EUCAST is the European Committee on Antimicrobial Susceptibility Testing. It provides common European breakpoints and antimicrobial susceptibility testing methodology. ESCMID continues to provide the administrative, financial and scientific framework for EUCAST. The European Centre for Disease Prevention and Control (ECDC) supports EUCAST while ESCMID supports the development of the EUCAST disk diffusion method.

The EUCAST Steering Committee for 2013–14 consists of Rafael Cantón (Chairman), Derek Brown (Scientific Secretary), Gunnar Kahlmeter (Clinical Data Coordinator), Luc Dubreuil (France), Sören Gatermann (Germany), Christian Giske (Sweden), Alasdair MacGowan or Robin Howe (UK), Luis Martinez-Martínez (Spain), Johan Mouton (The Netherlands), Robert Skov (Denmark) and Martin Steinback (Norway).

National Antimicrobial Susceptibility Testing Committees (NACs) Most European countries now have established NACs. Responses to a questionnaire sent in December 2012, with some updating in 2013, are given in the figure below, which illustrates the national status with regard to NACs. Although EUCAST has not been specifically promoted outside Europe, it is notable that the interest in EUCAST outside Europe is becoming stronger and NACs have been set up in non-European countries including Australia, Israel, South Africa and the USA. These committees promote a national strategy for antimicrobial susceptibility testing and help to implement EUCAST breakpoints and methods where appropriate.

EUCAST breakpoints

Version 4.0 of the EUCAST breakpoint tables, which include MIC and zone diameter breakpoints for bacteria, was published on the EUCAST website in January 2014 (see below for information on breakpoints for antifungal agents). Breakpoints for new agents are set by EUCAST as part of the marketing authorisation process by the European Medicines Agency (EMA). Through this process, breakpoints have been set in the past year for carbopenem and for the antitubercular agents delamanid and bedaquiline. Several other new agents are currently in progress.

Several breakpoints have been set for organism-agent combinations that did not previously have breakpoints. These include ciprofloxacin and levofloxacin breakpoints for Enterococcus spp. in UTI, breakpoints for Pseudomonas spp. other than P. aeruginosa and breakpoints for Corynebacterium spp. In addition, specific amoxicillin-clavulanic acid breakpoints were set for UTI isolates and ciprofloxacin breakpoints for Salmonella spp. Some breakpoints have been revised in the light of new information, including doripenem breakpoints, benzylenepicolin breakpoints for cougulase-negative staphylococci, penicillinase-resistant penicillin breakpoints for group B streptococci and cephaloridine breakpoints for Haemophilus influenzae and Moraxella catarrhalis.

Breakpoints currently under discussion include those for several agents with Neisseria gonorrhoeae, Neisseria meningitidis and Acinetobacter spp. Following two rounds of wide consultation and protracted discussion on breakpoints for topical agents, it has been decided to publish a guidance note rather than breakpoints.

EUCAST disk diffusion method

Extensive studies have been undertaken at the EUCAST Laboratory for Antimicrobial Susceptibility Testing in Vaxjö, Sweden, to validate existing zone diameter breakpoints, to develop new screening methods, and to deal with technical problems with disk diffusion and MIC methods. All developments are performed with Mueller-Hinton medium from at least three manufacturers and disks from at least two manufacturers. MIC-zone diameter correlations have been produced to establish or validate zone diameter breakpoints, both for particular organisms, such as Corynebacterium spp., and for new antimicrobial agents. The EUCAST broth microdilution medium for fastidious organisms, MH-F broth, has been further evaluated for several organisms, including H. influenzae, M. catarrhalis and Corynebacterium spp.

Collaboration with other laboratories, both within and outside Europe, has increased. Several European laboratories have been involved in studies to investigate inter-laboratory test variations of both quality control strains and clinical isolates, e.g. a collaborative study led to revised recommendations for the disk diffusion test for detection of inducible clindamycin resistance in staphylococci and streptococci. Several projects have also been performed in collaboration with IMI Laboratories, USA, e.g. it was established that zone diameter breakpoints for P. aeruginosa can also be used for Pseudomonas species other than P. aeruginosa. Isolates from the worldwide SENTRY Antimicrobial Surveillance Program have kindly been provided by JMI for a number of EUCAST projects. In collaboration with other laboratories EUCAST has developed a screening method with the pefloxacin 5 µg disk to detect low-level ciprofloxacin resistance in Salmonella spp., criteria for use of cefotaxin 30 µg disks to screen for methicillin-resistance in S. pseudintermedius, and disk diffusion criteria for the new amoxicillin-clavulanate breakpoints for Enterobacteriaceae in uncomplicated UTI.

