<table>
<thead>
<tr>
<th>ESCMID</th>
<th>Assembly of Members 2003 Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESCMID</td>
<td>EUCAST – Antimicrobial Wild Type Susceptibility Distributions</td>
</tr>
<tr>
<td>Education</td>
<td>European Board for the Accreditation of CME in the Field of Infectious Diseases – EBAID</td>
</tr>
<tr>
<td>Features</td>
<td>Infection Imaging and the Magic Bullet?</td>
</tr>
</tbody>
</table>

Scanning electron microscopy showing a transverse section through an epithelial cell with *Chlamydia trachomatis* (see page 25)
As I write this edition of ESCMID News memories of the recent ECCMID, held in Glasgow, are still very fresh. To those of you who attended I think you will agree that it was among our best annual meetings. Not only did the programme have depth and quality, but the sessions were also very well attended, including innovations such as the poster walks and, of course, the SARS symposium. For those of you unable to participate, you can still experience a taste of the meeting by visiting the web casts available through the ESCMID website. There have been a number of changes in the make up of the Executive Committee as a result of recent elections and the installation of our new President, Marc Struelens. Jordi Vila has been appointed Scientific Officer, while Ragnar Norrby is President-elect and also responsible for Professional Affairs in Infectious Diseases. Andreas Voss will take on the task of deputy Programme Director whilst maintaining a hand on the tiller of the Society’s finances. Elizabeth Nagy has the portfolio of Professional Affairs in Clinical Microbiology. As Past President I now assume responsibility for Chairmanship of the Publications Committee, which includes ESCMID News, and also the Society’s Awards Committee. It is appropriate for me to add a note of thanks on behalf of the Membership and Executive for the outstanding job that Carl Erik Nord has done in launching ESCMID News. This is viewed as an important vehicle for communicating with our members and highlighting the profile of the Society. I hope to build on this success. EUCAST is featured in this edition. I am particularly pleased with the way the Committee has moved forward and achieved much respect under the leadership of Gunnar Kahlmeter. It is very much hoped that EUCAST will be able to achieve European consensus in the area of susceptibility testing and influence international thinking to encourage harmonisation in this fundamental area of antimicrobial science. It has implications for not only laboratory practice but also impinges significantly on clinical use, the control of antibiotic resistance and drug licensing and regulation. As Europe expands so do the responsibilities and influence of ESCMID. The involvement with UEMS has been mutually beneficial in producing standardisation of training programmes in infectious diseases and clinical microbiology, as well as endeavouring to promote these disciplines throughout member states. Furthermore, there is now a mechanism for gaining CME recognition across Europe. Likewise, the strategy of the Society to interface more effectively with the European Commission is likely to prove increasingly productive by highlighting the professional, educational and research needs of Europe. In order to become more influential the Society needs your views and support and must also seek new members. Here I would ask you to pass this copy of ESCMID News to a colleague to make them aware of ESCMID and its portfolio of activities. Membership is easily achieved by visiting the Society’s web-site www.escmid.org. As I finish writing, the last case of SARS has been reported (only time will tell!) and the WHO deserves congratulations; the annual round of conferences, workshops, teaching and examining have largely been completed; Wimbledon has finished with a most exciting men’s final and BBC is about to begin the annual season of Promenade Concerts. This all suggests that it is time to take a vacation. Have an enjoyable summer.
Message from the President

Marc Struelens

Dear Colleagues,

Infectious disease reports are on the front pages of the media as epidemics of emerging infections are hitting people around the globe. Monkeypox outbreaks in the USA have spread from contact with imported mammalian pets from Africa, underscoring the unforeseen hazards of global trade. The SARS epidemic has put a tremendous strain on the public health and hospital personnel in Asia and Canada, where a large proportion of the 800 victims were dedicated healthcare professionals who contracted it while taking care of infected patients. The SARS epidemic has dramatically illustrated how vulnerable the global society of the 21st century is to rapid dissemination of communicable disease by air travel. It has also demonstrated the power of electronic communication and the importance of the WHO Communicable Disease Surveillance and Response Programme to coordinate around-the-clock emergency reactions to contain the outbreaks that erupted in many countries. WHO deserves congratulations for its effective management of this global epidemic. Unprecedented scientific collaboration made the discovery of the SARS causative agent, a new coronavirus, possible in a matter of weeks. Diagnostic tools such as PCR assays and serology tests are now being developed. With the WHO's removal of Taiwan from its list as the last region with active SARS transmission on July 5, it appears that the epidemic has been brought under control thanks to classic measures of contact tracing, quarantine, barrier precautions and travel restrictions. At the last ECCMID in Glasgow, a late-breaking SARS symposium was organised, captivating a large audience. Donald Low gave an impressive account of what has been achieved in combating the outbreak, which hit Toronto without warning and Christian Drosten of the identification and characterisation of the SARS coronavirus in a few weeks in Hamburg. Their presentations are now available on the ESCMID website as pdf files.

The European continent has been largely spared, with only 38 imported probable SARS cases and no outbreaks. While international coordination between WHO, the European Commission on Communicable Disease and national health agencies has functioned properly and has supported the implementation of isolation measures to avoid nosocomial spread, we were probably lucky that no outbreak occurred to test our large-scale response capacity. As discussed also at a well-attended round table at the last ECCMID in Glasgow, such capacity should be strengthened by the future European Centre for Diseases Control. ESCMID will continue to strive to promote the essential role that microbiologists and clinical infection specialists play in the surveillance, study, management and control of infectious diseases.

Several conferences are being organised by our Society to address these issues and inform policy makers at the European and national levels. ESCMID and the European Commission, DG Research and Technological Development is co-organising a Conference on “The Role of Research in Combating Antibiotic Resistance” in Rome, Italy, November 28–30, 2003. I invite you to learn more about the objectives of this important conference by referring to our website. The progress achieved across Europe in training in the infection disciplines as well as developing new models for healthcare organisation in this field will be reviewed and discussed with partner organisations at an ESCMID Workshop on “Challenges in Clinical Microbiology and Infectious Diseases” to be held in Leuven, Belgium, from March 17–19, 2004. Please refer to the society website for further information.

Over 4000 delegates attended this year’s annual ECCMID in Glasgow. An impressive coverage of the latest advances in the science and practice of microbiology and infectious diseases was presented in over 100 scientific sessions, including 150 oral presentations and 1310 poster presentations from selected abstracts. The comments received so far commended the high standards of professional organisation and scientific quality and balance of the programme. On behalf of the Society, I thank Dr. Ian Gould, the Scottish Microbiology Association and the British Infection Society for their superb contribution to the organisation of this memorable event and for their hospitality. A web-based opinion poll of the participants will allow the Programme Committee to consider criticism and suggestions to further improve the quality of the future ECCMIDs.

This year, ESCMID celebrated its 20th anniversary. This is the passage from the turmoil of teenage to the responsibility of adulthood. As I assume my presidency, I wish to pay a tribute to my predecessors in office, from the founding fathers who had the vision to establish the ESCMID 20 years ago to the sterling work by Prof Roger Finch as President of our Society for the past 2 years. ESCMID has grown and matured under his steering. We are delighted that he will continue to serve on the Executive, which has been reconstituted: the membership has elected Prof. Jordi Vila from Barcelona as Scientific Affairs Officer and the Executive has co-opted Prof. Elizabeth Nagy from Szeged as Professional Affairs Officer for Microbiology. We are fortunate to have an Executive Committee composed of a cohesive team of dedicated and talented scientists covering a broad range of expertise in the infection disciplines.

In the field of education, the 2nd ESCMID School took place this July in Utrecht with an excellent programme developed by an outstanding international faculty. I am confident that the School has nurtured the exchange of valuable experience with young specialists and trainees. Several very successful post-graduate courses took place this year and more are planned in the next months, including practical laboratory training courses in molecular microbiology. I invite you to refer to the course programme on our website and encourage your junior colleagues to attend. Applications for travel grants are welcome.

The Society’s journal Clinical Microbiology and Infection has established itself in the field, with a first impact factor of 1.2, under the Editorship of Prof.
Emilio Bouza and his team, who have successfully developed the quality and quantity of articles published. We are very grateful to him, Judith Crane, CMI Managing Editor, and the editors and reviewers for their excellent work. We would like to wish much success to the new Editors-in-Chief, Dr. Kevin Towner for the regular issues and Prof. Carl-Erik Nord for supplements. There is no doubt that CMI will grow in quality and influence in our scientific arena under their new editorial teams. As you have learned in the recent issue of ESCMID News, all submissions and reviews are now processed electronically at cmi.manuscriptcentral.com. The Society has a number of ambitious objectives on its agenda for the coming years. We will provide further information in this, and upcoming issues of this newsletter. ESCMID would like to offer an expanded range of options for membership to the society, which will be announced shortly. Additionally we have established promising contacts towards furthering cooperation with a number of scientific organisations, including the Federation of European Microbiological Societies (FEMS), the European Respiratory Society (ERS), the European Society of Intensive Care Medicine (ESICM) and the Federation of European Societies for Chemotherapy and Infection (FESCI). We are supporting the development of our European Public Affairs Programme to ensure that the voice of microbiology and infectious disease specialists is heard by decision makers at EU level and that our activities receive the support they deserve. In Europe a tremendous amount of potential in healthcare management and biomedical research remains untapped, due to too much duplication of efforts and insufficient communication across national barriers. We believe that our society is one of the wells where the alchemy of European integration is producing gold. Active participation of an expanded membership will be the key to success. We look forward to your continuing support and essential contributions to the fulfillment of our mission in the years to come.

Marc Struelens
President, ESCMID

What does the Membership want from ESCMID?

In 2002 an e-mail notice was sent to all ESCMID members with a request to complete an online questionnaire on the ESCMID homepage. The objectives of the questionnaire were to learn more about the professional background of our members and get feedback on the various ESCMID activities. Which ones are important and which less so? Of more than 2000 members approached, only 309 responded. That is a low response rate but, on the other hand, it can be assumed that those who returned the questionnaire are those most interested and represent an important group of members.

DEMOGRAPHICS

The mean age of the responders was 48.5 years (median 47 years). Geographically there was a surprisingly wide distribution and 83 countries were represented, indicating that ESCMID now has become both a European and a truly international organisation. Microbiology was the most common speciality of the responders; 58% were clinical microbiologists and 3% basic microbiologists. As expected the second most common speciality was infectious diseases with 21%. In terms of affiliation, 56% had a university connection and 59% worked in hospitals. Figure 1 shows the academic background.

**EVALUATION OF ESCMID ACTIVITIES**

As shown in Figure 2, 80% of the members considered the annual congress, ECCMID, to be among the most important activities of the Society. This reaffirms the opinion of the Executive Committee that ESCMID is now clearly the most important European scientific meeting for both clinical microbiology and infectious diseases. The journal, *Clinical Microbiology and Infection* (CMI), was ranked 2nd among the most important activities. It should be noted that the awareness of the various activities of the Society seems to be high. Many responders (67%) considered production of guidelines an important task for ESCMID. The Executive Committee has especially noted this opinion since we must admit that, so far, publishing guidelines has not been a high-priority activity.

**CMI**

Since the beginning of 2003 ESCMID members have been able to choose to receive CMI electronically and/or in a printed version. To our surprise as many as 60% wanted to keep the printed edition (Figure 3) despite the fact that subscription to the electronic version allows a reduction in the membership fee by up to about 30% (savings dependent on membership type).

![Figure 1. Academic background (multiple answers possible)](image-url)
MEDICAL SPECIALITIES IN CLINICAL MICROBIOLOGY AND INFECTIOUS DISEASES

Most European countries recognise both clinical microbiology and clinical infectious diseases as medical specialties. In a few countries these two specialities have been merged and departments of “infection” or “microbial diseases” formed. While infectious diseases will remain a subspecialty to internal medicine or (rarely) paediatrics or be an independent specialty, the future for clinical microbiology has not been finally decided. The European Union of Medical Specialists (UEMS) seems to want to keep clinical microbiology within a speciality of “medical biopathology” (see Cornaglia G, The present status of clinical microbiology in Europe, ESCMID News 2002; 3: 14–17). As shown in Figure 4, 88% of the responders want to see either an independent specialty of clinical microbiology or a combination of infectious diseases and clinical microbiology.

MEMBERS WANT TO BE ACTIVE IN ESCMID

Finally with great pleasure we note that 62% of the questionnaire responders are willing to become more active in the Society activities and serve on a task force for development of a European public health programme in infectious diseases and clinical microbiology. Thus, the future of ESCMID is indeed very bright.

Ragnar Norrby
President-elect
ESCMID Awards 2003

AWARD FOR EXCELLENCE IN CLINICAL MICROBIOLOGY AND INFECTIOUS DISEASES
sponsored by AstraZeneca

Alasdair McIntosh Geddes, born 1934 in Fortrose, Scotland, UK

Professor of Infection and Associate Dean of the School of Medicine, University of Birmingham, UK, in recognition of his lifelong interdisciplinary and comprehensive contributions to the infection disciplines. He not only published many highly relevant scientific papers in various fields of the infection sciences but also played a leading role in many institutions involved in fighting infectious diseases around the world. In all his endeavours he adeptly managed to combine basic science, clinical management and public impact considerations.

Research Interests
Alasdair Geddes’ early research (1960 to 1980) concentrated on the clinical pharmacology and development of new antimicrobial agents. Examples include the new aminoglycosides, semi-synthetic penicillins, cephalosporins, beta-lactam inhibitors, thienamycins and trimethoprim. His group was frequently the first to publish on these agents. He also studied the early antiviral agents such as acyclovir. Parallel to these studies Alasdair Geddes investigated the epidemiology and treatment of infectious diseases in the UK, especially of those that had been imported. In collaboration with the Regional Immunology Laboratory he studied the immune response to infection in patients with decreased susceptibility to infection, including those with HIV disease. More recently, he has been involved in studies on mycobacterial infections with a particular focus on human and bacterial genetics and the role of microbial latency in the perpetuation of infection. These have led to important advances in the understanding of tuberculosis. Alasdair Geddes has supervised and facilitated the research of many talented young physicians from the United Kingdom and around the world who have trained with him in Birmingham and who have returned to their own institutions and countries to achieve distinction in clinical medicine and research.

YOUNG INVESTIGATOR AWARD FOR RESEARCH IN CLINICAL MICROBIOLOGY AND INFECTIOUS DISEASES
sponsored by Pharmacia

Franz-Josef Schmitz, born 1963 in Oberhausen, Germany

MD, PhD, Head of the Institute for Laboratory Medicine, Microbiology, Hygiene and Transfusion Medicine, Hospital Minden, Associate Professor at the Institute for Medical Microbiology, University of Düsseldorf, Germany, also holding a research position at the Eijkman-Winkler Institute for Medical Microbiology at the University Hospital, Utrecht, the Netherlands, in recognition of his outstanding and innovative work on the genetic basis and epidemiology of antibiotic resistance in Staphylococcus aureus and other organisms.

Research Interests
Franz-Josef Schmitz’s main research interests include resistance mechanisms of different antibiotic classes. He has investigated the resistance mechanisms of quinolones, macrolides, aminoglycosides, muopirocin, glycopeptides, and tetracyclines in different organisms, mainly in S. aureus, S. pneumoniae, and various Enterobacteriaceae. At present, he is conducting research on the nosocomial spread of resistance genes and mobile genetic elements such as integrons and the SCCmec element (staphylococcal chromosomal cassette) within hospitals and the impact of antibiotic usage on the spread of those elements. By using molecular epidemiological tools, the prevalence and the genetic structure of those elements are analysed in order to describe and to understand the underlying mechanisms resulting in multi-resistance. In addition, he has studied the relationship between a molecular structure of antibiotics and the speed of resistance development in vitro. As one of the European SENTRY surveillance program participants he was involved in studying the molecular epidemiology, susceptibility and molecular resistance mechanisms of nosocomial pathogens within Europe.

ESCMID RESEARCH FELLOWSHIPS
sponsored by ESCMID

Holm Uhlig, born 1971 in Leipzig, Germany, MD, Sir William Dunn School of Pathology, University of Oxford, Oxford, UK

Research Interests
Holm Uhlig’s main research interests focus on the interactions between the complex intestinal bacterial microflora, the antigen presenting cells and T cells involved in immune homeostasis, but also in the development of intestinal immune pathology as inflammatory bowel disease (IBD). Currently it is not understood how non-pathogenic commensal bacteria interface with the innate and adaptive mucosal immune response system and how this may change under conditions of intestinal inflammation. Research into this topic may be relevant for understanding the pathogenesis of IBD and the therapeutic potential of CD25+ regulatory T cells to resolve established intestinal inflammation.
Maja Rupnik, born 1967 in Ljubljana, Slovenia. PhD, Department of Biology, Biotechnical Faculty, University of Ljubljana, Ljubljana, Slovenia

Research Interests
Maja Rupnik’s main research interest are: the variability and toxinotyping of the Clostridium difficile toxins TcdA and TcdB; the distribution of toxinotypes in different geographic regions; internalisation of toxins in eukaryotic cells; the use of TcdA and TcdB as tools in cell biology; the prevalence of C. difficile binary toxin CDT producing strains; the role of binary toxin as an additional virulence factor; the molecular mechanisms for the nonproduction of TcdA in different types of A-B+ C. difficile strains; mobile genetic elements in C. difficile as well as molecular typing methods.

