TICO (Thrombolysis in Coronary Occlusion)
TIMAD (Ticlopidine in Micro-Angiopathy of Diabetes)
TIMI (Thrombolysis in Myocardial Infarction)
TIPE (Thrombolysis in Pulmonary Embolism Study)
TIPE (Thrombolysis in Peripheral Embolism Patient Study)
TOHMS (Trial of Hypertensive Medications Study)
TOHP (Trials of Hypertension Prevention)
TOMHS (Treatment of Mild Hypertension Study)
TOP (Thrombolysis in Old Patients)
TPAT (Tissue Plasminogen Activator, Toronto)
TPT (Thrombosis Prevention Trial)
TRENT (Trial of Early Nifedipine Treatment in Acute Myocardial Infarction)
TRUST (Trial of United Kingdom for Stroke Treatment)
UNASEM (Unstable Angina Study Using Eminase)
UNSA (Unstable Angina Study)
UPET (Urokinase Pulmonary Embolism Trial)
URALMI (Urokinase and Alteplase in Myocardial Infarction)
USIM (Urochinasi per via Sistemica nell'Infarto Miocardico)
VACA Registry (Valvuloplasty and Angioplasty of Congenital Anomalies Registry)
V-HeFT (Veterans Heart Failure Trial)
WARIS (Warfarin ReInfarction Study)
WHA Study (Worcester Heart Attack Study)
WWICT (Western Washington Intracoronary Streptokinase Trial)
WWIST (Western Washington Intravenous Streptokinase Trial)

Monitoring myocardial damage in cardiac surgery by troponin T detection

SIR,—Perioperative myocardial injury remains the most common cause of death in cardiac surgery. The need for new diagnostic criteria to assess the comparative efficacy of different myocardial protection techniques prompted us to identify reliable markers of myocardial necrosis. Katus *et al* reported that the serum concentration troponin T, a cardiospecific protein, reliably detects myocardial cell necrosis in patients undergoing myocardial revascularisation.[1] We assayed troponin T (ELISA, Troponin T, Boehringer Mannheim) in 40 consecutive patients of whom 34 underwent coronary artery bypass grafting (CABG), four mitral valve replacement (MVR), and two aortic valve replacement (AVR). Myocardial protection was accomplished by anterograde-retrograde blood cardioplegia according to the method described by Buckberg.[2] No perioperative deaths occurred. Using the same electrocardiographic (ECG) criteria for perioperative myocardial infarction described by Katus *et al* we found two cases among the CABG patients and one among the AVR patients Troponin T concentrations were lower than 0·1 μg/l in all preoperative samples and rose after surgery in the three patients with perioperative myocardial infarction to a peak value of 6·06 μg/l, 11·67 μg/l, and 28·75 μg/l respectively. These results accord with those of Katus *et al* who reported a troponin T median peak value of 11 μg/l (range 6–31 μg/l) in patients in whom ECG signs of perioperative myocardial infarction developed after CABG. In patients with no evidence of myocardial infarction after surgery troponin T release was significantly lower (mean (SD) 0·96 (0·98) μg/l, median 0·68 μg/l, range 0·26–4·6 μg/l) than that in patients with perioperative myocardial infarction. Surprisingly, these values were also lower than that reported by Katus *et al* in a similar subgroup (median 5 μg/l, range 1·3–11 μg/l) who were cardioprotected by a Bretschneider HTK cardioplegic solution.[3] Because there were no apparent differences in the duration of cardiopulmonary bypass and aortic cross-clamping or the number of diseased and grafted coronary vessels we suggest that the reduced troponin T release seen in our patients was due to the different myocardial protection protocol. Therefore troponin T seems to be a highly specific and sensitive marker for myocardial cell necrosis, that is also useful for assessing the efficiency of myocardial protection techniques.

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1 Katus HA, Schoeppenthau M, Tanzeem A, Bauer HG, Saggau W, Diederich KW, *et al.* Non-invasive assessment of perioperative myocardial cell damage by circulating cardiac troponin T. *Br Heart J* 1991;**65**: 259–64.
2 Buckberg GD. Antegrade-retrograde blood cardioplegia to ensure cardioplegic distribution: operative techniques and objectives. *J Card Surg* 1989;**4**:216–38.
3 Gebhard MM, Bretschneider HJ, Gersing E, Preusse CJ, Schnabel PA, Ulbricht LJ. Calcium-free cardioplegia. *Eur Heart J* 1983;**4**:151–60.

