ANNUAL SCIENTIFIC REPORT 2001 - 2002
ESC WORKING GROUP ON COMPUTERS IN CARDIOLOGY (#15)

Over the past year, the following activities have taken place under the auspices or organisation of Working Group 15:

DICOM activities
No structured DICOM activities involving members of our WG have taken place over the past year.

Symposia at ESC Annual Meeting in Berlin
For the 2002 ESC Meeting in Berlin, 2 Symposia will be organized by our WG. The dates and titles of these symposia are as follows:

- Telemonitoring and wireless applications : Sunday, September 1: 08.30 – 10.00
- Integration of web-based technologies in clinical trials: Tuesday 3: 11.00 – 12.30

New members
Fortunately, we continue to receive regular requests from scientists wishing to become a member of our WG. In other words, our WG is growing, which is a very positive sign! After the candidate has submitted his/her CV, it is decided whether to accept the request or not. So far, none has been rejected. This procedure is carried out in close collaboration with the ESC offices in Nice. The official number of members as of July 2002 is now 160. Of course, additional new members are very welcome and anyone interested in joining should contact the Chairman of the WG.

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Computers in Cardiology Annual Conference
Rotterdam, The Netherlands - September 2001

Computers in Cardiology exists to encourage inter-disciplinary communication among cardiologists and other clinicians, engineers, computer scientists and physical scientists, and physiologists. The annual meeting is the most important meeting of the *Computers in Cardiology* Working Group of the European Society of Cardiology. The Chairman of this Working Group, Dr Johan Reiber, is on the Board of Directors, and this Board includes world-wide representation to ensure that *Computers in Cardiology* is truly international.

In 2001, we met in September in Rotterdam. The meeting was ably chaired by Dr Niek van der Putten, and assisted by Dr Nico Bruining, Simon Meij, Maud van Nierop, Robin Kollerman and Professor Maarten Simoons.

Traditionally the organisers lay on an opening symposium which focuses on an area of their choice. They chose the topic of " Novel techniques and computer applications in cardiology". This covered the importance of clinical information systems for patient care, catheter-based revascularisation, and the development and assessment of technical and clinical aspects of echocardiography, along with a guess at what lies ahead in the exciting future of echocardiography.

The main *Computers in Cardiology* Symposium opened the following day with presentations for the Rosanna Degani Young Investigator Award, which was won by Diego di Bernardo for his PhD research at Newcastle University on "Computer modelling of cardiac repolarisation for the analysis of the electrocardiogram". This was followed by 24 sessions over the 2½ day period. Although this seems a hectic programme, the meeting is very deliberately designed to give participants time to interact and discuss, especially on the opening day. I can give only a brief outline of the research presented. It included a range of imaging processing techniques, and much in the way of ECG processing, both of which were eminently suitable for a centre such as Rotterdam, which had pioneered developments in these areas over several decades. The range of topics in ECG analysis included atrial fibrillation, arrhythmias, non-linear dynamics and high-resolution ECG. In imaging, the topics included blood flow, left ventricular function, multi-modality and DICOM. There were also sessions on cardio-respiratory interaction and heart rate variability, as well as information systems and telemedicine.

The *Computers in Cardiology Challenge,* which started the previous year so successfully with a competition to detect sleep apnoea from the ECG alone, has led to further research worldwide and to the publication of a review by the organiser Dr Thomas Penzel in the July 2002 issue of Medical & Biological Engineering & Computing. With such success, there had to be another challenge, and this was an attempt to detect from an ECG without atrial fibrillation those patients who were at risk of atrial fibrillation (part 1) and those patients who would develop atrial fibrillation immediately at the end of the ECG given for analysis (part 2). This was a much harder challenge than for sleep apnoea, but nevertheless some research groups scored around 80% in part one with generally higher scores in part 2. As before, the competition raised lots of excitement, along with calls for further challenges. The data are still on 'PhysioNet' (www.physionet.org) if you would like to try your skills.

I cannot end without referring to the Poster Session. This session is one of the most popular at *Computers in Cardiology*. It has a well-publicised session all to itself, and almost everyone turns up for it. As always, there was so much discussion that delegates had to be encouraged to leave.

Hopefully you are now interested enough to want to look at the Proceedings. They were published in December 2001, two months after the meeting, and contain 174 manuscripts in 722 pages. The papers are indexed, so you should be able to find things fairly easily. It is published by IEEE (Computers in Cardiology 2001, Vol 28, Catalogue No. 01CH37287, ISBN 0-7803-7266-2).

For those of you who have access to the *Web of Science* produced by the Institute for Scientific Information, you can find *Computers in Cardiology* abstracts from 1991, under their Index to Scientific & Technical Publications (ISTP).

I and all the other Members of the ESC Working Group hope that we have encouraged you to come to Computers in Cardiology 2002. It is hosted by the University of Memphis and the University of Tennessee Health Sciences Center, and will be held in Memphis, USA from 22-25 September 2002, under the chairmanship of Dr Robert Malkin. We hope to see you there.

Alan Murray
Editor, Computers in Cardiology

http://www.cinc.org
Computers in Cardiology Home Page

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Internet activities

The impact of the Internet on the distribution of information from the ESC is growing rapidly and is involving many parts of the ESC organization.

Therefore, to integrate these activities, a number of tasks of the former Internet Committee have been taken over by the Committee for Internet Services Development, while the Editorial Board of the ESC Web is responsible for the ESC exposure on the Internet.

Willem Dassen represents our working group on the Editorial board.

In the Business plan 2000-2002, the Editorial Board has presented their plans to preserve and further improve the quality and content of the ESC web site.

After a period of four years, in which the web site has assumed an authoritative role in cardiology, and in which a high level of specific knowledge on internet technology has been accumulated at the Heart House, it was felt that new objectives should be defined by the Editorial Board.

The following is a list of a few of the projects that are aimed at further improving the quality of the web site:

- On line services were added to facilitate the organisation of the annual congresses, e.g. abstract submission, registration, hotel booking etc. The Internet forms de facto the default mode of communication.

- Information for the general public.
  In co-operation with the working groups, easy to read information, e.g. about examinations, procedures and guidelines should become available. Due to the large number of languages spoken in the ESC, and local differences, this represents an important task for the national societies

- In order to strengthen the interactive contents of the site, the broadcasting activity involving for example editorials, web-casts, etc will be increased.

- The web site will further be used to improve the visibility of the ESC-related journals.

- Special programs will be developed to improve the dissemination of information generated by national societies and working groups, despite occasional sub-optimal communication.

In summary, the ESC web site is already nearly reaching its entire potential target of professionals and therefore the Editorial Board will promote activities to further improve the quality of the content, driven by the actual needs of the visitors to the web site.

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Computer demos at the ESC in Berlin

Following the successful revival in Amsterdam, and Stockholm, the WG has again selected a total of 12 computer demos, which will be presented during the Berlin meeting in the ESC WebSp@ce. Unfortunately, there was again some confusion this year about the grading of abstracts indicated as "Computer Demo". Such abstracts were first graded as for a normal presentation, and only those receiving a certain grade were forwarded to the Working Group for consideration as a computer

demo. Unfortunately this could not be corrected in time for the Berlin meeting. We do hope and trust that this anomaly will be resolved definitively for the 2003 meeting. It proves that the computer demo has become an integral activity of our WG at the annual ESC meeting.

Activities in 2002/2003
For the new year 2002/2003, we envisage the following activities:
- Participation in the Annual Computers in Cardiology Meeting to be held in Memphis, USA.
- Involvement by some members in the new EU project Open ECG

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