József Sóki, born 1965 in Makó, Hungary. PhD, Institute of Clinical Microbiology, University of Szeged, Szeged, Hungary

Research Interests
József Sóki is investigating the molecular basis of antibiotic resistance and pathogenicity factors of anaerobic pathogens, especially Bacteroides species and Clostridium difficile. In the case of Bacteroides isolates the carbapenem and nitroimidazole resistances are examined more thoroughly, with emphasis on resistance gene detection and their activation by insertion sequence (IS) elements, and also the epidemiology of these latter structures among Bacteroides. Moreover, the detection of the enterotoxin genes of these pathogens is conducted in connection with the molecular typing of their populations. As IS elements and antibiotic resistance genes can be horizontally transferred, the topics of the mobility of these elements and the cryptic plasmids of Bacteroides species are also part of his focus.

ESCMID NEWS 2·2003

Turning the Tide of Resistance:

Announcement of a Research Grant 2004 by AstraZeneca and ESCMID

The European Society of Clinical Microbiology and Infectious Diseases (ESCMID) is pleased to announce an unrestricted research grant of EUR 40,000 by AstraZeneca for research in the field of antibiotic resistance.

This third consecutive research grant is based on the collaboration of ESCMID and AstraZeneca to overcome antibiotic resistance as announced during the 13th ECCMID 2003 in Glasgow.

The objective of this research grant is to contribute to overcoming antibiotic resistance. Appropriate projects may be laboratory or clinically based, or a combination thereof. However, proposals with clear clinical relevance will be preferred.

APPLICATION
Applications are to be submitted in writing. They must contain a detailed research plan, a description of the applicant’s present research, his or her CV, a list of publications plus two letters of recommendation. Applicants must include their complete postal and e-mail address, telephone and fax number and send five copies of all materials plus one colour photograph (preferably electronically) to the ESCMID Executive Office.

The selection of the recipient will be made by the ESCMID Award Committee. Members of the ESCMID Executive Committee or the ESCMID European Council are ineligible. No correspondence beyond that necessary for the application will be accepted.

The deadline for submission is December 31, 2003. Applicants will be notified of the decision by March 15, 2004.

Please send your application to:
ESCMID Executive Office
P.O. Box 6
Clarastrasse 57
CH-4005 Basel, Switzerland

Phone  +41 61 686 77 99
E-mail  peter.schoch@escmid.org
Organised jointly with the Belgian Society for Clinical Microbiology and Infectious Diseases (SBIMC-BVIKM) at the Catholic University of Leuven.

The objectives of the workshop are to: identify the public health challenges and medical needs arising from the evolution of infectious diseases in a changing Europe; determine which professional organisation models and communication networks allow the delivery of optimal management and prevention of infectious diseases and; review the current modalities and up-

date plans for training and continuing professional development of medical specialists in the infection disciplines.

For more information, please contact:

ESCMID Workshop 2004 Secretariat, c/o Laboratory of Bacteriology, University Hospital Gasthuisberg, Herestraat 49, B-3000 Leuven, Belgium, email escmid@uz.kuleuven.ac.be, phone +32 16 34 79 02, fax +32 16 34 79 31 or visit www.escmid.org, Courses & Workshops.

In Memory of Professor Arturo Visconti

Professor Arturo Visconti has recently passed away in Milan after a short period of ill health at the age of 79. Born in Milan, Italy, in 1924, Professor Visconti graduated in Medicine from the University of Parma in 1949; after a brief experience as a general practitioner in Lombardy, he spent one year at the Columbus Hospital in Chicago (1954-1955). Back in Italy, he specialized in General Medicine and Hygiene and Preventive Medicine. He was a teaching Professor of Microbiology and in 1966 went on to become director of the microbiology laboratory at the San Carlo Hospital in Milan. In 1970, he and a group of Italian directors of hospital microbiology laboratories founded the AMCLI (Associazione Microbiologi Clinici Italiani – the Association of Italian Clinical Microbiologists). He was the first President of the Society and made a major contribution to its work and aims. In 1979 he first realised and organized an international symposium, attended by many Italian and international professionals. The experience gained in organizing the event and the esteem and friendship of many international colleagues contributed to the foundation of the ESCM (European Society of Clinical Microbiology), later known as ESCMID when infectious disease professionals joined the society. He was Vice President of ESCMID for a number of years. The idea of Europe-wide involvement in microbiology and the opportunity to meet people and exchange experiences between microbiologists made him one of the strongest supporters of the idea of organising the first ESCM Congress, called ECCM, held in Bologna in 1983. The congress was attended by more than 820 people and was an outstanding success, paving the way for the increasingly successful editions, known today as ECCMID, over the last 20 years.

Enrico Magliano
President, AMCLI
13th ECCMID 2003
Glasgow Highlights

Glasgow welcomed the 13th ECCMID to its Scottish Exhibition and Conference Centre on Saturday 10th May 2003 for a very successful conference.

The run up to the conference had not been easy with the war in Iraq closely followed by the SARS crisis and calls from some areas to cancel the conference. Fortunately, common sense prevailed and despite some high profile cancellations, almost 4500 delegates descended on the purpose-built conference centre for 4 days of hard work, socialising and just a bit of sightseeing – the latter tempered by typical Scottish weather of sunshine and showers. Attendance was down by 700 on last year’s conference in Milan. Considering SARS, the world security situation, the difficulties attracting pharmaceutical sponsorship for many delegates due to national regulations and the diminished number of companies with an active interest in infectious diseases, the consensus was that this was a good number of delegates. All international congresses worldwide are experiencing significant declines in the number of attendees. Despite this all sessions were well attended, perhaps the Scottish weather keeping people from shopping and sightseeing!

By all accounts, the scientific programme was one of the best yet and thanks are again due to Patrick Franciotti, his programme committee and the local organising committee. While putting together a superb international programme, they managed to reflect all the best in current UK science and clinical practice in infectious diseases. They had a busy time assessing the record number of submitted abstracts (over 1700).

The programme contained several innovations of an organisational nature including a historical symposium highlighting Scottish achievements in the field. There were also 18 poster walks, which, by general consensus, were a great success in invigorating the poster presentations. This is certainly something ESCMID plans to repeat.

Other successful innovations were the shortening of the free paper presentation from 15 to 12 minutes (10 minute presentation plus 2 minutes for discussion) and the European corner, which allowed space for networks to present posters and ample tables and chairs for relaxation and discussion. Also, conference buses allowed easy transport to and from hotels for delegates.

The conference opened officially on the Saturday evening with the usual ceremony in the giant “Armadillo” Clyde auditorium, so named because of its striking design. As conference President, I opened it with a brief speech on the paradox between the problems faced by organising the conference due to the world situation and how this situation did, in fact, strengthen the need for the Congress, which could be used to help solve these very problems. ESCMID President Roger Finch then talked about the challenges facing ESCMID in its 21st year. He was followed by John Arbuthnott, Chancellor of Glasgow University and Anna Lönnroth from DG Research, European Commission, who talked about the current problems of infectious diseases and how the commission planned to solve these problems respectively. The ceremony finished with an entertaining talk from the newly elected Provost of Glasgow on the charms of Glasgow, European City of Culture and former powerhouse of the British Empire and a short musical extravaganza from Macumba who merge the traditions of Scottish music and those of Cuba. Glasgow has recently been twinned with Havana. Delegates were then piped across the river Clyde to the Science museum for the welcome reception.

Other social highlights were the President’s dinner at Stirling Castle in the midst of Braveheart Country, accompanied by traditional Scottish entertainment (and typical Scottish mist and rain!) and a concert featuring Scottish and European orchestral music.

On the scientific side, many will remember the SARS symposium, arranged at the last minute, late one evening (it almost filled the 3000-seater Armadillo) and the many excellent expert and keynote lectures, successful symposia and interesting free oral papers.

All will remember the Scottish hospitality, new friends and old friendships rekindled. It was a truly exciting and friendly conference and my thanks go to a huge team – too numerous to mention individually but includes staff of AKM, Meeting Makers and ESCMID all of who collaborated so enthusiastically and successfully with the willing and able staff of the SECC and their superb conference centre. Last but not least, I thank the Scottish Microbiology Association and British Infection Society for supporting me throughout and of course, all who attended the conference and made it such an exciting and memorable event. THANK YOU!

Ian Gould
President, 13th ECCMID 2003
ESCMID News 2·2003

Impact Factor

The long awaited announcement of the first Impact Factor for CMI is good news to all of us, including the first two Editors-in-Chief, Jacques Acar and Emilio Bouza, who shared, in succession, the task of launching a new journal at a moment when there was no paucity of quality publications, but rather, a desire on the part of the Society to establish a journal truly representative of the ESCMID membership. The initial rating of 1.2 places CMI on a par with some long-standing journals in our field and indicates the potential to augment the rating now that we are in a position to offer authors the opportunity to publish in a ‘credentialed’ journal. As previously explained in ESCMID News 2-2002 the process of calculating an Impact Factor is such that a substantial delay exists between the publication of the papers from which it is calculated and the announcement of an annual rating. This delay is further extended by the necessary lapse of time between the date of acceptance and eventual appearance in an issue. Since this first Impact Factor was calculated according to the number of citations made during 2002 to papers published in CMI in 2001, we are pleased to give credit to the authors who submitted papers as far back as 1999 and 2000 and to those reviewers and editors who assessed these papers during that period, for publication in 2001. On the basis of this creditable first ranking, we look forward to a continuing increase and a growing recognition.

Online Submission and Peer Review

Anyone who had concerns that the web-based editorial system (see next page), which went into effect the first of June, would de-personalize the editorial process may be reassured. Indeed, our mutual efforts to ‘master’ the system have resulted in very personal exchanges among all concerned. Authors who were initially intimidated by the prospect of online submission have been led through the process step-by-step. Reviewers have demonstrated an utmost in patience during the trials of acquiring access codes in order to finally view the submissions. And Editors have resorted to a number of tactics in an effort to customize automated letters to Reviewers and to communicate their decisions to Authors. We have all discovered a capacity of which we were unaware until put to the test, and although we agree that Manuscript Central has a ‘life of its own’ we expect to be in control in due time and we very much appreciate the opportunity to streamline the editorial process and decrease publication delays.

Pre-Publication

In conjunction with the web-based system, we will soon initiate another procedure which will allow public access to accepted papers prior to assignment to the monthly issues. The new programme, ‘Online Early’, will make papers available on the Blackwell Synergy site as soon as the proof pages have been corrected. The text will remain unchanged from this point on, and the papers will be assigned a DOI number, making them available for citation. In essence, papers will be considered officially published as much as six months prior to their appearance in hard copy, after which they will be deleted from the website. We expect to be able to initiate this service to authors in the early months of 2004.

Judith Crane
CMI Managing Editor

Important Reminders for CMI Authors

• Please consult the updated Guidelines for Authors, in particular Manuscript Categories.

• Remember to submit revisions as well as original submissions online (http://cmi.manuscriptcentral.com).

• Note: the Madrid Editorial Office is definitively closed; we regret any undelivered postal or electronic mail.

Please address all enquiries and correspondence to:

Judith Crane
Managing Editor
CMI Editorial Office
39 Quai de Grenelle
75015 Paris, France

Phone +33 1 44 75 29 65
Fax +33 1 47 64 11 59
Email judith.crane@escmid.org
Manuscript submission on the Web

From 1 June 2003, Clinical Microbiology and Infection accepts online submitted manuscripts only. Online submission will facilitate the editorial process and you will receive a decision on your paper sooner. You will need your files in an electronic format, an Internet connection, and a user ID and password for the site. To begin a new submission go to http://cmi.manuscriptcentral.com and Create a new account.

1. **Log on to**
   - [http://cmi.manuscriptcentral.com](http://cmi.manuscriptcentral.com)
   - Log on with your user ID and password. Click Author Centre and then **Submit First Draft of a New Manuscript**.

2. **Choose manuscript category**
   - Choose your article category from the drop-down list. Click **Save and Continue** to proceed.

3. **Input affiliations**
   - Add the institutional affiliations (a single affiliation can be used for several authors, so you only need enter each institution once).

4. **Input all authors**
   - Add the names of all contributing authors, choosing up to three affiliations for each. Only the corresponding author’s e-mail address is needed.

5. **Title, abstract & keywords**
   - Copy and paste these from your document. Use the **Character Palette** to add Greek and other symbols.

6. **Reviewer suggestions**
   - Optional: choose up to four reviewers to suggest and/or two to exclude. Please note that the Editors are not obliged to accept your suggestions.

7. **Cover letter**
   - Either type directly or copy and paste your cover letter. The cover letter can also be uploaded with your manuscript files.

8. **Upload files**
   - Use the **Browse** button to select a file. Choose a designation from the list and whether it will be seen by reviewers. Click **Upload** to add your file. Repeat until all files are uploaded.

9. **View ‘proof’**
   - You must check the ‘proofs’ before submission. This will show you what Editors and reviewers will see. You can go back and replace incorrect files.

10. **Submit**
    - Click **Submit** once you are satisfied. An automatic confirmation with your manuscript number will follow. The progress of your submission can be tracked at [http://cmi.manuscriptcentral.com](http://cmi.manuscriptcentral.com)

Don’t forget to submit your revisions online. Log on to your Author Centre and locate the manuscript to be revised. Click **View comments/respond** to reply to reviewers and then click the manuscript title to submit your revised files.
Antimicrobial Wild Type Susceptibility Distributions

The European Committee on Antimicrobial Susceptibility Testing (EUCAST) has developed the concept of antimicrobial wild type susceptibility distributions. We have created a software to receive and display large volumes of MIC (Minimum Inhibitory Concentration, mg/L) distributions of bacteria and fungi over the internet. It is now being made available at http://www.eucast.org. All accepted distributions are displayed in an aggregated format for each species-antibiotic combination. The tables (Figure 1) and graphs (Figure 2) show only the parts of the MIC distributions, which have been defined by EUCAST as the wild type distributions. The epidemiological cut-off value, as defined by EUCAST, separates microorganisms without (wild type) and with acquired resistance mechanisms (non-wild type) to the drug in question. The epidemiological cut-off value is shown in the bottom left-hand corner of each graph in the form WT<X mg/L (Figure 2).

The defined wild type MIC distributions are to provide:
(a) **reference material for committees** involved in breakpoint decisions (clinical breakpoints) and antimicrobial resistance surveillance (epidemiological cut-off values);
(b) **reference MIC ranges of wild type organisms** for a wide spectrum of species and antimicrobials;
(c) an international reference for calibration of antimicrobial susceptibility testing methods.

Each reference distribution is the result of aggregated MIC data where the individual MIC distributions were obtained from: publications in international journals; national breakpoint committees; international antimicrobial surveillance systems such as EARSS (www.earss.rivm.nl) and SENTRY; pharmaceutical companies; and antimicrobial susceptibility testing device manufacturers. Thus, unless otherwise specifically stated, the data is representative of results obtained by many different methods. These methods do not give exactly the same results but the results rarely vary by more than one doubling dilution step. In this way the aggregated MIC distributions displayed in the EUCAST software incorporate the natural random variation between different investigators and the systematic variation seen between different methods. Provided the local resistance frequency is not high, an investi-
Figure 1

Figure 2. Graph of wild type ciprofloxacin MIC distribution for Streptococcus pneumoniae, displayed as a result of selecting S. pneumoniae in the table shown in Figure 1

What is the origin of the organisms included in the MIC data?
The data are from tests on bacteria and fungi collected from humans and animals, from any geographic region and over a long timeframe.

What does “Data not released for public use” imply?
When using the software many of the antimicrobials in the pulldown list are followed by the text “data not released for public use”. This implies that the software contains data for the drug in question but that it is not complete and that the EUCAST Steering Committee has so far not decided on epidemiological cut-off values.

The EUCAST Steering Committee is in the process of defining epidemiological cut-off values for microbiological resistance and also is working on harmonizing European clinical breakpoints for existing antibiotics. The process of harmonizing clinical breakpoints across Europe and of defining the epidemiological cut-off values for the detection of acquired resistance is co-ordinated with the collection of relevant MIC data. As decisions on breakpoints are made for each group of antibiotics, the data, including epidemiological cut-off values and European clinical breakpoints, are released for public use.