BRITISH CARDIAC SOCIETY NEWSLETTER

The challenges that lie ahead in staffing cardiac units into the twenty first century, which were the subject of a meeting last November, require continuous debate. Both the Specialist Advisory Committee and the Manpower and Training Committee are developing strategies to improve our training programmes and ensure that staffing levels are appropriate.

The working party on cardiology in district general hospitals, chaired by Andrew McLeod, is contributing to this debate. All the indications are that nearly double the number of consultants will be required over the next decade and it remains to be seen how the funding will be provided. The formal government response to the Calman report after a period of consultation is awaited and will no doubt precipitate vigorous debate. Harmonising our training programmes with the rest of Europe is not going to be easy and cannot be achieved overnight.

The Specialist Advisory Committee is reviewing the content of training, which will become more structured with formal guidelines and a formal assessment of training of trainees being introduced.

Archives

Arthur Holman, who was appointed by Council, writes: "The main task of the archivist is the preservation and proper arrangement of the Society's records. These will include: minutes of Council meetings; financial accounts; minutes of annual general meetings; records of the scientific meetings and programme books; membership records; minutes of Officers' meetings; records and meetings of associated groups; and correspondence. Advice is being sought from a professional archivist on how these records should be kept and indexed, with special reference to computer management.

Our important need to have a complete set of the *British Heart Journal* from its foundation in 1939 has been met by a most welcome gift from Richard Emanuel. He has given us the bound volumes of the journal that belonged to his father, Professor J G Emanuel, and we are deeply grateful to him for his generosity. We now have to obtain a set of *Cardiovascular Research.*

In addition, I intend to establish a small library of books that will cover the development of cardiology from the mid-nineteenth century to the present day. If possible we would also like to have a small collection of historical instruments both diagnostic and therapeutic—for example, the Mackenzie polygraph and the mitral valve dilator.

If members have books, instruments, or other items of historical interest that they would like to donate to the Society I will be most grateful if they will get in touch with me either at the Society's office or at my home: Seabank, Chick Hill, Pett, Hastings, East Sussex TN35 4EQ (tel: 0424 813228)."

Data Management Committee: progress on the Read Clinical Terms

Malcolm Towers writes: "Our lists of diagnostic (clinical) terms in congenital heart disease and "adult" heart disease and terms for special investigations—such as electrocardiography, electrophysiology, and nuclear cardiology—have been completed. The list of terms for echocardiography is almost complete. The Centre for Coding and Classification now has the

difficult task of putting together our list and those of the 42 other specialist groups to form a seamless whole. This will have to be done early in the new year so that the work is completed by April 1994.

Within the past few weeks the diagnostic lists in congenital and adult heart disease were "piloted"—that is, submitted on disk with a simple browser to some of our members. They were not well received. It was a mistake to have combined adult and congenital heart disease because it was difficult to find common terms in adult cardiology among the large number of terms for uncommon congenital conditions. When the terms appear in April, adult and congenital heart disease will be "flagged" so that the user can choose which list to use. The pilot study did show a need for more acronyms and synonyms and this has been addressed. With the Read clinical terms, as with a new textbook or dictionary, readers have to get used to finding their way around.

Many general practitioners use the existing Read terms and say they would be lost without them. The new terms should be better and time will show how useful they are in hospital and specialist practice. Inevitably there will be errors and omissions in the new terms and things that could have been done better. We urge our members to use the new terms when they become available, to persevere with them, and to make constructive criticisms. Small changes can be made in the terms every three months or so and larger changes at longer intervals. A Read Code keyworker will be available through Fitzroy Square and ideas and suggestions can be passed on to the Centre for Coding and Classification."

European Society of Cardiology

Philip Poole-Wilson writes: "The European Heart House in Sophia Antipolis, 14 kilometres to the west of Nice, has now been officially opened. The Education and Training Programme for 1994 is available. The programme is being organised by Marten Simoons. The first meeting (13–15 January 1994) is on "Intracoronary diagnostic techniques in interventional cardiology" and is organised by Patrick Serruysa, C di Mario, and Jos R T C Roelandt from Rotterdam. The second meeting is on 10–12 February 1994 and the topic is "Advances in pacemaker technology: selection of the appropriate system for your patient." It is organised by Anthony Rickards, Rolf Nordlander, and K den Dulk. The programme extends from January to December and covers virtually all branches of cardiology. There are excellent programmes on echocardiography, myocardial infarction, myocardial viability, angina, endocarditis, arrhythmias, and prevention of coronary heart disease. Information can be obtained from ECOR Meetings Services Department, 2035 Route des Colles—Les Templiers, BP 179, 06903 Sophia Antipolis France (tel: 010 33 92 94 76 00, fax: 010 33 92 94 76 01).