Current work includes establishment of MIC quality control ranges for amoxicillin-clavulanate and ampicillin-sulbactam with a question for the standardisation and MIC quality control ranges for H. influenzae. In collaboration with pharmaceutical companies, studies to establish MIC-zone diameter correlations for several new agents are also in progress.

EUCAST website

The EUCAST website continues to be developed and updated, and provides all EUCAST breakpoints and documents free of charge. Additional documents have been published on the EUCAST website, including:

• Annual update of QC tables and antimicrobial susceptibility testing reading guide for disk diffusion.
• New files on the calibration and validation of the EUCAST disk diffusion method.
• Guidance document on susceptibility testing of Burkholderia cepacia.
• New Standard Operation Procedures (SOPs) for operation and maintenance of the EUCAST websites (SOP 6.0) and handling of EUCAST minutes (SOP 7.0).
• Revised SOPs for setting breakpoints for new agents (SOP 2.1) and setting of harmonised breakpoints for existing agents (SOP 2.1).
• Translations of technical documents available through National Antimicrobial Susceptibility Testing Committees (NACs) in different countries on the detection of resistance mechanisms and resistances.
• Updated file on compliance of manufacturers with EUCAST breakpoints and methods.
• Update to the ECAST FAQ for ‘frequently asked questions’ about EUCAST breakpoints and methods.

EUCAST MIC and zone diameter website

This website contains MIC and zone diameter distributions of bacteria and fungi and the number of distributions included is constantly increasing (currently over 28,000). In addition, graphs showing MIC-zone diameter correlations continue to be expanded. The distributions highlight wild type populations and give epidemiological cut-off values (ECOFRs).

Antifungal Susceptibility Testing Subcommittee (AFST) In 2013 the AFST Steering Committee consisted of Maiken C. Arendrup (Chairman), William Hope (Secretary), Cornelia Lass-F-liör (UK) and Manuel Cuenca-Estrella. The group has continued to develop breakpoints for antifungal compounds and to revise and update reference methods for susceptibility testing of yeasts and moulds.

Micafungin breakpoints for Candida were released and fluconazole and anidulafungin breakpoints for Candida were revised. Rationale documents for these breakpoints were published on the EUCAST website and ‘Technical Notes’ summarising both these and voriconazole breakpoints for Aspergillus have been published in ‘Clinical Microbiology and Infection’ and ‘Mycoses’.

In collaboration with CLSI, the AFST subcommittee documented problems in variability associated with susceptibility testing of Candida spp., affecting both EUCAST and CLSI methods, and this has led to common recommendations for the use of anidulafungin as a marker for caspofungin resistance (published by Ana Espinel-Ingroff et al. in Antimicrobial Agents and Chemotherapy). Additionally, a review that summarizes the EUCAST AFST breakpoint setting process, including strengths and limitations and the existing breakpoints for Candida spp. and Aspergillus spp., was accepted for publication in Drug Resistance Updates. Currently, the EUCAST definitive document EUCAST 9.2 ‘Method for the determination of broth dilution minimum inhibitory concentrations of antifungal agents for conidia forming moulds’ is being revised and itraconazole breakpoints for Candida have been proposed for consultation.

The structure of the AFST Steering Committee will be changed in spring 2014, from when it will consist of a Chairman (Maik-en Caveling Arendrup, Denmark), a Scientific Secretary (Susan Howard, UK), a Data Coordinator (pending), a representative from the EUCAST Steering Committee (Johan Mouton, Netherlands) and two representatives of national committees (NACs): Manuel Cuenca-Estrella, Spain, and Cornelia Lass-F-liör, Austria. See EUCAST SOP 4.1 on the EUCAST website for details of subcommittee structure and organisation.

Subcommittee on the detection of resistance mechanisms and resistances of clinical and/or epidemiological importance This subcommittee is chaired by Christian Giske. There has been extensive discussion and wide consultation on two drafts of a guideline document in 2012–13. Version 1.0 of EUCAST guidelines on the detection of resistance mechanisms and resistances of clinical and/or epidemiological importance was released on the EUCAST website in December 2013.