Everyone is invited to contribute data!
Anyone with full-range MIC data for bacteria or fungi is invited to contribute data as long as MICs are determined with an accepted standardized method, which should be named. Once entered on the database the data will not be identifiable as separate distributions but will help build the aggregate reference distributions. The biologically resistant (non-wild type) part of the distribution will be seen only by the EUCAST Steering Committee. Submitting data to the EUCAST database does not interfere with publication of data.

Where can I get more information?
Contact EUCAST – email addresses and information can be obtained through the EUCAST official website at http://www.eucast.org.

Gunnar Kahlmeter
EUCAST Chairman
Assembly of Members 2003

Minutes

1 WELCOME
Roger Finch opened the Assembly and welcomed the 65 attending members asking them to sign in at the entrance. He observed that the minutes of last year’s Assembly have been published in ESCMID News 2-2002 and that the invitation to the Assembly 2003 had been correctly sent out as stated in the Statutes. The proposed agenda was accepted without objection.

2 PRESIDENT’S ADDRESS AND REPORT
For a review of the Society’s activities in the past year Roger Finch referred to his report in the recent ESCMID News 1-2003. In summary, he mentioned that the Society made great strides during the past 2 years. Under Scientific Affairs he referred to the two new study groups on fungal infections and toxoplasmosis, the European Network Corner at the 13th ECCMID, and to the active role of the Society in the submission of research proposals to the DG Research and DG Sanco of the European Commission. The activities related to Professional Affairs are more long-term and directed at improving the recognition status of Infectious Diseases and Clinical Microbiology specialists, the accreditation of CME, and the support of colleagues in Russia and other countries in Eastern and Central Europe and in the expanding EU. In this context Roger Finch led a delegation of ESCMID to Russia for a visit of the Ministry of Health and the Russian Academy of Medical Sciences to explore possibilities of mutual support. The Memorandum of Collaboration, which was signed in spring 2003, lends itself to replication in other countries. In the field of Education several Postgraduate Education Courses were held across Europe, and for the first time in 2002 a one-week ESCMID School of Clinical Microbiology and Infectious Diseases was organised in Lausanne. The 2nd ESCMID School will take place later this year in Utrecht.

An important goal was the collaboration between European Societies concerning the organisation of a single world class European Congress in Clinical Microbiology and Infectious Diseases. With FESCI, agreement was reached that the phase of exploring the possibilities for a joint congress should now be followed by the development of firm proposals. A Task Force was established to come up with a detailed proposal within one year.

3 REPORT OF THE SECRETARY GENERAL
ESCMID has currently, according to figures presented by Ragnar Norrby, 2423 regular members. The best-represented country is Germany with 180 members, followed by the USA, UK and Italy. About 83% of the membership is European. These numbers seem to be rather stable and represent a healthy foundation for ESCMID.

In addition to the regular members ESCMID has currently 1857 addresses of affiliated members on file. They are from the British Infection Society, the Swiss Society of Infectious Diseases and the Association of Italian Clinical Microbiologists who were participating in a pilot affiliation scheme to ESCMID. This scheme has recently been assessed by the Executive and will be terminated for various reasons. An improved scheme, again devoted to the goal of fostering cooperation between professional societies, will be proposed in 2004.

A recent web-based questionnaire revealed some interesting information about the ESCMID membership: 65% of our members are male, 36% are in their forties, 27% in their thirties and 23% in their fifties, 61% indicated microbiology, 23% infectious diseases or internal medicine as their specialty, and 56% are working in a university setting. As the most important activities of ESCMID are considered (in this order): ECCMID, CMI, development of guidelines, support of study groups, postgraduate education courses and workshops, the development of an educational website and CME.

3R EPORT OF THE SECRETARY GENERAL
ESCMID has currently, according to figures presented by Ragnar Norrby, 2423 regular members. The best-represented country is Germany with 180 members, followed by the USA, UK and Italy. About 83% of the membership is European. These numbers seem to be rather stable and represent a healthy foundation for ESCMID.

In addition to the regular members ESCMID has currently 1857 addresses of affiliated members on file. They are from the British Infection Society, the Swiss Society of Infectious Diseases and the Association of Italian Clinical Microbiologists who were participating in a pilot affiliation scheme to ESCMID. This scheme has recently been assessed by the Executive and will be terminated for various reasons. An improved scheme, again devoted to the goal of fostering cooperation between professional societies, will be proposed in 2004.

A recent web-based questionnaire revealed some interesting information about the ESCMID membership: 65% of our members are male, 36% are in their forties, 27% in their thirties and 23% in their fifties, 61% indicated microbiology, 23% infectious diseases or internal medicine as their specialty, and 56% are working in a university setting. As the most important activities of ESCMID are considered (in this order): ECCMID, CMI, development of guidelines, support of study groups, postgraduate education courses and workshops, the development of an educational website and CME.

3R EPORT OF THE SECRETARY GENERAL
ESCMID has currently, according to figures presented by Ragnar Norrby, 2423 regular members. The best-represented country is Germany with 180 members, followed by the USA, UK and Italy. About 83% of the membership is European. These numbers seem to be rather stable and represent a healthy foundation for ESCMID.

In addition to the regular members ESCMID has currently 1857 addresses of affiliated members on file. They are from the British Infection Society, the Swiss Society of Infectious Diseases and the Association of Italian Clinical Microbiologists who were participating in a pilot affiliation scheme to ESCMID. This scheme has recently been assessed by the Executive and will be terminated for various reasons. An improved scheme, again devoted to the goal of fostering cooperation between professional societies, will be proposed in 2004.

A recent web-based questionnaire revealed some interesting information about the ESCMID membership: 65% of our members are male, 36% are in their forties, 27% in their thirties and 23% in their fifties, 61% indicated microbiology, 23% infectious diseases or internal medicine as their specialty, and 56% are working in a university setting. As the most important activities of ESCMID are considered (in this order): ECCMID, CMI, development of guidelines, support of study groups, postgraduate education courses and workshops, the development of an educational website and CME.

4 PRESENTATION OF THE ESCMID RESEARCH FELLOWSHIPS
The ESCMID Research Fellowships 2003 (sponsored by ESCMID) were presented by the Past President and Chairman of the Award Committee, Carl Erik Nord, to:

- Maja Rupnik, PhD
  born 1967 in Ljubljana, Slovenia
  Department of Biology, Biotechnical Faculty, University of Ljubljana, Ljubljana, Slovenia

- József Sóki, PhD
  born 1965 in Makó, Hungary
  Institute of Clinical Microbiology, University of Szeged, Szeged, Hungary

- Holm Uhlig, MD
  born 1971 in Leipzig, Germany
  Sir William Dunn School of Pathology, University of Oxford, Oxford, UK

Carl Erik Nord congratulated the recipients (applause) who were handed over a cheque of EUR 4000.

5 FINANCIAL REPORT
Andreas Voss, Treasurer, presented the preliminary profit and loss accounts for the year 2002. With total expenses of EUR 726'030 and an income of EUR 404‘955 the Society suffered from an incurred deficit of EUR 321‘075. This deficit is mainly due to the low revenues produced by the 12th ECCMID in Milan. In view of total assets of ESCMID of EUR 750‘253 the Society can cope with this deficit but it must not be repeated.

Suggestion by Hartmut Lode, Berlin, Germany: consider distributing ESCMID News electronically to save
money. This was questioned by Pamela Hunter who claimed that nobody reads dozens of pages on screen nor does anybody print out newsletter files. We need ESCMID News not only for information and communication but also as a means to build a corporate identity among our membership. Comment by Jeff Edwards, Mold, UK: he agreed with Pamela Hunter but still raised his concern about the deficit, which necessitates savings. In addition, we live in times of low congress attendance. How do you respond? Answer by Andreas Voss: an ECCMID with a good scientific programme and excellent organisation is the best advertisement. ESCMID has a huge database of professional addresses and uses them for marketing purposes. The Society’s finances will be in the prime focus of the Executive in the next year. We must develop new revenue sources while reducing our expenses in order to regain balanced accounts.

6 ACCEPTANCE OF THE ACCOUNT AND FORMAL APPROVAL
Roger Finch asked for a hand vote of approval of the financial report. It was approved unanimously.

7 REPORT OF THE PROFESSIONAL AFFAIRS OFFICER, CLINICAL MICROBIOLOGY
Giuseppe Cornaglia, the Professional Affairs Officer for Clinical Microbiology, referred to his article in ESCMID News 3-2002 in which the present status of Clinical Microbiology (CM) was summarised. According to this survey CM is a recognised specialty in most European countries. At the level of UEMS, however, CM is not an independent specialty but a subspecialty of Medical Biopathology. ESCMID is seeking ways to change this situation. In addition, the Society is supporting UEMS in the development of an accreditation board for CME in the field of CM. Question by Lenie Dijkshoorn, Leiden, NL: in some countries training in CM is offered to MDs and PhDs, in other countries to MDs only. Is this problem also addressed?

Answer: Giuseppe Cornaglia acknowledged that in the field of training and recognition there are multiple unsolved problems. Regarding the status of ID a similar survey as for CM will be published soon in ESCMID News. Then the issues identified by the questioners will be addressed one at a time.

8 REPORT OF THE PROFESSIONAL AFFAIRS OFFICER, INFECTIOUS DISEASES
Substituting for Helen Giamarellou, Professional Affairs Officer for Infectious Diseases, who was unable to attend the Assembly, Ragnar Norrby briefly addressed the main issues in her portfolio. He confirmed the need for ESCMID to support colleagues in countries like Spain, Germany, Belgium or Austria where ID is still not recognised. But furthermore, the SARS outbreak has clearly demonstrated that CM and ID, despite being separate specialties, need to be fully integrated. This should also be promoted.

9 REPORT OF THE CHAIR OF THE EU TASK FORCE
As reported by Marc Struelens, ESCMID has initiated a EU Public Affairs Programme with the objective of establishing a dialogue with EU institutions to ensure input of ESCMID members and support of activities. The programme is taken care of by a Task Force chaired by Marc Struelens and supported by Interel, a Brussels-based consultant company. The priorities are meeting programme with EU decision makers, participation in the 6th Framework Programme (FWP) and the Health Action Programme as well as EU representation and monitoring. The outcome so-far include:

i) participation in 6th FWP research proposal CARRINE (Combating Antimicrobial Resistance in Respiratory Tract Infections through a Network of Excellence),

ii) EU/ESCMID Conference on the Role of Research in Combating Anti-biotic Resistance in November 2003 in Rome,

iii) ESCMID Workshop on Challenges in Clinical Microbiology and Infectious Diseases in March 2004 in Leuven,

iv) application for funding of EUCAST by the Health Action Programme of the EU,

v) advisory role of ESCMID for the planned European Centre for Infectious Disease at various levels as well as contacts with EC representatives on professional qualification and education issues.

10 REPORT OF THE SCIENTIFIC AFFAIRS OFFICER
Regine Hakenbeck, the Scientific Affairs Officer, referred to the Society’s homepage for reports on the activities of the ESCMID Study Groups. She hoped that they would get more visibility through the European Network Corner at ECCMID. In 2003 a new Study Group on Toxoplasmosis (ESGT) was approved under the leadership of Birgitta Evengård, Stockholm.

11 REPORT OF THE EDUCATION OFFICER
Claude Carbon, the ESCMID Education Officer, reviewed a most successful educational year of ESCMID:

i) 1st ESCMID School in July 2002 in Lausanne with 27 participants. This 1-week course with a broad coverage of relevant topics in CM and ID and active involvement of the participants is repeated this year in Utrecht,

ii) 6th FWP submission of an educational platform in the CARRINE project (see 9 above) together with ERS and ESPID,

iii) evaluation and discussion with the European Commission of proposals concerning a European Certification in CM and ID, a European PhD programme and the recognition of the educational activities within CARRINE,

iv) support in the reporting period of four Postgraduate Education Courses (PGEC):

- 19th PGEC on Mechanisms of Antimicrobial Resistance – A Practical Approach, June 16–22, 2002, in Palma de Mallorca, Spain
- 20th PGEC on Training in Hospital Epidemiology, August 25–28, 2002, in Stein am Rhein, Switzerland
- 21st PGEC on Challenges in HIV-Infection – Advancing Patient Care, May 7-8, 2003, in Basel, Switzerland
- 22nd PGEC on Measuring, Auditing and Improving Antimicrobial Prescribing, May 9–10, 2003, in Troon, Scotland, UK

Several courses have already been announced to take place later in 2003 and 2004.
Proposals by national societies, study groups or individual ESCMID members for Postgraduate Education Courses or Technical Workshops run under the auspices of ESCMID are encouraged. They should focus on basic topics of interest to CM and/or ID specialists and take place in 2004 or later.

12 REPORT OF THE CHAIR OF THE PUBLICATION COMMITTEE (VOTE)
In his report as Chair of the Publication Committee Carl Erik Nord first thanked Emilio Bouza for his achievements as Editor-in-Chief of CMI. His term will officially end on December 31, 2003. During the transition period, which began in April 2003, a new team took gradually over the daily operations. It consists of Kevin Towner, Nottingham, as Editor-in-Chief for the regular issues, Judith Crane, Paris, as Managing Editor and Carl Erik Nord, Stockholm, as Supplements Editor. In April 2003 CMI has switched to a web-based manuscript submission and tracking system.

In view of a large backlog of accepted manuscripts for CMI, Blackwell and the Publication Committee have agreed to publish 400 extra pages in 2003. Beginning in 2004 the page budget is proposed to be increased from 72 to 88 pages per issue. This necessitates a small increase in the ESCMID membership fees as follows:

<table>
<thead>
<tr>
<th>ESCMID MEMBERSHIP FEES (EURO)</th>
<th>at present</th>
<th>from 2004 on</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMI print &amp; online</td>
<td>82</td>
<td>85</td>
</tr>
<tr>
<td>CMI online</td>
<td>55</td>
<td>57</td>
</tr>
<tr>
<td>CMI print &amp; online</td>
<td>37</td>
<td>40</td>
</tr>
<tr>
<td>CMI online</td>
<td>31</td>
<td>33</td>
</tr>
</tbody>
</table>

Question by Jos van der Meer, Nijmegen, NL: when will CMI have an Impact Factor and what is the strategy of the Society to increase it. Judith Crane answered that we expect an Impact Factor later this summer and that the impact of current editorial practices on the Impact Factor will be discussed in the Publication Committee. Comment by Hartmut Lode, Berlin, Germany: the publication time in CMI is much too long. Roger Finch acknowledged that there is indeed a backlog of accepted manuscripts but measures have been taken that will improve the situation by the end of the year.

Question by Jeff Edwards, Mold, UK: the publication of supplements can be a profitable business for CMI and the Society. How is this achieved? Roger Finch answered that our strategy with a dedicated Editor for supplements is pursuing exactly this goal.

Vote on the new membership fees: Roger Finch, ESCMID President, asked the Assembly for approval of the increase in membership fee. A vast majority approved the proposal by raising hands. No counter vote was registered.

13 REPORT OF THE PRESIDENT AND PROGRAMME DIRECTOR OF THE 13th ECCMID
Ian Gould, President of 13th ECCMID, briefly reviewed a most successful Congress, which was attended by some 4540 participants (including the exhibitors’ personnel) from 86 different countries. He then highlighted the new developments: a European Network Corner where 16 Pan-European organisations presented their activities, 18 guided poster walks and a historical symposium on the opening day. Patrick Francioli, ECCMID Programme Director, reviewed the scientific programme which comprised 102 scientific sessions (2 plenary sessions, 6 keynote lectures, 43 official symposia, 18 oral sessions, 13 integrated symposia arranged by the industry, 14 meet-the-expert sessions, 6 satellite symposia) and 1455 accepted abstracts. As in previous years the goal was to come up with a balanced programme between official and industry-arranged sessions and between quality concerns and educational aspects when rejecting abstracts. (Authors of rejected abstracts are usually unable to attend ECCMID). Questions from Hartmut Lode, Berlin, Germany: there were a significant number of no-shows in the poster sessions. Is there something done about this?

Answer by Patrick Francioli: Authors with accepted abstracts but not showing up at the poster session have received in the past and will also receive this year a letter which mentions that they are banned for the next three years from presenting at ECCMID, unless they have an accepted excuse. This year we had a number of late withdrawals from SARS countries and quite a few no-shows from the near and middle East as the British embassies in these countries closed and did not process visa applications due to the war in Iraq. Roger Finch then introduced Jarmila Jelinkova, Professor for Medical Microbiology, as President of the 14th ECCMID 2004 in Prague and handed over the ‘challenge cup’ to her, a silver plate with the engraved ESCMID logo and list of all ECCMID venues since 1983. She extended her warmest invitation to attend next year’s Congress on behalf of ESCMID, the ECCMID Organising Committee and the Czech Societies for Epidemiology and Microbiology, Infectious Diseases and Chemotherapy.

