer, Department of Emergency Medicine, General Hospital Vienna, Medical University of Vienna, Vienna, Austria

**Three-part Clinical Question:** Does induced mild hypothermia improve neurological recovery in survivors of primary cardiac arrest?

**Search Terms:** Hypothermia, Cardiac arrest, therapy

**Data Sources:** Cochrane Central Register of Controlled Trials, MEDLINE, EMBASE, non-English sources, CINAHL, PASCAL, BIOSIS

**Study Selection:** Included: randomized or quasi-randomized trials<sup>1-3</sup>, of adults, who were successfully resuscitated after primary out-of hospital cardiac arrest. Therapeutic hypothermia applied within 6 hours of arrival in A+E. Excluded: no control group or historical controls.

**Data Extraction:** all authors of the identified trials supplied individual patient data with a pre-defined set of variables:

*Patients:* 3 studies enrolling 275, 77, & 33 patients, adults, comatose after VF/VF/PEA or asystole cardiac arrest, after return of spontaneous circulation

*Treatment:* induced hypothermia, target temperature < 35°C, 3 different methods (cooling mattress +/- icepacks, icepacks, helmet device), within 6 hours after arrival at Emergency Department after event

*Outcome:* Short term: good neurological recovery (Cerebral Performance Categories Scale 1 or 2) and discharge from hospital. Long term: good neurological recovery and alive at 6 months.

There were not multiple independent reviews of individual reports. They were not tested for heterogeneity.

## The Evidence:

Outcome	Time to outcome	Typical CER	Typical RR	RRR	NNT
Alive with good neurologic outcome	Hospital discharge	0.31	1.68	- 60%	- 6
	95% confidence intervals		1.29 to 2.07		- 4 to - 12
Alive with favourable neurologic recovery	6 months	0.36	1.44	- 44%	-6
	95% confidence intervals		1.11 to 1.76		- 4 to - 25

## Comments:

1. Do the methods allow accurate testing of the hypothesis? **No**, the studies are heterogenous for patients included (VF/VT cardiac arrest versus PEA/asystole with known grim prognosis of the latter), of small sample size (n = 275, 77, & 33). Different methods of treatment in each trial (different method of cooling, target temperature,

duration of hypothermia, method and timing of rewarming). Different outcome measures and study objectives (one study<sup>3</sup> was not designed to assess neurologic outcome, but to test the feasibility and timing of the helmet device to achieve hypothermia).

2. Do the statistical tests correctly test the results to allow differentiation of statistically significant results? **Yes**, but note 1) and also outcome measure “alive at 6 months” was recorded in *HACA* trial only<sup>1</sup>.
3. Are the conclusions valid in view of the results? **No**. See Q1. There must be some doubt over the validity of the results due poor methodology.
4. Did results get omitted, and why? **No**, on the contrary: 3 patients who were not in the original publication in 2001 were added to *Hachimi-Idrissi et al.* for the purpose of this meta-analysis.
5. Did the authors suggest areas of further research? **Yes** - further research necessary with standardised methodology and chosen end-points, to determine optimal method of cooling including duration, and to describe clearly long-term outcomes.
6. Did they make any recommendations based on the results and were they appropriate? The authors suggest that mild hypothermia is effective in improving short-term recovery and survival in patients resuscitated from cardiac arrest of presumed cardiac origin. However further research regarding the exact method for applying hypothermia is recommended and a warning not to use hypothermia uncritically in view of possible adverse side effects is issued.
7. Is the study relevant to my clinical practice? **Yes**, but again, more due to the 2 large RCTs rather than this systematic review. Nothing new is added.
8. Level of evidence? **1<sup>+</sup>** ; high risk of bias.
9. What grade of evidence does this study represent alone? **N/A**.
10. What grade of recommendation can I make when this study is considered along with other available evidence? **B**
11. Should I change my practice in view of these results? **Yes**, but because of the 2 large RCTs.
12. Should I audit my practice: if hypothermia used, then it should be audited with attention to clinical detail.

Appraised by: Dr Anja G Beilharz, SHO, Stirling Royal Infirmary, Department of Anaesthesia, Intensive Care and Pain Management, Livilands Gate, Stirling FK8 2AU. 15 June 2005.

Edited by CC & MD. Email: [anjagbeilharz@doctors.org.uk](mailto:anjagbeilharz@doctors.org.uk)

Kill or Update By: May 2010

#### References:

- 1) *HACA*, NEJM, Feb 21, 2002, Vol.346: Mild therapeutic hypothermia to improve the neurologic outcome after cardiac arrest
- 2) SA *Bernard et al.*, NEJM, Feb 21, 2002, Vol.246 : Treatment of comatose survivors of out-of-hospital-cardiac arrest with induced hypothermia
- 3) S *Hachimi-Idrissi et al.*, Resuscitation 51 (2001): Mild hypothermia induced by a helmet device: a clinical feasibility study

**Citation:** *EBM Critical Appraisals. Scottish Intensive Care Society EBM Group. Beilharz AG. 2005* : Holzer M, et al. Hypothermia for neuroprotection after cardiac arrest: Systematic review and individual patient data meta-analysis, *Critical Care Medicine* 2005;33; 414-418.

# The Scottish Intensive Care Society

The Society is managed by a Council and the office bearers are:

President ..... Dr James Dougall ..... Glasgow  
Past president ..... Dr Louie Plenderleith ..... Glasgow  
Secretary ..... Dr John Kinsella ..... Glasgow  
Treasurer ..... Dr Michael Fried ..... Livingston

## Area Representatives and Co-opted Members

### West Area Representatives

Dr Charlotte Gilholy ..... Royal Infirmary ..... Glasgow  
Dr Malcolm Booth ..... Royal Infirmary ..... Glasgow  
Dr Rory Mackenzie ..... Monklands

### East Area Representatives

Dr Graeme Nimmo ..... Western General ..... Edinburgh  
Dr Robert Savage ..... Forth Valley

### North Area Reprs

Dr Stephen Stott ..... Aberdeen  
Dr Stephen Cole ..... Dundee  
Dr Sandy Hunter ..... Inverness

### Trainee Representatives

Dr Yadhu Rajalingan ..... Edinburgh

### Co-opted

Audit Group Chair ..... Dr Simon Mackenzie  
Chair of Scottish Critical  
Care Trials Group ..... Dr Tim Walsh  
Evidence Based Medicine Group ..... Dr Chris Cairns  
Chair of Education Sub Group ..... Dr Stephen Stott  
Meetings Convenor ..... Dr Sandy Binning  
SICSAG Project Director ..... Fiona McKirdy  
Editor of Annual Report ..... Dr Philip Oates

## Future Meetings

SICS Annual Research Meeting ..... Thursday, 26th January 2006  
SICS Annual Scientific Meeting ..... Friday, 27th January 2006

The above meetings will be held at:

Hilton Dunblane Hydro  
Perth Road  
Dunblane FK15 OHG





The Scottish Intensive Care Society

Secretary: Dr John Kinsella, University Department of Anaesthesia, Glasgow Royal Infirmary

[www.scottishintensivecare.org.uk](http://www.scottishintensivecare.org.uk)

[www.sicsebm.org.uk](http://www.sicsebm.org.uk)