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BCS COUNCIL STATEMENT

Strategic planning for cardiac services and the internal market: role of catheterisation laboratories in district general hospitals

INTRODUCTION

The advent of the internal market within the National Health Service has lead to major changes in the way in which cardiology and cardiac surgery are funded. Previously, they were designated as regional specialties and the budgets for services were often not "ring-fenced" but were lost in the overall financial programmes of the host hospitals, and activity was controlled by the facilities that were provided.

Supra-regional centres for cardiac and pulmonary transplantation, infant and neonatal cardiology, and associated cardiac surgery have been funded through central top-slicing, and until now have been the exceptions. Attempts to introduce a similar process for complex cardiac electrophysiology procedures have been unsuccessful.

THE NEW INTERNAL MARKET

The introduction of the internal market has led to major changes in the way that cardiac services are funded and controlled. The role of the Regional Health Authorities has altered from that of funding and supervising providers to that of supervising the purchasing functions of District Health Authorities. In turn Districts are being amalgamated so that the purchasing function is becoming multi-district. The increasing number of trust hospitals, though reporting directly to the Department of Health through the six Outposts in England and Wales, find themselves competing with each other and other providers for contracts offered by these new purchasing authorities.

At present the new arrangements provide no advisory machinery to ensure that there is appropriate strategic planning for individual specialties, and developments are dependent on market forces and the vagaries of the aspirations of individual trusts, directly managed units, and purchasing authorities. The emphasis of the purchasing authorities is on financial control with, as yet, no mechanism in place to ensure that the contracting arrangements provide levels of activity for individual procedures that meet national targets, with the possible exception in our specialty of coronary bypass operations, and even here the target is out of date (1990).

CONTRACTING ARRANGEMENTS

In the first year of the internal market (1991–92) money allocated to specialties was identified to individual districts on the basis of the activity in 1989–90 as recorded by finished consultant episodes and taking no account of case mix. The actual specialty costs had not been accurately identified before this exercise took place. When more accurate costings were available during the second year of contracting (1992–93), many districts were faced with a shortfall and could not purchase the same level of service as before.

At present there is no consistent pattern in the way that contracts for cardiology and cardiac surgery are being managed across the country.

Some District Health Authorities are buying cardiology and cardiac surgery from the provider with a mix of day case cardiology, inpatient cardiology, cardiac surgery, and thoracic surgery, each having a different price within a **block contract** that is controlled by finished consultant episodes but with indicative case mix.

In other areas such as Yorkshire, where contracting has been in place for longer, contracts have been refined as costing of individual procedures has developed. Here some contracts are negotiated on a **cost-per-case** or **cost and volume** basis.

Some Regional Health Authorities such as Trent have retained control of the contracting process, aiming for a managed transfer of the purchasing function.

This lack of uniformity nationwide has been aggravated by inadequate coding of procedures and by differing methods of apportioning costs to individual procedures.

WAITING LISTS

Traditionally, waiting lists have belonged to hospitals and there has been criticism of the length of these lists. Waiting list initiatives have required hospitals to shorten their lists for long waiters regardless of priority. Given that over 40% of work in adult cardiology and cardiac surgery is urgent or emergency, many districts have found it necessary to stop elective work during the second half of the contracting year. Only if additional income has been found through extra-contractual referrals or waiting list initiatives at marginal costs have some districts been able to continue to treat non-urgent cases.

It is now clear that responsibility for waiting times lies not with individual providers but with the purchasing authorities. It is therefore essential that the providers (including clinicians) enter into dialogue with purchasers to ensure that provision of services can be managed effectively to give a correct balance between emergency and elective cases.

DEMAND FOR SERVICES AND THEIR LOCATION

It has long been recognised that the population living adjacent to a specialist facility often makes more use of it than does a population that is more distant. In some regions districts with specialist centres are achieving rates for coronary bypass surgery of **800 operations per million of population per annum** compared with rates of less than **150 per million** in more remote districts, particularly those that do not employ a physician with specialist training in cardiology and those larger districts that employ only one cardiologist.

It is likely that the contracting process and weighted capitation will even out the provision of services and allow districts remote from tertiary centres to increase their uptake of cardiology and cardiac surgery procedures. However, the current inequality of access and the problems that are encountered with long waiting lists have caused some districts to consider setting up their own diagnostic facilities. This opportunity arises as a result of the recent appointment to district hospitals of cardiologists with the necessary invasive skills and