14 ENDORSEMENT OF THE EXECUTIVE’S PERFORMANCE (VOTE)
Roger Finch asked for a vote by hand for the discharge of the Executive Committee. This was approved unanimously.

15 ANY OTHER BUSINESS
Roger Finch informed the Assembly of the changes in the Executive Committee, which will become effective after this Assembly.

As of today, the term of the Past President, Carl Erik Nord, will end. Roger Finch thanked him for his long and outstanding service to the Society. Carl Erik Nord will continue to be an ex officio member to the Executive in his new function as CMI Editor for the supplements.

On May 10 the Executive unanimously elected Ragnar Norrby, Professor of Infectious Diseases, Solna, Sweden, as President-elect. His current position of Secretary General will be taken over by Giuseppe Cornaglia. Ragnar Norrby will, in addition, hold the position of Professional Affairs Officer for Infectious Diseases.

Helen Giamarelou and Regine Hackenberg, who both have been co-opted members of the Executive, will resign from their positions.
Roger Finch thanked them for their many valuable contributions. 
- In a postal ballot the ESCMID members elected Jordi Vila Estape, Professor of Microbiology, Barcelona, Spain, as new member to the Executive. He will take over the position of the Scientific Affairs Officer.
- According to the Statutes the Executive can co-opt up to two additional members. The Executive unanimoously decided to co-opt Elisabeth Nagy, Professor of Microbiology, Szeged, Hungary. She accepted and is taking over the portfolio of Professional Affairs for Clinical Microbiology.

Roger Finch then thanked Emilio Bouza for his term as Editor-in-Chief for CMI, which is ending formally at the end of 2003. In the current transition phase his successors (see 12 above) have taken over the daily operations. The Society’s Journal is in a healthy situation and has developed well under his leadership. No further requests for leave to speak were made.

16 INAUGURATION OF THE NEW PRESIDENT
At the end of his term, Roger Finch handed over the gavel to his successor for the next two years: Marc Struelens, Professor of Microbiology, Brussels, Belgium. The newly-inaugurated President thanked Roger Finch for the many advances the Society made under his term. He especially mentioned his clear visions combined with efficiency and consensus seeking leadership.

As President of ESCMID for the next two years Marc Struelens committed himself to promote excellence in CM and ID, to address the challenges to Public Health and to develop new revenue sources. He closed his address by inviting all our members to attend the 14th ECCMID 2004 in Prague.

CLOSE OF THE MEETING
Marc Struelens thanked the Assembly of Members for attending. He adjourned the meeting at 19:00 h.

Basel, July 25, 2003
Signed,

Roger Finch, President

Ragnar S. Norrby
Secretary General

Peter Schoch, Managing Director

ESCMID Fungal Infection Study Group – EFISG

Fungal infections, although having a lower profile than bacterial or viral infections, have increased both in incidence and in importance in recent decades. In a survey of sepsis carried out in the US the incidence of fungal sepsis was shown to have increased by 207% between 1979 and 2000 (1). Another major survey of deaths in the US between 1980 and 1997 showed that deaths from fungal infections increased from being the tenth most common cause of death to the seventh most common, with a 3.4-fold increase in multiple-cause mortality from mycoses (2). Candida species are now the third or fourth most common cause of bloodstream infections in intensive care units (3, 4). Invasive Aspergillus infections (see Figure 1) are common in transplant patients and carry a high mortality rate (3–5) with 4% of all patients dying in teaching hospitals found to have invasive aspergillosis. Not many human pathogenic fungi are highly virulent and with the exception of the dermatophytes, they are not transmitted from human to human. They do not cause major pandemics or outbreaks in individuals with competent immune systems. They are, however, opportunists, attacking the most vulnerable patients and this is why the incidence of invasive fungal infections has increased concomitantly with the increase in invasive medicine and immunosuppression. Patients at risk include transplant recipients, the aged, uncontrolled diabetics, AIDS sufferers and those with a range of other immunosuppressive conditions. Most invasive fungal infections are difficult to diagnose and frequently only become evident on autopsy.

The pathogens occurring most frequently are Candida species, Aspergillus species and Cryptococcus neoformans, but in recent years there have been changes in the epidemiology of fungal infections (5–7). Candida species other than Candida albicans are now seen frequently, most of these having low susceptibility or resistance to fluconazole, such as C. krusei and C. glabrata (5, 6, 8). Perfect and Schell (9) warned in 1996 that ‘The new fungal opportunists are coming’, referring to the wide range of species previously thought to be non-pathogenic or only occurring rarely, that were now being seen in a variety of immunocompromised patients. Others have highlighted this change in the epidemiology of fungal infections (6-8) and many have pointed out the need for training in medical mycology and the need for better diagnostics.

Fungi are eukaryotes and are a more diverse group than bacteria; this makes both diagnosis and chemotheraphy more of a problem. For many years the standard therapy for serious inva-

---

**Figure 1.** Scanning electron micrograph of Aspergillus fumigatus – hyphae and conidiophores
sive fungal infections has been amphotericin B but the use of the compound is limited by its toxicity and intolerance to it. Newer lipid and liposomal formulations of amphotericin B have better safety profiles and other new drugs, such as the echinocandins, offer clear safety advantages. The azole voriconazole appears to be more effective than amphotericin B for invasive aspergillosis. None of the drugs currently available however, are uniformly effective in some of the more difficult cases, such as recipients of allo HSCT. The role of newer agents in the treatment of the rarer fungal infections is not yet clear. There are major unanswered questions in the field of antifungal chemotherapy, particularly with regard to pharmacodynamics, genetic predisposition, diagnosis, the changing pattern of epidemiology and the use of combination therapy. An ESCMID fungal infection study group (EFISG) was set up during the 12th ECCMID 2002 in Milan to address some of these issues. This inaugural meeting established a committee with Dr David Denning (Manchester, UK) as the chair and Professor Olivier Lortholary (Bobigny, France) as the secretary. The emphasis of the study group will be clinical and a major objective is to provide a forum for education and discussion on various aspects of fungal infections. Another important aspect will be to collect data, samples and fungal isolates from the participating countries. The information generated will be valuable in enlarging the knowledge of the epidemiology of fungal pathogens. Communication with other ESCMID study groups will be important.

In the Study Group’s first year a number of positions on the Executive Committee, in addition to the usual offices, have been filled. These include co-ordinators for specific infections such as aspergillosis, candidiasis, rare moulds, AIDS, and co-ordinators for host defences, intensive care and paediatric patients, stem cell and solid organ transplants, clinical microbiology, and haematological malignancy. See the ESCMID website, Study Groups, EFISG for the names of these coordinators.

A meeting of EFISG was held at the 13th ECCMID in Glasgow in 2003 where the immediate aims were outlined. These fell into three areas of infection chosen because they are currently not covered in any detail by other groups concerned with fungal diseases. The studies will link clinical and laboratory work closely.

**CRYPTOCOCCAL BONE INFECTIONS**

Cryptococcus neoformans is a capsulated yeast (see Figure 2), which can cause a range of diseases, from a disseminated infection, to one localised in the central nervous system, the lungs, the skin or the bones. There are two variants, C. neoformans var. neoformans that predominates in Europe and America, and C. neoformans var. gatti, which occurs in the tropics. The organism is a basidiomycete and the perfect stage is Filobasidiella neoformans but the asexual yeast stage is normally responsible for infections. The route of infection is generally inhalation, often from organisms contained in pigeon droppings or soil. In immunocompetent people the disease is usually limited to a mild pulmonary infection, which may be asymptomatic, but if the inoculum is unusually large or the person is immunocompromised, dissemination can take place. Cutaneous infection is common in AIDS patients. Cryptococcal bone infections have not been studied systematically by other groups and EFISG, having members drawn from many European countries, is well placed to undertake such a study. The aims, as with the other infections chosen for study, will be to determine the extent and numbers of bone infections in various countries. It is thought that approximately 5-10% of those with disseminated cryptococcosis develop osteomyelitis.

**MOLECULAR DIAGNOSIS OF MUCORMYCOSIS**

Mucormycosis or zygomycosis refers to disease caused by a group of related filamentous, aseptate fungi belonging to the order Mucorales. The commonest pathogen is Rhizopus oryzae, (see Figure 3) but other species can be involved, most often Absidia, Cunninghamella.

**NON-CRYPTOCOCCAL INFECTIONS OF THE CENTRAL NERVOUS SYSTEM**

Most fungal infections of the central nervous system outside endemic areas for Coccioides immitis are caused by C. neoformans, but other fungi may also be implicated. EFISG will investigate this possibility with a focus on determining the size of the problem in Europe, the diagnosis of such infections, the treatment strategies and their outcome. The infections covered by this study are fungal meningitis and fungal encephalitis and/or brain abscesses.
Probably the most common problems encountered will be Candida meningitis and Aspergillus brain abscess/infarction in patients with CNS shunts and patients with haematological malignancies. A proven case of fungal meningitis will be defined as one where a fungus is recovered in a culture from the CSF or where a fungus (either yeast or hypha) is visualised in CSF or meningeal biopsy material and fungus is recovered from another normally sterile site. If fungi are visualised from CSF or meningeal biopsy but not grown, this will be classified as a proven case of uncertain aetiology. Probable cases will be defined as those where fungal cultures are identified from other normally sterile sites and there are signs of meningeal inflammation (increased leukocyte count, increased protein, low glucose). If there were signs of meningeal inflammation accompanied by indirect evidence of the presence of fungus in the CSF (specific antibody, antigen, PCR), this would also constitute a probable case. The definitions for fungal encephalitis and brain abscesses are listed in the following boxes. Detailed on-line questionnaires will be used for the electronic submission of information.

Pamela Hunter
Medical Writer

REFERENCES

Definition of fungal encephalitis
- presence of global or focal neurological findings
- pleocytosis of CSF or elevated CSF protein
- brain CT and/or MRI consistent with inflammation of brain parenchyma or biopsy of post-mortem specimen shows fungal encephalitis
- no evidence of other diagnoses (e.g. toxoplasmosis) or non-inflammatory conditions

Definition of fungal brain abscess
- one or more lesions with hypodense central area and peripheral uniform ring enhancement following injection of contrast material
- variable hypodense area of brain oedema surrounds enhanced ring (revealed by CT or MRI)
- Proven case – fungi recovered from culture of aspiration or biopsy of specimen
- Proven infection, but uncertain aetiology – fungi seen in biopsy but not cultured

---

Microbial Typing Technologies: Practical Course with Theoretical Support

24th ESCMID Postgraduate Education Course

Warsaw, Poland, April 25–29, 2004

This course is organised under the auspices of:
the ESCMID Study Group on Epidemiological Markers, the Dutch Foundation on Microbiological Typing, and the American Society for Microbiology.

The main practical course topics are: phenotyping by assessment of antibiotic resistance profiles; preparation of DNA-containing agarose blocks and performance of PFGE for isolates of bacterial strains; isolation of DNA and typing by PCR RFLP tests and arbitrary primed PCR assays. The practical aspects include epidemiological analyses, which will be performed on a variety of microbial strains.

For further information please contact:
Dr Joanna Empel, Phone +48 22 841 3367, Email jempel@il.waw.pl
or consult the ESCMID website (www.escmid.org), Courses & Workshops later this year.
Training Course in Hospital Epidemiology

25th ESCMID Postgraduate Education Course

Antalya, Turkey, November 5–9, 2003

This course is co-organised by the Society for Healthcare Epidemiology of America (SHEA) and the ESCMID Study Group on Nosocomial Infections (ESGNI).

The course comes in a basic and an advance module. The objectives of both modules are similar, albeit at different levels of depth: to get an overview of the major techniques and methods used in hospital epidemiology and resistance surveillance, to be able to manage and control nosocomial pathogens and resistant diseases in the healthcare setting and to discuss recent surveillance data.

For further information please consult the ESCMID website (www.escmig.org), Courses & Workshops or www.hosp-epi-course.org

The Role of Clinical Microbiology in the Management of Patients with Community-Acquired Infections

26th ESCMID Postgraduate Education Course

Smolensk, Russia, December 12–14, 2003

Jointly organised by: ESCMID Study Group on Antimicrobial Resistance Surveillance (ESGARS) and the Interregional Association for Clinical Microbiology and Antimicrobial Chemotherapy (IACMAC) Supported by: Alliance for the Prudent Use of Antibiotics (APUA), Russian and Italian Chapters

For further information, please contact:
Dmitry Galkin, MD or Olga Stetsiouk, MD, Institute of Antimicrobial Chemotherapy, Smolensk State Medical Academy, PO Box 5, Smolensk 214019, Russia, Phone +7-812-611327 or +7-812-611301, Fax +7-812-611294, Email galkin@antibiotic.ru or see the ESCMID website at www.escmid.org, Courses & Workshops
Dear colleagues

It is an honour and privilege to invite you on behalf of the Organising Committee to participate in the 14th ECCMID to be held in Prague, Czech Republic, May 1–4, 2004. A stimulating scientific programme and the fascinating historical and architectural heritage of Prague await you there.

The annual ECCMID is one of the largest international meetings on infectious diseases and microbiology. With thousands of participants, including clinicians, clinical microbiologists, biomedical scientists, public health specialists and trainees from more than 80 countries, the ECCMID offers an interdisciplinary forum to share knowledge in a collegial atmosphere.

We plan to focus the attention on new developments in the treatment and diagnosis of established and emerging infectious diseases as well as on the need for international co-operation in solving the current global problems in these fields.

In addition to keynote lectures, symposia and meet-the-expert sessions we will again organise guided poster tours and a European Network Corner to facilitate contacts and interaction between the participants. The industry exhibition will be an integral part of the congress and inform you on the latest products and services available to meet your professional needs.

The ancient city of Prague with a centre dating back to the Middle Ages has been selected to host the ECCMID 2004 for a variety of reasons. Its natural beauties, history and outstanding tradition of music and fine art have made Prague one of the most delightful and charming cities in Europe.

We warmly invite you to share and enjoy with us and look forward to seeing you in Prague,

Prof. Jarmila Jelinkova
14th ECCMID President

Prof. Marc Struelens
ESCMID President
The UEMS Section for Infectious Diseases and ESCMID are pleased to inform the scientific community that a joint European Board for the Accreditation of CME in the field of Infectious Diseases (EBAID) has been established. The purpose of the Board is to facilitate applying for European CME credits. EBAID is linked up with EACCME, the European Accreditation Council for CME, which is an institution of UEMS in Brussels. For an organiser of CME activities with international participation there are in principle two ways to apply for European accreditation: 1. National accreditation in the host country followed by European accreditation through EACCME (Scheme 1 below), or 2. submission to EBAID for scientific review, followed by accreditation by EACCME and the national authorities (Scheme 2 below). CME providers with a strong base in a European country (e.g. universities, hospitals) are recommended to follow scheme 1, international organisations providing CME (e.g. European societies, networks) should follow scheme 2. Both schemes take into consideration that EACCME requires national accreditation to approve an application. For further information about EBAID, including an online application form, see www.escmid.org, CME/EBAID.

**Application for European accreditation of CME activities**

**Scheme 1:** Flow chart for national CME providers

- National CME provider
  - CME authorities of host country
    - 3 application for European accreditation after approval by host country
  - European accreditation
    - approval
  - 2 approval
  - 1 application for national accreditation
- EACCME

**Scheme 2:** Flow chart for international CME providers

- International CME provider
  - EBAID (review of scientific quality)
    - 3 application for European accreditation after approval by EBAID
  - EACCME
    - accreditation by national authorities of host country
  - 2 approval
  - 1 application for accreditation
Correspondence

The Planned European Centre for Infectious Diseases: to be Complemented by a European Infection Laboratory à la EMBL?

Meeting reports and afterthoughts

Six years have elapsed since the initial proposal for a European Centre for Infectious Diseases. After periods of ups and downs the European Commission (EC) is now no longer questioning the need for such a Centre but still struggles with its configuration. It has pledged that the Centre should be operational by 2005 while the debate on the concept, mission and structure continues (1,2). At the 13th ECCMID in Glasgow a controversial session on the issue was held on May 11, chaired by Patrick Francioli, Lausanne, and Marc Struelens, Brussels. Julius Weinberg, London, argued for an intergovernmental coordinating agency that leaves most of the competences and resources with the member states. Michel Tibayrenc, Montpellier, on the other hand, defended the case of a new Centre that is able to provide credible leadership.

Different views about the planned European Centre were also expressed at the 1st FEMS Congress in Ljubljana during a round table on July 2. The discussion was moderated by Jean Claude Piffaretti, Bellinzona, who reported that a detailed proposal by the EC to the attention of the Council of Health Ministers and the European Parliament is expected later this summer. It was confirmed by one of the involved, Ronald Haigh from the EC Directorate Public Health, that the planned Centre will be made of bricks and mortar and not just a virtual network based on the internet. The focus will be on the coordination of surveillance and the implementation of concerted actions, if needed, as well as on scientific advice to the Commission on issues of public health. For political reasons, mainly related to national competence and financial limitations, it will not be possible to establish a Centre with laboratory-based research facilities much to the regret of the proponents of a centre with similar stature as the CDC in Atlanta, USA. Michel Tibayrenc, Montpellier, Marc Struelens, Brussels and Waleria Hryniewicz, Warsaw, argued for a European institution that has the necessary resources to arrive at a European perspective that is more than a sum of national data, i.e. to fill in gaps, and to address research questions when needed. It is the heterogeneous political set-up of Europe which speaks in favour of a competent multinational European Centre for Infectious Diseases. Brian Duerden from the PHLS in London was of a different opinion: he argued that for political and epidemiological reasons public health institutions must be close to the people and remain decentralised. We can simply not afford to draw resources from national and regional institutions to a central agency.

In view of these different positions that have all their own logic but are difficult to reconcile I suggest an alternative approach to deal with the problem. It is my own personal view and does not represent the opinion of the ESCMID Executive. The proposal is inspired by CERN and EMBL, two European institutions which are performing extremely well. They are devoted to cutting-edge research and professional training in the fields of particle physics and molecular biology, respectively. They are not run by the EU but by a group of individual European member states represented in a governing council. Since the planned European Centre for Infectious Diseases as a political and coordinating agency responsible to the EC will lack laboratory facilities it would make sense to complement it with an independent research institute following the prototype of CERN and EMBL. Through this the scarce financial resources of the expanding EU could be spared and the competence concerns of the members states tempered as the political influence would not be diluted through EU institutions. If the council of such a European Infection Laboratory had a broad enough constituency involving a sufficiently large number of member states – even the EU could be a formal member – the Laboratory may soon play a leading role in the European research network and drive a research agenda which is truly relevant to public health in the European context. Times are conducive to such an vision. The momentum generated by SARS (or the next emerging infectious disease) may help the scientific community to convince the governments to sign up for such an initiative.

Peter Schoch
peter.schoch@escmid.org

REFERENCES
1 Struelens M ESCMID News 3-2002, p. 18-19
2 Tibayrenc M ESCMID News 1-2003, p. 22-23
The outbreak of the Severe Acute Respiratory Syndrome (SARS) during the first half of 2003 shocked Europe as it did the world. It dramatically highlighted the need for the European Union to become better prepared for outbreaks of communicable diseases. Communicable diseases respect neither national frontiers nor the frontiers of the EU. They can spread rapidly if no adequate actions are taken to combat them.

Since the Treaty of Rome, which set up the European Economic Community, was signed in 1957, the European Union has not only changed its name but has grown both in size and in competence. In 1997, the Amsterdam Treaty established the EU's competence to take action to improve public health. Member States are still responsible for organization and delivery of health services and medical care, but the EU has been asked to take action in the field of public health to complement national policies.

In 1999 a first step was taken to coordinate efforts to control communicable diseases in Europe, the so-called Network on Communicable Diseases was set up. With the network up and working, the SARS outbreak this year highlighted its shortcomings. While it turned out to be sufficient to monitor and warn on communicable diseases, by no means is the network equipped to take coordinated action to control and prevent diseases.

With SARS in the news in 2003, discussions about a European Centre for Disease Prevention and Control (ECDC), which had been going on for some time, were shifted up a gear. ESCMID was pleased to learn that through the involvement of its EU Task Force in discussions held so far, the European Commission had identified the Society as an important partner in the policy discussions to establish the Centre. In November last year, Marc Struelens on behalf of ESCMID participated in a workshop addressing the need for a European Centre on Communicable Diseases. The workshop, which was held in the European Parliament included key EU officials, which took notice of the contribution of ESCMID. Fernand Sauer, Director for Public Health within the Commission's Directorate General for Public Health and Consumer Protection (DG Sanco), informed his colleagues that ESCMID would be an important source of information and its members' expertise made it a key partner to successfully conclude discussions on setting up the ECDC.

POSTGRADUATE TRAINING, PROFESSIONAL RECOGNITION AND CONTINUING MEDICAL EDUCATION

While the EU Task Force was able to build on established relationships with regards to the ECDC, new contacts were and are still being made in the field of realising a EU-wide curriculum for a PhD in Clinical Microbiology and/or Infectious Diseases. Towards this goal the cooperation with the European Union of Medical Specialists (UEMS), the European Medical Association (EMA) and the Marie Curie programme of the European Commission will be sought. For recent developments in the field of accreditation of CME see the article on EBAID in this ESCMID News.

It has become clear that through active and timely participation in EU policy discussions, ESCMID can exert influence on the future policy framework for infectious diseases and clinical microbiology. In this context the EU Conference organised by DG Research and ESCMID on Antibiotic Resistance on November 28-30, 2003 in Rome (see ESCMID News 1-2003) and the planned ESCMID Workshop on professional challenges in Clinical Microbiology and Infectious Diseases on March 17–19, 2004 in Leuven (see this ESCMID News) will be very important.

With the support of its members and the involvement of the EU Task Force ESCMID’s efforts are starting to bear first fruits.

Marc Struelens, ESCMID President
Peter Vanoverveld, Interel

SARS Symposium at 13th ECCMID – PowerPoint Presentations on ESCMID Website

For those of you who were unable to attend or would like to ‘revisit’ the very popular late-breaking SARS symposium at ECCMID, the PowerPoint presentations from the talks are available on the ESCMID website as pdf files at www.escmid.org, News & Current Issues.

We thank Donald Low and Christian Drosten for their generosity in making their ‘historical’ accounts available to the scientific community.
Blindness of the Poor – Success in the Fight against Trachoma

The depressing scenes are familiar to those who have travelled though the southern part of Morocco: in front of the magnificent mosques and ancient town-gates as well as in the alleys of the bazaar the blind beggars cannot be missed. Their scarred sclera are turned toward the sky in a desperate gesture, while the hands of the passers-by stretch towards a tin cup, in which some coins rattle. The beggars are victims of trachoma, already a plague in North Africa during biblical times. Year for year trachoma still costs thousands of persons their eyesight in the world’s 50 poorest countries.

300 to 500 million persons, predominantly children, are presently infected with *Chlamydia trachomatis* with five to seven million persons in the late stage of the illness, i.e., they have gone blind. The World Health Organization (WHO) General Assembly decided in 1998 that this should be different in the future. Up to the year 2020 blindness resulting from infection with *C. trachomatis* will be a thing of the past. The outlook for this ambitious project is not bad because researchers from different disciplines have been collecting insight, which, for the first time, puts the fight against trachoma on a solid scientific basis. At the same time the WHO as well as various relief organizations and ministries of health have systematically converted the strategies, which were devised during field studies and in laboratories, into practical control measures. In the fight against trachoma the four key principles are usually referred to by the acronym SAFE: plastic surgery of trichiasis (surgery), anti-infectious therapy (antibiotics), a clean face (facial cleanliness) and an improvement of the hygiene (environmental improvement). The basis of this strategy is the rationale that infection with *C. trachomatis* does not automatically lead to blindness. The opposite is true. Blindness is only the final point in a causal chain, which can be effectively interrupted at several points.

In countries with low hygiene standards, poor housing conditions and low education levels – thus, where poverty is the rule, not the exception – children already become infected in the first months of life with these obligatorily intracellular pathogens. They reach the conjunctiva via smear infection or the pervasive flies, where they penetrate the epithelial cells and cause inflammation. However, the pathogens are hardly eliminated before the next infection follows some weeks later. This time the local immune system reacts more violently, and the inflammation is aggravated by the release of proinflammatory cytokines. The cycle of infection, inflammation and elimination of the pathogens, recurs in the typical endemic regions many times during the first decade of an individual’s life.

After each infection, tiny fibrous scars are left behind in the conjunctiva. The scar tissue turns the eyelid inward – like a torsion bar – slowly but surely. An entropion develops and trichiasis soon follows. Because the lashes scrape the cornea like worn-out windshield wipers, small ulcers form on the cornea, which heal, become fibrous and finally develop into nonfunctional scar tissue. At the end of this vicious circle the patient is blind.

Indeed entropion can be corrected by a relatively simple operation. An ambulant procedure, which was tested in the 1980s in clinical studies in Oman, is in the meantime routinely carried out by medical technicians in the affected countries. Even more elegant is a recently-developed method from China. The lashes are forced back into their normal position using double-sided adhesive tape.

It, of course, makes much more sense to break the chain of events at the beginning and avoid smear infection. The simplest measure is a clean face. Field studies in rural Tanzania have showed that, if mothers are taught to keep the faces of their children continuously clean, which is not easy under the prevailing conditions in endemic areas, and to duly wash the cloths used to do so, the number of new infections with *C. trachomatis* drastically decreases.

Additionally, a break-through has now been achieved in antibiotic therapy. Up to now tetracycline was used as eye ointment. This needed to be applied two times daily over a six-week time period to the infected conjunctiva, which overextended even the most willing mother of half a dozen children. Recent multi-center studies in Egypt, Tanzania and Gambia have proved that three oral doses of azithromycin have the same effect.

In the meantime the question has been answered as to whether all inhabitants of an epidemic disease area or perhaps only the particularly worst hit group, namely the children, should be given azithromycin – and in what time intervals they should be treated. Ophthalmologists at the University of California in San Francisco pursued this question with the help of a mathematical model and calculated the time intervals, in which treatment rounds must be accomplished as a function of the initial prevalence. According to the results of the computer simulation, an annual or biannual treatment of all inhabitants in a risk area will decrease the reinfection rate slowly but surely, and within one decade the risk of new infections will decrease to almost zero.

A recently carried-out study in rural Tanzania showed that the majority of the heads of household in rural areas would be prepared to pay for future azithromycin treatment. However this readiness diminishes in conjunction with the presence of well-known tra-
Infection Imaging and the Magic Bullet?

This article will appear in two parts: Part 1 in this issue of ESCMID News and Part 2 in ESCMID News 3-2003.

Part 1: Techniques & Strategies in Infection Imaging

ABSTRACT
Conventional diagnostic imaging techniques such as X-rays, ultrasound, CT and MRI scans are useful tools for the detection of infective lesions where the site of infection is known or suspected. However, these techniques depend on anatomical abnormalities for positivity and thus often yield negative results especially during the early stages of the infectious process. Increasingly, and especially where the site of infection is unknown, nuclear medicine imaging techniques are employed. These are dependent on physiological and biochemical abnormalities for visual diagnosis and can thus yield useful diagnostic information before anatomical abnormalities have developed. Nuclear medicine infection imaging is a rapidly developing field which is currently at a crucial turning point. Established techniques such as gallium scanning and radio-labelled leucocytes have good sensitivity but poor specificity in that they do not distinguish between infection and non-infective inflammatory processes. Even where a suspected infective lesion is detected, the image can at best be only suggestive of a certain disease e.g. pulmonary tuberculosis or aspergillosis, but never diagnostic in a microbiological sense. The future lies in a marriage between microbiological (including immunological) and nuclear imaging diagnostic techniques. The ciproxin infection (99mTc-ciprofloxacin) is a welcome development in that direction and is finding a useful niche in the imaging of skeletal infections. Future developments will include radiolabelled specific anti-bacterial, anti-viral or anti-fungal antibodies. These should provide rapid diagnosis in a matter of hours that will not only localise the infection site but also identify the organism to the genus and even the species level. This should prove an extremely beneficial development in the management of immunocompromised patients. Febrile neutropenic patients, for example, often have few localising signs and symptoms of infection and invasive diagnostic procedures such as bronchoscopy or needle biopsy are usually precluded by thrombocytopenia or poor general condition. In such patients rapid and specific diagnosis or exclusion of infections such as invasive pulmonary aspergillosis is crucial for timely appropriate therapy and/or avoidance of unnecessary toxic drugs. There are promising early developments in that regard which are outlined in this article. The era of the “diagnostic magic bullet” may have just begun.

INTRODUCTION
The aim of diagnostic imaging is the detection of both the site and the extent of the infectious lesion(s). Nuclear medicine imaging involves the injection of a radiopharmaceutical which then, actively or passively, accumulates at the infection site. The emitted radiation is then detected by a scintillation device (usually a gamma camera). Most contemporary nuclear medicine imaging techniques rely on the inflammatory response associated with infection. It is worth noting, however, that there are numerous non-infectious causes of inflammation (such as tumours, foreign bodies, trauma and ischaemia) and conversely, the inflammatory response may be lacking in infectious lesions in neutropenic and other immunocompromised patients. Conventional imaging techniques as X-rays, ultrasound (US), computed tomography (CT) and magnetic resonance imaging (MRI) scans rely on gross anatomical changes (e.g. cavitation, abscess formation, organ displacement, etc.) for “positive” results and are thus often negative in early infections and in those not associated with specific infection imaging

Trachoma – an old menace
The different stages of infection with C. trachomatis are already described in old-Egyptian papyri. In Europe trachoma turned into a mass epidemic during the industrial revolution: poor hygiene and the miserable housing conditions created the ideal ‘medium’ for transmission of the pathogen. At the beginning of the previous century when large waves of European immigrants arrived in New York, one of the first measures of the hygiene inspectors on Ellis Island was to examine the immigrants’ conjunctiva for trachoma. Those infected with the pathogen were denied entrance into the USA. Even up to 1930 regular trachoma days were held in poor London suburbs whereby eye exams were conducted. The last trachoma hospital in the Appalachian region of the USA was shut down as late as 1950.
with anatomical changes. CT scans have a higher resolution than any nuclear medicine technique. However, in theory, since nuclear medicine techniques rely on inflammatory (and recently microbiological) targets, infection can be detected before gross anatomical changes have taken effect. This review will concentrate on nuclear medicine infection imaging rather than conventional techniques. It is aimed at microbiologists and infectious diseases physicians whose daily work may well involve frequent brushes with the high-tech world of nuclear medicine. It is intended to promote a basic understanding of the technical background, utility and indeed shortcomings of the various available techniques as well as to review emerging and future trends in the field. Several references to reviews (1–6) will be listed at the end of the second part of this article for those who seek more detailed information. Further references will be given for the more recent “specific” methods of nuclear medicine infection imaging (7–19).

**Table 1: Radiopharmaceuticals**

<table>
<thead>
<tr>
<th>Radiopharmaceuticals</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Galium-67 (67Ga)</strong></td>
<td>Gallium-67 citrate was one of the first radiopharmaceuticals to have been used in diagnostic imaging, experimental use having commenced in the late 60s. Injected 67 Ga citrate binds to circulating proteins, mainly transferrin, and the complex is then passively extravasated at sites of infection or inflammation. Unfavourable radiation characteristics have meant that its use has been very limited in recent years and it has largely been supplanted, first by Indium-111 and now largely by Technetium-99m (see below).</td>
</tr>
<tr>
<td><strong>Indium-111 (111In)</strong></td>
<td>I111In was the first radionuclide used for in-vitro leucocyte labelling and was considered the “gold standard” before the advent of 99mTc. Preparations include: + Indium-111 tropolonate: used for in-vitro leucocyte labelling, i.e. Indium-111 tropolonate-WBC. + Indium-111 chloride: a “stand-alone” radiopharmaceutical, i.e. carrier free, which accumulates in bone marrow and has been used in imaging of osteomyelitis. + Indium-111 IgM or IgG: a non-specific tracer accumulating through increased vascular permeability. + Indium-111 polyethylene glycol-liposomes: another non-specific tracer.</td>
</tr>
<tr>
<td><strong>Technetium-99m (99mTc)</strong></td>
<td>Generally, 99mTc has better radiation characteristics and a shorter half-life than 111In preparations (6 hours vs. 2.7 days). It thus renders better images with a significantly smaller radiation dose to the patient. Thus 99mTc has largely supplanted 111In in leucocyte scintigraphy. In vascular / graft infection, however, Indium-111 in-vitro leucocyte scintigraphy is more useful than Technetium-99m. This is due to the fact that Indium-111 is more rapidly cleared from circulation, reducing non-specific activity. There are several preparations: + Technetium-99m hexamethylpropyleneamineoxine (99mTc-HMPAO): commonly used for in-vitro leucocyte labelling, i.e. 99mTc-HMPAO-WBCs. 99mTc-HMPAO crosses the blood brain barrier so it is also used for brain imaging as a “stand-alone” radiopharmaceutical. + Technetium-99m human immunoglobulin (HIG): Radiolabelled HIG is used as a non-specific tracer in infection. + Technetium-99m PEG-liposomes: Radiolabelled liposomes coated with polyethylene-neglycol have also been trialled as non-specific tracers. + Technetium-99m anti-granulocyte antibodies (IgG or IgM) or antibody fragments: used for in-vivo leucocyte labelling. + Technetium-99m dimercaptosuccinic acid (99mTc-DMSA): this is highly concentrated in renal tubules rendering it particularly suitable for morphological imaging, especially of the renal cortex. + Technetium-99m mercaptoacetyltriglycine (99mTc-MAG3) mostly undergoes renal tubular secretion and is thus useful in assessing renal tubular function and is also used in the imaging of reflux nephropathy, e.g. in children. + Technetium-99m pentetate (99mTc-DTPA) is mostly excreted by glomerular filtration and is thus useful in assessing renal perfusion and excretion. It is also used in the imaging of reflux nephropathy. + Technetium-99m human serum albumin, Technetium-99m sulphur colloid and Technetium-99m DTPA, delivered by inhalation, are used in pulmonary function tests. + Technetium-99m phosphate, e.g. 99mTc-methylene diphosphonate (99mTc-MDP): especially useful for imaging of chronic osteomyelitis in children. + Technetium-99m ciprofloxacin (also called “infecton”): experimental “specific” agent that is especially promising in bone imaging.</td>
</tr>
<tr>
<td><strong>Fluorodeoxyglucose (FDG)</strong></td>
<td>Fluorine is the only non-metal radionuclide in this section. Radiolabelled glucose (FDG) uptake increases in human cells undergoing a hypermetabolic state, similar to that of non-radiolabelled glucose. FDG is usually used in conjunction with positron emission tomography (FDG-PET) – see below.</td>
</tr>
</tbody>
</table>
INFECTION SCINTIGRAPHY

Following injection of a radiopharmaceutical into the patient, visualisation of areas of accumulation or “hot-spots” is usually accomplished with the aid of a scintigraphic device, normally a “gamma camera”.

STRATEGIES IN INFECTION IMAGING

A. Non-specific tracers of infection

These depend on increased vascular permeability at site of infection / inflammation, resulting in passive transudation of a radiolabelled compound.
These also utilise the inflammatory response via chemotaxis, antigen-antibody reaction or receptor binding. Leucocytes, anti-leucocyte or other antibodies to components of the inflammatory response are radiolabelled in vitro or injected directly into patient (in-vivo or indirect labelling). This is followed by visualisation as in non-specific tracers. Since no specific targeting of micro-organisms is involved, it follows that these techniques too are incapable of differentiating infections from other inflammatory lesions. In practice most of these techniques have been found to depend on passive extravasation almost to the same extent as the “non-specific” tracers and some cause serious side effects in the host. Perhaps predictably, labelled leucocytes perform less well in chronic than in acute “pyogenic” inflammation.

### Table 4: “Semi-specific” tracers of infection

<table>
<thead>
<tr>
<th>1. In-vitro (direct) leucocyte labelling (e.g. Technetium-99m-Hexamethylpropyleneamineoxine, Indium-111 tropolonate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involves purification of the patient’s own leucocytes, followed by radio-labelling and injection back into patient. The $^{99m}$Tc preparation is preferred to that of $^{111}$In in most instances with the exception of vascular and hepatobiliary infections in children. This is considered “positive” imaging as injected leucocytes actively migrate to site of infection and is thus the current “gold standard”. Following re-injection of $^{111}$In labelled leucocytes, anterior and posterior planar images of the chest, abdomen and pelvis are obtained at 4 and 24 hours. At 18-24 hours post-injection physiological cumulation or “hot spots” occur in spleen, liver and bone marrow but not in bowel, gall bladder, urinary tract or thorax. Thus $^{111}$In preparations are suitable for infection imaging of the latter but not the former sites. $^{99m}$Tc-HMPAO-WBC, on the other hand, is more rapidly cleared from the circulation with “normal” uptake in the gastrointestinal and renal tracts. Thus abdominal imaging is normally completed at 3 hours while imaging of other regions can be completed up to 20 hours post re-injection. In-vitro leucocyte labelling has been used in a wide variety of infections including PUO, vascular, abdominal and renal infections with a claimed sensitivity exceeding 90%. However the preparation is laborious and requires trained personnel and appropriate facilities. Furthermore, the technique is specific to leucocyte infiltration and not infection per se.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. In-vivo (indirect) leucocyte labelling (e.g. Technetium-99m or Indium-111 labelled anti-granulocyte IgG, IgM antibodies or antibody fragments)</th>
</tr>
</thead>
<tbody>
<tr>
<td>This alternative to in-vitro labelling is simpler and does not involve handling of potentially contaminated blood. It depends on labelling leucocytes already at site of infection.</td>
</tr>
<tr>
<td>- <strong>Anti-granulocyte IgG or IgM antibodies or antibody fragments</strong> are most commonly used for this purpose. Injected antibodies attach to granulocytes, mostly in the bone marrow rather than the circulation. The labelled granulocytes then migrate to the infection site(s). The resulting distribution and kinetics vary with the preparation. The Technetium-99m labelled murine anti-leucocyte fragment -Leucoscan®- is licensed for use in imaging of bone infection in Europe. The IgG based preparations have been trialled in a variety of infections with a claimed sensitivity of 80-90%. With most preparations studied, less than 10% of antibody was actually associated with leucocytes so these preparations do not represent true “in vivo” labelling nor are they specific diagnostic tools for infection, but rather act through non-specific extravasation as in the previous category. A possible exception is the recently described $^{99m}$Tc-anti-CD15 IgM monoclonal antibodies with a claimed leucocyte binding exceeding 50%. Synthesised Fab' fragments have the advantage of avoiding the sensitisation induced by murine monoclonal antibodies. Other alternative concepts for in-vivo “labelling” of leucocytes include:</td>
</tr>
<tr>
<td>- <strong>Radiolabelled chemotactic peptides:</strong> (e.g. Technetium-99m F-Met-Leu-Phe) and <strong>radiolabelled cytokines</strong> (e.g. platelet factor 4, interleukins 1,2,8). These are in early stages of development but there is concern about biological side effects.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Anti-E selectin antibodies or antibody fragments (e.g. Indium-111 Fab’1.286 anti-human E selectin)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-selectin is a molecule produced by endothelial cells in response to cytokine stimulation and adheres to surface of leucocytes. Injected radio-labelled monoclonal antibodies attach to E-selectin on leucocyte surfaces at infection site. E-selectin distribution closely mirrors that of lymphocytes, hence its potential utility for imaging of chronic inflammation. Some encouraging early results were reported in imaging of chronic arthritis and inflammatory bowel disease.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. 18F-fluorodeoxyglucose positron emission tomoscopy (FDG-PET)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiolabelled glucose (FDG) uptake by various human cells is similar to that of non-radiolabelled glucose. FDG-PET depends on increased radiolabelled glucose uptake in granulocytes at the infection site due, presumably, to their hypermetabolic state. The latter state is common not only to infective foci but to neoplasms and other lesions. Indeed, FDG-PET has long been used for differentiating benign from malignant tumours, tumour staging and post-treatment follow-up examinations. It is thus not surprising that this technique has good sensitivity (exceeding 90%) but disappointing specificity in infection imaging. Furthermore it is also affected by serum glucose levels (e.g. in diabetics). PET’s high spatial resolution renders it useful in imaging of osteomyelitis, pneumonias and cerebral lesions in immunocompromised patients (see below). The technique is, however, expensive, specialised and consequently not widely available.</td>
</tr>
</tbody>
</table>

*Note:* Of these only $^{67}$Ga citrate and Technetium-99m HIG are licensed and in use in Europe.

#### Table 3

- “Semi-specific” tracers of infection
  - Anti-granulocyte IgG or IgM antibodies or antibody fragments
  - Radiolabelled chemotactic peptides
  - Radiolabelled cytokines
  - Anti-E selectin antibodies or antibody fragments
  - 18F-fluorodeoxyglucose positron emission tomoscopy (FDG-PET)

#### B. “Semi-specific” tracers of infection

These also utilise the inflammatory response but at least in theory, actively seek certain components of that response via chemotaxis, antigen-antibody reaction or receptor binding. Leucocytes, anti-leucocyte or other antibodies to components of the inflammatory response are radiolabelled in vitro or injected directly into patient (in-vivo or indirect labelling). This is followed by visualisation as in non-specific tracers. Since no specific targeting of micro-organisms is involved, it follows that these techniques too are incapable of differentiating infections from other inflammatory lesions. In practice most of these techniques have been found to depend on passive extravasation almost to the same extent as the “non-specific” tracers and some cause serious side effects in the host. Perhaps predictably, labelled leucocytes perform less well in chronic than in acute “pyogenic” inflammation.
Table 5. “Specific” tracers of infection

1. Radiolabelled ciprofloxacin ($^{99m}$Tc-ciprofloxacin or “infecton”) (7–11)
   Ciprofloxacin, a fluoroquinolone antimicrobial agent, binds to DNA gyrase inside viable bacteria. Its spectrum is predominantly Gram-negative but it is claimed that it also binds to DNA gyrase in resistant organisms. This must be conditional on its ability to penetrate the bacterial cell wall initially. Ciprofloxacin does not bind to dead bacteria and is thought not to accumulate in inflammatory sites devoid of bacteria (e.g. inflammatory bowel disease). The recommended imaging time in clinical trials has been at one and four hours post-injection. The quoted sensitivity and specificity for infection in these trials was 70-94% and 83-93% respectively. Sensitivity figures were broadly similar to those of leucocyte imaging but the specificity for infection was predictably higher. Controversially, patients who have been on antibiotics were considered true negatives. Sensitivity was generally highest for skeletal infection and lowest for infective endocarditis. The small size of some vegetations, the small number of organisms contained deep within them, the predominance of streptococci (often ciprofloxacin resistant) and stationary phase growth may all account for the low sensitivity in endocarditis. False negative results are commonly due to recent antibiotic therapy but may also be due to infection with micro-organisms resistant to ciprofloxacin through cell membrane impermeability. Further, slowly dividing micro-organisms such as mycobacteria commonly result in false negative images. Infecton is mainly excreted via the kidneys and shows some liver and splenic uptake but does not accumulate in bone marrow, hence its main utility in orthopaedic infections including prosthesis.

2. Radiolabelled antimicrobial peptides ($^{99m}$Tc-HNP-1) (12–17)
   Human neutrophil peptides (HNP or defensins) are anti-microbial peptides synthesized by neutrophils and stored in granules. HNPs bind to bacteria rather than leucocytes and contribute to bacterial killing by increasing bacterial cell membrane permeability. Purified human neutrophil peptide-1 (3 kd) was labelled with Technetium-99m by reducing the disulphide bridges of the molecule. Biodistribution in an experimental mouse model showed blood clearance and accumulation at infection site were both rapid. The uptake in bacterial induced lesions was only modest and peaked at 15 minutes then rapidly declined. Excretion was equally distributed between the gastrointestinal and renal tracts. Thus it is not envisaged that HNP-1 will prove useful for visualisation of infection in those regions. In an experimental mouse peritonitis model, $^{99m}$Tc-HNP-1 bound to bacteria rather than leucocytes (ratio 1000). Shorter segments (1.2-1.7 kd) from another antimicrobial peptide “ubiquicidin” are easier to synthesise and have shown broadly similar results to HNP-1. Unfavourable biodistribution kinetics and a less than encouraging performance in experimental mouse trials imply that much further development is needed before these agents are deemed suitable for use in a clinical diagnostic setting.

3. Radiolabelled specific antibodies ($^{99m}$Tc-anti- PPC) (18) (Figure 1)
   Bacterial cell wall components (BCW) include peptidoglycan (PG), a ubiquitous bacterial antigen found in the cell wall of both Gram-positive and Gram-negative bacteria. Peptidoglycan-polysaccharide complex (PPC) is composed of peptidoglycan linked covalently to a variable polysaccharide side chain (carbohydrate heteropolymer). It is the principal structural component of the bacterial cell wall of both Gram-positive and Gram-negative bacteria and is more immunogenic than peptidoglycan alone. PPC occurs in nearly all bacterial species, including the normal intestinal flora, and antibodies to PPC occurs naturally in humans. It follows that a radiolabelled antibody to PG or PPC has the potential of being significantly more sensitive and specific at targeting and detecting bacterial infective lesions than most established nuclear medicine techniques described above. Extraction of PP or PPC, raising antibody to either and radiolabelling of antibodies are, in their individual rights, technologies that already exist and are well established. A $^{99m}$Tc labelled antibody to PPC has recently been described and patented (18) and further development is awaited.

Radionlabelling is also thought to result in damage to leucocytes and is clearly unsuitable for imaging of infections in neutropenic patients. Lymphocytes are especially susceptible to damage in this way and lymphocyte labelling has been ruled out as a tool for imaging chronic inflammation. Of the techniques outlined, only in-vivo and in-vitro leucocyte labelling techniques are currently licensed and in use in Europe. The various “semi-specific” tracers are outlined in Table 4.

C. “Specific” tracers of infection

In contrast to the above two categories, this group of tracers bind directly to micro-organisms with the aim of differentiating infection from other inflammatory lesions. All have the advantage over in-vitro radiolabelled leucocytes in that they do not require blood handling and their efficacy is independent of both the peripheral white blood cell count and the patient’s immune status. This group should be regarded as “experimental”, none having yet been licensed for use in the UK and radiolabelled ciprofloxacin being the only one to have undergone several clinical trials. The “specific” tracers are outlined in Table 5.

To be continued in ESCMID News 3-2003.

Michael Morgen, MD
mike.morgan@ncumbria-acute.nhs.uk
ESCMID was pleased to present this year’s Award for Excellence in Clinical Microbiology and Infectious Diseases, sponsored by AstraZeneca, to Professor Alasdair Geddes (University of Birmingham, UK) at the 13th ECCMID Glasgow 2003. His fine acceptance speech follows.

I first encountered the exciting and challenging world of infectious diseases in 1960 when I was appointed to the Edinburgh City Hospital, the infectious disease hospital for Edinburgh. Many of my friends and colleagues were surprised by this appointment as they shared the generally held view that it would only be a matter of time before contagious diseases would be eradicated by a combination of vaccines and antimicrobial agents.

At the end of the 19th Century outbreaks of infectious diseases were common in Edinburgh including outbreaks of diphtheria, typhus, smallpox and cholera. Edinburgh City Hospital was opened in 1903 [1]. It was a classical isolation hospital, built on a greenfield site outside the city walls similar to other hospitals outside other major UK cities.

The City Hospital consisted of individual freestanding wards, each dedicated to specific infectious diseases. When I started work there were still wards for measles, whooping cough, tuberculosis and diarrhoeal diseases. Two wards had, however, been converted to incorporate single cubicles to allow patients suffering from different infections to be admitted for isolation to the same ward. In the extensive grounds of the hospital there were cottages for smallpox patients. The last outbreak of smallpox in Edinburgh was in 1942. During that episode there were 36 persons with smallpox, 8 of whom died. A quarter of a million people in Edinburgh were immunized against smallpox; ten died from the complications of vaccination, 8 of meningocencephalitis.

In addition to learning about the classical infectious diseases I also participated in the initial clinical trials of several new antibiotics including cephaloridine [2], one of the first injectable cephalosporins; in 1964 I went to a symposium in Oxford to celebrate the introduction of this compound, which was attended by Brotzu, discoverer of the cephalosporins. We also studied a number of other new antimicrobials including the aminoglycoside antibiotoic kanamycin [3].

Following eighteen months at the City Hospital I spent several years training in internal medicine and then returned to the Edinburgh City Hospital to complete my training in infectious diseases. I was fortunate to be able to spend a period in 1964 visiting major infectious diseases units on the eastern seaboard of the United States and surprised to find that isolation facilities, as such, did not exist in the USA and that the infection units were within general hospitals, all of which had infectious diseases physicians. Of particular interest to me was the time I spent at the Boston City Hospital with the late, and great, Professor Ed Kass. We shared an interest in the pathogenesis of urinary tract infection [4].

In 1967 I was appointed to a consultant post at East Birmingham Hospital. This hospital was similar to the Edinburgh City Hospital having been built outside Birmingham at the beginning of the 20th Century. Initially it could accommodate over 1000 patients, and it was claimed by some to have been, at one time, the largest infectious disease hospital in Europe. Like the Edinburgh City Hospital (which closed in 1998), East Birmingham Hospital became incorporated within the boundaries of the town as it became surrounded by housing development. Although it retained its infectious diseases function, it became a general hospital in 1963. The isolation wards were eventually knocked down to make room for a car park. A new small isolation unit was built several years ago within the general hospital development.

In the late 1960’s and 1970’s there was considerable immigration from the Indian sub-continent into Birmingham and surrounding areas. This resulted in the importation of tropical infections such as malaria, typhoid fever and leprosy and also ‘classical’ infectious diseases such as diphtheria and poliomyelitis. Patients suffering from these ‘exotic’ infections were admitted to East Birmingham Hospital. I had to learn quickly!

Common childhood infectious diseases such as measles (Figure 1) and whooping cough were still prevalent among the local population and also the immigrant children. It is difficult to appreciate now that in the 1960’s there were up to 800,000 notifications of measles in England and Wales each year with around 100 deaths occurring annually (Figure 2). The introduction of measles vaccine in 1968 resulted in a dramatic fall in the incidence of the infection which is now rare in the UK. However, there have been cases recently as a result of adverse publicity directed against the MMR vaccine related to unsubstantiated claims that it caused autism and possibly also bowel disease. In the 1970’s there was similar adverse publicity against vaccines in the media with claims that the whooping cough (pertussis) vaccine caused neurological damage. As a result, the national uptake of pertussis vaccine fell to less than 30% resulting in an upsurge of the disease. Many of us were involved in reassuring parents of young children that such fears were unfounded and the vaccine uptake subsequently rose to over 80% [5].

The practice of infectious diseases was, however, changing and in Birmingham...
ham we expanded our interests to include non-communicable infections such as osteomyelitis (in collaboration with orthopaedic surgeons) [6], endocarditis (with cardiologists) [7] and infections in immunocompromised patients, especially those with haematological malignancies [8]. Collaboration with microbiologists was essential both for patient care and for research. Projects were also carried out with immunologists and public health physicians. Tropical diseases such as malaria were studied [9]. Most of the cases of malaria from the Indian sub-continent were caused by *Plasmodium vivax*. More recently, however, travel to Africa has resulted in a predominance of infections caused by *Plasmodium falciparum*.

In 1973 I spent a period in Bangladesh with the WHO’s smallpox eradication programme. At that time smallpox was endemic in Bangladesh, the last focus of the infection in Asia. I saw many cases of smallpox and vaccinated numerous individuals. The majority of the vaccinations were performed by staff with no medical, nursing or scientific training. Projects were also carried out with immunologists and public health physicians. Tropical diseases such as malaria were studied [9]. Most of the cases of malaria from the Indian sub-continent were caused by *Plasmodium vivax*. More recently, however, travel to Africa has resulted in a predominance of infections caused by *Plasmodium falciparum*.

Interest today in the above two

In 1973 I spent a period in Bangladesh with the WHO’s smallpox eradication programme. At that time smallpox was endemic in Bangladesh, the last focus of the infection in Asia. I saw many cases of smallpox and vaccinated numerous individuals. The majority of the vaccinations were performed by staff with no medical, nursing or scientific training. Projects were also carried out with immunologists and public health physicians. Tropical diseases such as malaria were studied [9]. Most of the cases of malaria from the Indian sub-continent were caused by *Plasmodium vivax*. More recently, however, travel to Africa has resulted in a predominance of infections caused by *Plasmodium falciparum*.
episodes relates to the possibility that the smallpox virus or botulinum toxin could be employed as a bioweapon and the clinical presentations of smallpox or botulism could be similar to our experiences in 1978 - the unexpected appearance of a rare or 'extinct' infection. In the Birmingham smallpox episode, which occurred one year after the World Health Organization had declared the disease eradicated from the world, the diagnosis was not considered by three experienced primary care physicians even though a rash was present. Another lesson learnt from the smallpox cases was that two vaccinations do not prevent death from the disease.

During my time at East Birmingham Hospital, in association with microbiological colleagues, we carried out the early clinical, pharmacological and microbiological studies of a number of new antimicrobial agents. Although the purpose of the trials was to investigate drugs, they also provided an insight, especially for trainee physicians, into the pathogenesis and clinical features of the infections being treated by the investigational agent. Examples included clindamycin [12], which provided an insight into the pathogenesis of bone and joint infection (and which proved to be very effective in osteomyelitis when given orally), trimethoprim-sulphamethoxazole [13] in the treatment of typhoid fever, and amoxicillin, the first comprehensive study of the compound [14].

Towards the end of the 1970s’ resistance among common bacteria was becoming a major problem, especially in hospitals. We were therefore especially interested to be able to study the combination of amoxicillin with clavulanic acid, the beta-lactamase inhibitor. This resulted in the first paper reporting a clinical, pharmacological and microbiological study of the combination of amoxicillin and clavulanic acid, now known in the UK as Augmentin [15].

Another ‘first’ for our group was a pharmacokinetic study of N-formimidoyl thienamycin, which, in combination with clistatin, was later marketed as imipenem [16]. The thienamycin compound had never previously been given to humans, only to non-human primates.

Cefazidime was also studied and proved to be especially useful in the treatment of infections complicating haematological malignancies [17]. A review of our experience with new beta-lactam antibiotics has been published [18].

Quinolone antimicrobial agents were also studied including ciprofloxacin [19], which proved to be especially effective in typhoid fever and also carriers of salmonellae, being the first compound to be reliable for the eradication of the typhoid carrier state. We also studied levofloxacin [20], now an agent of choice for respiratory tract infections.

Nosocomial infection is currently a major problem. In 1975 my colleagues David Williams, Edward Lowbury and Graham Ayliffe and I published the first edition of the monograph ‘Control of Hospital Infection’ [21] which is now in its Fourth Edition.

More recently we became interested in tuberculosis. We were fortunate to be involved in the Glaxo-Wellcome Action TB initiative, which enabled us to carry out studies on mycobacterial dormancy [22] and also the human host response to mycobacterial infection [23]. The Action TB programme included scientists in South Africa in addition to three centres in the UK (one in Birmingham and two in London).

Another initiative was the establishment in our department of the National Antiviral Susceptibility Reference Unit directed by Dr Deenan Pillay. The Unit has been especially involved in studying the antiviral resistance patterns of HIV and hepatitis B viruses from the UK. Unlike Edinburgh, where needle-sharing misuse of drugs was prevalent, HIV infection has fortunately not been a major problem in Birmingham. In 1983 the first case of AIDS in Birmingham presented at our infectious disease unit with pneumocystis pneumonia. The treatment of patients suffering from HIV infection in Birmingham is carried out jointly with clinicians trained in the management of sexually transmitted diseases. The teaching of undergraduate medical students is an important function of the infectious disease physician. My own current involvement is with a Special Study Module for Year 3 medical students entitled “Biological Warfare”. The students spend 4 weeks full-time studying their project and then write an extended essay and present their findings to their group of students. For the past two years the module has been over-subscribed!

As the specialties of infectious diseases and clinical microbiology have developed during the past 30 years, organizations have been founded to provide a focus for patient care, research and training. Two organizations that I have been associated with are the British Society for Antimicrobial Therapy and the International Society for Infectious Diseases; both societies have successful journals. In the UK, the Royal College of Physicians of London and the Royal College of Pathologists have recently (after many years of discussion in which I have been involved) produced recommendations for the joint training of microbiologists and infectious disease physicians – a most welcome development which recognizes the interdependence of the two disciplines.

There are less than 100 infectious disease physicians in the UK (population approaching 60 million). More are required to combat the ever-present threat of infectious diseases, to carry out research into the treatment and preventative measures for diseases caused by microbes, and to train future generations of clinicians.

One of the most important duties of any doctor is the training of young physicians. Infectious disease is an attractive and rewarding specialty – the patients are frequently of previous good health, often young, and the majority of infections are curable or self-limiting. Numerous extremely able young men and women have been attracted to a career in infectious diseases over the past 40 years and I am privileged to have worked with many of them who are now in senior positions in hospitals and universities throughout the UK and in other countries.

What of the future? New infections will emerge and old ones re-emerge. Microbial resistance will continue to pose problems for clinicians while travel-associated infections will ensure that microbes span continents. Zoonoses will produce unexpected infections such as we have seen during the past decade with Creutzfeldt-Jacob disease, Hendra virus infection, avian influenza and the Severe Acute Respiratory Syndrome (SARS). The threat of bioterrorism is ever-present and the possible impact on infectious diseases of climate change is unknown.

I am fortunate to have been involved in infectious diseases during one of the most exciting periods of its history...
when new antimicrobial therapies became available and vaccines were introduced for the prevention of the major childhood infections. It is a privilege to have been involved in the early clinical trials of so many truly new antimicrobial agents. In spite of major advances in treatment and prevention, however, infection remains a major challenge to individuals and to health services. There are no drugs available for the cure of many viral infections and bacterial infections are still major causes of morbidity and mortality. For example, young healthy patients still die from meningococcal infection even though antibiotics, which kill the causative organism, are available.

I started my career in infectious disease in the era of isolation hospitals, which have now closed, or have become general hospitals encircled by populations areas. There are now relatively few isolation facilities in the UK and those that are available are in large general hospitals in populous areas. It is salutary that serious consideration is now being given in several countries to identifying isolated hospitals that could be used should smallpox be employed as a bioweapon, or if there is an extensive outbreak of a potentially fatal and untreatable virus infection such as SARS.

I am grateful for the advice and wisdom of my late teachers, James Murdoch and George Sangster who introduced me to infectious diseases.

Alasdair Geddes

REFERENCES
1. Gray JA. The Edinburgh City Hospital. The Tuckwell Press. 1999
2. Murdoch JMc, Speirs, CF & Geddes AM. Clinical trial of cephaloridine (Ceporin), a new broad-spectrum antibiotic derived from cephaloridine. BMJ 1964; 2: 1238
News in Brief

Infectious Diseases and Outbreaks

BACTERIOPHAGES FROM TOXIC E. COLI SHOWN TO INFECT NON-TOXIC STRAINS
Bacteriophages from toxigenic strains of *E. coli* O157:H7 have been shown to have the ability to infect non-toxic strains of *E. coli*. The phage carries the genes for the production of Shiga toxin, the virulence factor responsible for haemolytic uraemic syndrome (HUS) and could thus enable harmless strains of *E. coli* present in the human gut to become toxin producers. In experiments mixing phage-susceptible strains with toxigenic strains, toxin production was increased 40-fold. Conversely the addition of phage-resistant strains could reduce the level of toxin. This could explain the variability seen in the development of HUS in those infected with O157:H7 strains. Gamage et al. Infect Immun 2003; 71: 3107

MORE EVIDENCE LINKING CROHN’S DISEASE WITH M. AVIUM SPP. PARATUBERCULOSIS
New work has indicated that *Mycobacterium avium* spp. paratuberculosis may be the cause of the chronic inflammatory bowel condition, Crohn’s disease. Previous studies have been hampered by the problems in isolating the organism from clinical specimens. The authors have developed novel methods of processing samples and extracting the DNA. Using these methods, they isolated the organism in biopsy specimens from 34/37 (92%) patients suffering from Crohn’s disease but only 9/34 (26%) of controls. Bull et al. J Clin Microbiol 2003; 41: 2915

NEW TEST FOR TB CLAIMED TO BE FASTER AND MORE ACCURATE THAN TRADITIONAL SKIN TEST
A new T-cell based assay to detect tuberculosis has been developed by a group from Oxford, UK and has been used to detect latent tuberculosis in 535 students. The new test (ELISPOT) proved to be more accurate than the conventional skin-prick test. The assay is an enzyme-linked immunospot test, which detects T-cells specific for *M. tuberculosis* antigens. These antigens are absent in BCG and in most environmental mycobacteria, thus making the test more specific.

Ewer et al. Lancet 2003; 361: 1168

SURVEILLANCE FOR PRESENCE OF PANTON-VALENTINE LEUKOCIDIN GENE IN S. AUREUS INITIATED
The Panton-Valentine leukocidin (PVL) gene encodes a highly potent toxin and has been detected in methicillin resistant strains of *S. aureus* (MRSA) in the Netherlands recently. The PVL gene has been detected in other parts of the world and a surveillance system to detect the presence of this gene has been initiated in the Netherlands. MRSA strains carrying the PVL gene have been associated with necrotising pneumonia and severe skin infections. Eurosurveillance Weekly 2003; 7(16)

THE USE OF CATIONIC ANTIMICROBIAL PEPTIDES MAY BE INADVISABLE
A range of novel cationic antimicrobial peptides has been claimed by some to have great potential value in antimicrobial chemotherapy. This is because they are based on part of the human immune system and it is assumed by some that microbes should thus be unable to develop resistance to these substances. A review published in Microbiology casts doubt on the wisdom of developing such agents, suggesting that their use may provoke the evolution of resistance to our own defences, compromising our ability to fight infection.

Bell & Gouyon. Microbiology 2003; 149: 1367

Viral Infections

ANALOGUES OF CIDOFOVIR HAVE ACTIVITY AGAINST SMALLPOX
Work presented at a symposium on Biodefense in the US claimed that other lipid analogues of the antiviral drug cidovir have activity against smallpox. The drugs were tested in cell culture and in mouse infection models.

Li et al. J Virol 2003; 77: 6988

OUTBREAK OF MONKEYPOX IN US
Monkeypox causes a disease in humans resembling smallpox but which is transmitted less readily person to person. It has been used in studies on smallpox, as it is a related orthopox virus. Monkeypox was first identified in Africa in 1970 and is known to be present in a number of African animal species. An outbreak of monkeypox involving 93 persons in Illinois, Indiana and Wisconsin has been reported by CDC. The disease is associated with close contact with pet prairie dogs and Gambian giant rats. CDC is prohibiting the importation of a range of animal species from Africa.

MMWR June 18, 2003; 52: 561

As a response to the outbreak of monkeypox in the US, the European Commission has banned the importation of prairie dogs from the US and also rodents of non-domestic species and squirrels from sub-Saharan Africa.

Eurosurveillance Weekly 2003; 7(25)

NEW MEASLES EPIDEMIC IN ITALY LINKED TO LOW VACCINATION RATE
Another measles epidemic has occurred in Southern Italy, with 1217 cases reported between January and May 2003. The rate of vaccination against measles has been low in Southern Italy
SARS

The definitive paper confirming that the disease known as Severe Acute Respiratory Syndrome (SARS) is caused by a newly discovered coronavirus has been published in the Lancet. The authors report that postmortem and clinical samples obtained from 436 SARS patients in six countries were examined for the presence of a SARS-associated coronavirus. 75% (329) of the 436 patients were diagnosed as having the coronavirus. Four cynomolgus macaque monkeys were infected with the virus and all four excreted virus from 2 days post infection. Three monkeys developed symptoms similar to those seen in patients with SARS. The authors conclude that a novel coronavirus is the primary cause of SARS.

Kuiken et al. Lancet 2003; 362: 263

Recombinant interferons have been shown to inhibit the cytopathogenic effects of the SARS coronavirus in cell culture. β-interferon was more effective than α- and γ-interferon. There were differences in the activity seen using different cell-lines with the greater activity being seen against virus cultured in Caco2 cells compared with virus cultured in Vero cells. These results have not yet been confirmed by clinical studies.

Cinati et al. Lancet 2003; 362: 293

Glycyrrhizin has also been shown to inhibit the cytopathogenic effects of SARS coronavirus in Vero cell cultures. In parallel experiments, ribavirin and mycophenolic acid, both inhibitors of monophosphate dehydrogenase, did not show any inhibitory effect. Glycyrrhizin has been used clinically for its anti-inflammatory activity being seen against virus cultured in Caco2 cells compared with virus cultured in Vero cells. These results have not yet been confirmed by clinical studies.

Cinati et al. Lancet 2003; 362: 293

Surveys of a range of species of wild animals in China have revealed the presence of coronaviruses closely related to the SARS virus. The virus isolated from civets has 29 extra nucleotide bases, indicating that it is unlikely that it has been transferred from human to civet, but that the transfer is more likely to be from animal to human. Promising news is that some animal handlers were found to have antibodies that inhibited both the human and animal viruses.

WHO Epidemiological Bulletin, Update 64, May 23, 2003
The Scientist May 27, 2003

WEST NILE VIRUS (WNV)

WNV has been shown to be transmitted from an organ donor to four transplant recipients in the US. Three of the recipients developed encephalitis and the other patient had a febrile illness. WNV was confirmed either by serology or by isolation of the virus. The organ donor had received transfusions from 63 donors and one of these was subsequently found to be positive for WNV.

Iwamoto et al. NEJM 2003; 348: 2196

The FDA announced on July 9 that they had approved a diagnostic test for WNV for use in the US. The test has been developed by an Australian company, Panbio Ltd. The test can detect antibodies in patients with severe symptoms.

In 2003 the first case of WNV encephalitis in a human was reported by the CDC in a 70-year-old patient from South Carolina. Infected birds have been reported in 28 states, mosquito-positive pools from 8 states, infected horses and one infected dog from South Dakota.

MMWR July 9, 2003; 52: 646

Equine experts at the University of California have recommended that horse owners vaccinate against WNV. The virus is a far more serious pathogen to horses than to humans and has a higher mortality rate. A vaccine is now available and is effective in protecting horses against the disease.

Eurekalert.org March 17, 2003

Vaccines

SMALLPOX VACCINE – HEART PROBLEMS

Various heart problems have been associated with the use of smallpox vaccine in the US. The use of the vaccine had been linked previously to myocardial and pericardial inflammation, but recently myocardial infarction and coronary arterial disease have occurred in a small number of people receiving the vaccine. Those with a history of heart disease or with cardiovascular risk factors are now not to receive the vaccine.

Grist. Lancet April 5, 2003

ANTHRAX DNA VACCINE TO BE TESTED LATE 2003

A DNA vaccine has been shown to be effective in protecting rabbits against aerosolised infection with B. anthracis. The work was carried out by Ohio State University and Vical with support from a grant from the US National Institute of Allergy and Infectious Disease. Studies on safety and immunogenicity in humans are planned for 2003.

InPharm.com March 10, 2003

NEW TECHNIQUE INCREASES SAFETY OF FLU VACCINES

Work presented at the Society for General Microbiology’s Spring Meeting in Edinburgh claimed that a technique allowing the growth of modified influenza strains containing genes from bird flu at low temperatures was suitable for large-scale manufacture. The strain was modified to grow at low temperatures and this improves the safety of the vaccines both for those making and those receiving them.

Whitely, 152nd Meeting SGM, 2003
WHO ANNOUNCES NEW POLIO ERADICATION STRATEGY
Dwindling funds have led to the WHO narrowing its focus for the eradication of polio to those 13 countries at highest risk – these include India, Nigeria, Pakistan, Egypt and Afghanistan. Approximately 99% of the cases of polio occur in India, Pakistan and Nigeria. Whilst this approach may reduce the cases of polio dramatically, there is evidence that long-term vaccination is necessary to prevent reoccurrence.


Prions

SHEEP WITH GREATEST RESISTANCE TO SCARPIE CAN STILL BE INFECTED WITH BSE
Sheep vary in their susceptibility to the transmissible spongiform encephalopathy (TSE) known as scrapie but recent work from the Institute of Animal Health in the UK has shown that even sheep bred to have a high level of resistance (i.e. those carrying the ARR allele), are still susceptible to BSE. Sheep were infected with brain homogenate from infected cattle by oral cavity. The infection being transmitted via the oral keratinocytes. A low level infection occurs which can persist and subsequently transmit infection to other cells. This opens up the possibility of the infection being transmitted via the oral cavity.


HUNTERS IN AMERICA DIE OF CJD – IS IT LINKED TO CHRONIC WASTING DISEASE?
Chronic wasting disease (CWD) is a TSE spreading among deer and elk in America but it is not known whether this can cause CJD in humans who have eaten diseased animals. There is no unified surveillance programme in the US as there is in Europe and some fear that cases of CJD could go unnoticed. Three hunters, two from the state of Washington and one from Alaska, have died from CJD recently but it is not clear whether they had eaten infected animals. Since it is not generally accepted that deer in these two states have CWD, and since CJD is not a reportable disease in the US, no investigation is planned by the CDC.

New Scientist 2003, April 3rd

NEW PREDICTIONS PUBLISHED ON THE vCJD EPIDEMIC
New predictions on the scale of the vCJD epidemic paint a more encouraging picture than previous ones. The group from Imperial College, London, estimate that the numbers of people dying from vCJD in the UK may be a few as 40 over the next 80 years. These estimates were made only on the group of people most susceptible to the abnormal prion (approximately 40% of the population) and on infection obtained from eating infected meat.

Ghani et al. BMC Infect Dis 2003; 3: 4

POSSIBLE DIAGNOSTIC TEST DEVELOPED FOR PRION DISEASES
A group from the University of Toronto and Caprion Pharmaceuticals have developed a test for the presence of abnormal prions based on the abnormal amino acid sequence tyrosine-tyrosine-arginine. The abnormal prions from humans, cattle, sheep, mice, hamsters and elk have all been found to have this sequence. The group has succeeded in raising antibodies against this sequence and suggest that this may form the basis for a diagnostic test and possibly for the development of vaccines.


BCG MAY PROVE OF VALUE FOR AN HIV VACCINE
A recombinant BCG construct containing a selection of HIV genes has shown promise as a vaccine for HIV in mice. In tests it was as effective as DNA-based vaccines but offers considerable cost advantages.


Industry and Drugs

DRUG DEVELOPMENT NOW EXCEEDS $897 MILLION
A new report from the Tufts Center for the Study of Drug Development states that the current cost of bringing a new drug to market has risen to $897 million. Companies have become more ruthless in identifying likely failures earlier in the development system, with the rate of late phase discontinuations falling, but in spite of this, overall costs have continued to rise. Part of this increase is associated with the costs of the clinical stage, which increases with the current emphasis on chronic and degenerative diseases.

Tufts Center for the Study of Drug Development, May 13, 2003

HIV and AIDS

ORAL TRANSMISSION OF HIV POSSIBLE
A paper published in the Journal of Virology has shown that when present in high numbers, HIV can infect human oral keratinocytes. A low level infection occurs which can persist and subsequently transmit infection to other cells. This opens up the possibility of the infection being transmitted via the oral cavity.


ORIGINS OF HIV IN THE US TRACED
The genetic sequences of HIV taken from blood samples from AIDS patients in the early 1980s have been subjected to a new statistical analytical technique. The results indicate that HIV was probably present in the US as early as 1968. It is suggested that the disease appeared several times independently since the sequences of the viruses from various cities are different. Contemporary strains are closely related to ancestral ones.


ROCHE’S FUZEON LAUNCHED IN UK AND SWITZERLAND – SUPPLY INCREASED
The new anti-HIV fusion inhibitor drug, enfuvirtide (T-20, Fuzeon™) from Roche was launched in Switzerland on May 23 and in the UK on July 3, 2003. The drug is active against HIV strains that are resistant to the other three classes of anti-HIV drugs but is extremely expensive. In spite of the costs, the drug is gaining acceptance from health care insurers in the US. The company announced on July 15 that it has increased its estimates of the supplies that will be available. Results of more long-term trials continue to give good results.

TRIZIVIR TRIALS HALTED IN US
Glaxo-SmithKline’s combination of three anti-HIV drugs, lamivudine, zidovudine and abacavir known as Trizivir™ was undergoing trials in 1150 patients in the US, but this has had to be halted. The comparators were Trizivir™ plus efavirenz (BMS, Sustiva™) and efavirenz plus lamivudine and zidovudine (GSK, Combivir™).
The virological failure rate in the group on the triple combination Trizivir™ was 32%, in contrast to the control groups, which had a combined failure rate of only 10%.

Pharmatimes.com March 12, 2003

ROCHE LAUNCHES TEST FOR SARS
Roche launched its laboratory test for the detection of SARS in blood samples on July 15. The test uses PCR methodology and is rapid, but like other PCR-based tests can give false negatives.

Pharmatimes.com March 12, 2003

GERMAN PHARMACIES UNDER THREAT
In Germany there is currently a ban on multiple ownership of pharmacies, but this is now under threat with new proposals to allow drugstore chains and the sales of drugs over the internet. The government sees this as a way to reduce the escalating costs of the health care system, but pharmacists fear that the small pharmacies, which are popular with the public, will be forced out of business.

Bloomberg.com July 21, 2003

POLAND ENACTS NEW PHARMACEUTICAL LAW TO AID INCORPORATION INTO EU
Poland is the largest of the ten potential new members of the EU and has introduced a new pharmaceutical law, which is harmonised with the EU. This replaces a Bureau of Drug Registration with an Office of Registration, which will have updated methods of processing and assessing registration applications.

IMS Health June 3, 2003

NEW HEAD FOR EUROPEAN SCIENCE FOUNDATION
Professor Bertil Andersson, a professor of biochemistry at Linköping University, Sweden, is to be the new secretary general of the European Science Foundation (ESF). Prof. Andersson hopes to increase funding for more basic science and intends that the ESF will play a significant part in directing the proposed European Research Council.

The Scientist June 9, 2003; 17(11)

REPRINT FROM G. CORNAGLIA, ESCMID NEWS 3-2002: THE PRESENT STATUS OF CLINICAL MICROBIOLOGY IN EUROPE

Recognition of Clinical Microbiology as a medical specialty in Europe:
yes [ ], no [ ], subspecialty only [ ]
The Benefits of Full ESCMID Membership

- Scientific Information
  subscription to the monthly *Clinical Microbiology and Infection* (CMI), the official ESCMID journal, in print or online
- Professional Information
  subscription to the quarterly ESCMID *News*
  informing about educational events, study groups and professional issues across Europe
- Discounts at ECCMIDs, ESCMID Schools and Other Educational Events
- Eligibility for ESCMID Research Fellowships
- Access to ESCMID Member-only Webpages

Membership Fees and Terms

- Membership with Print and Online Edition of CMI:
  EUR 85 for one year
  EUR 160 for two years
- Membership with Online Edition of CMI:
  EUR 57 for one year
  EUR 104 for two years
- Reduced-rate Membership (up to 35 years of age or retired) with Print and Online Edition of CMI:
  EUR 40 for one year
  EUR 74 for two years
- Reduced-rate Membership (up to 35 years of age or retired) with Online Edition of CMI:
  EUR 33 for one year
  EUR 60 for two years

No back issues of the CMI print edition will be provided. Online access includes back issues.

For applications received after September 30 membership will go into effect the following year only, unless indicated at the bottom right.

Join ESCMID or renew your membership online at www.escmid.org

or return the completed application form and payment to ESCMID, P.O. Box 1131,
D-82018 Taufkirchen, Germany,
Fax +49-89-612 8176
Phone +49-89-612 6162

New Membership Registration ☐ or Membership Renewal ☐

☐ Ms. ☐ Mr. ☐ Prof. ☐ Dr. Member ID number for renewal (optional)
Surname __________________________
First Name(s) __________________________
Department __________________________
Institution/Company __________________________
Street & Number __________________________ P.O. Box __________
City __________________________ Postal Code __________
Country __________________________ State (if applicable) __________
Phone (e.g. +41-61-686 7799) __________________________
Fax (e.g. +41-61-686 7798) __________________________
Email __________________________
Birth Date (dd.mm.yy) __________________________
Specialty: ☐ CM ☐ ID ☐ Other: __________________________

Full-rate membership: ☐ for 1 year ☐ for 2 years
☐ incl. CMI in print and online EUR 85 EUR 160
☐ incl. CMI online EUR 57 EUR 104

Reduced-rate membership: ☐ for 1 year ☐ for 2 years
☐ incl. CMI in print and online EUR 40 EUR 74
☐ incl. CMI online EUR 33 EUR 60

Total EUR: __________________________

Do payment in EUR by credit card, by bank cheque/international draft drawn on a German bank payable to ESCMID, or bank transfer to one of the following accounts:

☐ I have transferred EUR: __________________________

☐ Third party (name) has transferred EUR: __________________________

☐ to Deutsche Apotheker- und Ärztebank, 80323 München, Germany
  IBAN: DE84 70090606 0002362368 (bank code) (acct. number)
  BIC: DAAEDEDD (swift code)

☐ Bank cheque/draft is enclosed

Please charge my credit card with EUR:
☐ Visa ☐ Europay/Access/Mastercard ☐ American Express ☐ Diners Club

Credit Card No. __________________________
Expiry Date: __________________________ Card Verification Code (CVC): __________________________
(The CVC is the 3- or 4-digit number printed on the back or front side of your credit card to the right of the regular credit card number)

☐ I authorise ESCMID to automatically charge the annual/biannual fee for each membership period to my credit card.

Start of membership (see left column): ☐ current year ☐ next year

Date: __________________________ Signature: __________________________
Forthcoming ESCMID Events

More detailed information about ESCMID courses and conferences as well as general information about other events can be found on the ESCMID website at www.escmid.org under Courses & Workshops, ECCMIDs & Conferences, or Calendar of Events, respectively.

ESCMID events

2–5 April 2005
15th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID)
Place: Copenhagen, Denmark
Contact: A.K.M. Congress Service
Phone: +41 61 686 77 11
Email: info@akm.ch

17–19 March 2004
ESCMID Workshop on Progress Toward Meeting the Challenges in Clinical Microbiology and Infectious Diseases
Place: Leuven, Belgium
Contact: Prof Marc Struelens
Email: marc.struelens@ulb.ac.be

25–29 April 2004
24th ESCMID Postgraduate Education Course:
Workshop on Microbial Typing Technologies
Place: Warsaw, Poland
Contact: Dr Joanna Empel
Phone: +48 22 841 3367
Email: jempel@www.pl

1–4 May 2004
14th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID)
Place: Prague, Czech Republic
Contact: AKM Congress Service
Phone: +41 61 686 77 11
Email: info@akm.ch

In co-operation with others

10 October 2003
The Resurgence of Staphylococcal Infections – Remembering Ignaz Semmelweis
Place: Budapest, Hungary
Contact: Prof Ferenc Rozgonyi
Phone/fax: +36 1 210 2959
Email: rozfer@net.sote.hu

15 – 17 October 2003
3rd European Meeting on Molecular Diagnostics
Place: Scheveningen, the Hague, the Netherlands
Contact: Wens Congres BV
Phone: +31 35 54 29 333
Email: molecule@wens.nl
Internet: www.wens.nl/molecule

28 – 30 November 2003
European Conference on the Role of Research in Combating Antibiotic Resistance
Place: Rome, Italy
Co-organised by the European Commission and ESCMID
Contact: Dr Giuseppe Cornaglia
Email: giuseppe.cornaglia@univr.it
Internet: www.escmid.org

Executive Committee

M. Struelens, President, Brussels, B
C. Carbon, Education Officer, Paris, F
G. Cornaglia, Secretary General, Verona, I
R. Finch, Past President, Nottingham, UK
P. Francioli, ECCMID Programme Director, Lausanne, CH
E. Nagy, Professional Affairs Officer, Clinical Microbiology, Szeged, H
S.R. Norrby, President-elect, Professional Affairs Officer, Infectious Diseases, Stockholm, S
A. Voss, Treasurer, Nijmegen, NL
J. Vila, Scientific Affairs Officer, Barcelona, E

Ex Officio Members:
I. Gould, President 13th ECCMID 2003, Aberdeen, UK
J. Jelinkova, President 14th ECCMID 2004, Prague, CZ
C.E. Nord, Editor CMI Supplements, Stockholm, S
K. Towner, CMI Editor-in-Chief, Nottingham, UK
P. Schoch, Managing Director, Basel, CH

Imprint

ESCMID News: Newsletter of the European Society of Clinical Microbiology and Infectious Diseases

Editors and Editorial Office: Peter Schoch, Managing Director; Roger Finch, Publication Committee President; Dianne White, Publication Assistant; Pamela A. Hunter, Medical Writer; Editorial Office: ESCMID Executive Office, PO Box 6, CH-4005 Basel, Switzerland. Email: info@escmid.org

Manuscripts and Copyright: Submission of unsolicited manuscripts, graphics and photographs for publication is highly welcome. In addition, the editors actively solicit or commission articles from ESCMID members, officers, study groups and third parties. Colour illustrations are encouraged. Copyright for articles accepted for publication is shared between ESCMID and the author(s).

Editorial Statement: Despite careful editing and setting, ESCMID, the editors and Interrepro AG cannot be liable for any errors or inaccuracies in this publication. Opinions expressed are those of the contributing authors.

Number of Issues & Editorial Deadlines: ESCMID News appears three times per year in April, September and December. Manuscripts must arrive at the Editorial Office (preferably by email) by the 15th of the previous month if they are to be considered for publication in the next month’s issue.

Distribution and Circulation Number: ESCMID News is personally distributed to all registered ESCMID members and spread at international conferences for promotion of ESCMID. Circulation number: 4500

Change of Address: Notice of change of address should be sent to Ms. B. Menzemer, ESCMID Secretariat, PO Box 1131, D-82018 Taufkirchen, Germany. Email: birgit.menzemer@escmid.org

Printer: ESCMID News is produced by Interrepro AG, Pumpwerkstrasse 11, CH-4142 Münchenstein, Switzerland.