

ESCMID: A SCIENTIFIC SOCIETY WITH A VISION AND A MISSION ON ANTIMICROBIAL RESISTANCE

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A few weeks ago, a young man who had recently undergone a lung transplantation was admitted to my hospital because of a severe pneumonia. My hospital has a very low rate of multidrug-resistant bacteria so we were very surprised to find that all cultures performed yielded a pandrug-resistant *Burkholderia cepacia*. Our microbiologists performed some non-standardised synergistic tests that helped us treat the patient with a combination of antibiotics – which fortunately worked. After more than four weeks in the hospital, thanks to the excellent care of our ICU doctors first and the infectious diseases colleagues afterwards, we were able to discharge our patient. “My life changed after the transplantation. I could never have imagined that an infection with a multidrug-resistant bacteria could ruin all that,” he told me when leaving the hospital.

Recently, I visited another hospital, invited by some colleagues to give a talk. They had been struggling with carbapenemase-producing Enterobacteriaceae for a while, finding a 45% mortality rate in patients developing bacteraemia due to these organisms; the bacteria causing the outbreak is highly resistant to carbapenems and colistin and to most other antimicrobials. I participated in a ward round where I could see several of these patients. My colleagues explained that empirical treatment of nosocomial infection in that environment is really challenging: many patients with severe infections are receiving empirically two, three and even four drugs. They have formed a multidisciplinary team comprising infectious disease and intensive care specialists, clinical microbiologists and pharmacists to try to improve the outcome of these patients. The infection control team is also fighting hard to reduce the transmission of the deadly bacteria. “We do need more resources and training to perform better infection control, but we also desperately need new antibiotics to treat our patients,” was the conclusion of the head of the infectious diseases division after our discussion.

This is real life, in many hospitals in the world. There are no simple, easy solutions to the problem. Politicians, public health managers, investigators, healthcare workers, journalists and scientific influencers must include the problem of antimicrobial resistance on their agendas. Scientific societies also have an important role to play. The European Society of Clinical Microbiology and Infectious Diseases (ESCMID) is committed to the fight against antimicrobial resistance and tackling this problem is one of its top priorities. Of

course, ESCMID is also actively involved in finding solutions for other challenges we are facing in infectious diseases nowadays, such as emerging pathogens, neglected infections, tuberculosis, HIV, viral hepatitis, antivaccine movements or fungal infections, just to name a few.

ESCMID’s initiatives against antimicrobial resistance are huge and varied. They include organizational and operational aspects, educational activities, scientific activities, promotion and communication efforts.

From an organizational and operational perspective, the two ESCMID committees are very much related in dealing with antimicrobial resistance. The European Committee on Antimicrobial Susceptibility Testing (EUCAST), jointly organized by ESCMID, the European Centre for Disease Control and Prevention (ECDC) and the national breakpoints committees, is a world reference institution harmonising susceptibility breakpoints and methods for susceptibility testing of antimicrobial drugs. EUCAST’s recommendations have a major impact on surveillance of resistance and in individual clinical decisions for the treatment of infections. Its independence, scientific reliability and public health involvement has made EUCAST a prestigious, well-respected institution around the world, which ESCMID is very proud of. The other, younger, ESCMID committee is the European Committee on Infection Control (EUCIC). EUCIC aims to strengthen infection control and preventive measures to reduce the burden of healthcare-associated infections (HAIs), including those caused by antimicrobial-resistant pathogens. This is achieved through a network offering

resources and know-how, as well as the organization of training programmes and support structures. Despite its youth, national committees have already been formed in 21 countries. Beyond these and other important activities, EUCIC has launched a certification on infection prevention and control, with the contribution of the ECDC (see below).

ESCMID has more than 30 active study groups which develop educational and scientific activities, and research projects in specific areas. Many of them conduct research related to antimicrobial resistance and are instrumental to building the One Health ESCMID force against resistance, including ESGARS (Antimicrobial Resistance Surveillance), ESGAP (Antimicrobial Stewardship), ESGBIS (Bloodstream Infections and Sepsis), ESGCIP (Critically Ill Patients), ESGIE (Infections in the Elderly), ESGEM (Epidemiological Markers), ESFWISG (Food and Water-borne Infections), ESGICH (Immunocompromised Hosts), ESGNI (Nosocomial Infections), EPASG (PK-PD of Anti-Infectives) and ESGVM (Veterinary Microbiology), among others.

Education and training have traditionally been ESCMID's strengths. Having well-trained specialists in the fight against antimicrobial resistance, from diagnostic, therapeutic and prevention perspectives, is crucial in this endeavour. Our educational programme includes some 20–25 face-to-face stand-alone postgraduate courses and workshops, some 15–20 workshops at our congress (ECCMID), a yearly summer school, and more recently, eLearning activities. Every year, a large share of these activities deal with topics related to antimicrobial resistance. Additionally, the infection prevention and control certification developed by EUCIC with the contribution of the ECDC is a new, ambitious initiative. This is a two-year programme aiming to provide a unique European perspective on infection prevention and control (IPC) by sharing the expertise and competencies within training centres from different countries and professions. This collaborative effort will result in the training of a new generation of IPC specialists capable of fighting against the spread of resistant pathogens, as well as healthcare infections.

ESCMID's observership and mentorship programmes have both educational and career-building objectives. The Observership Programme funds young professionals' short visits (up to one month) to highly-reputed sites (ESCMID collaborative centres) to learn about specific techniques, programmes or activities, and to establish networks and prepare research projects. Many of the observership visits are related to antimicrobial resistance aspects both in microbiology and infectious diseases. As an example, one observer is, at the time of writing, spending one month in my hospital visiting our antimicrobial stewardship programme.

The mentorship programmes provide young investigators starting their careers in environments with lower possibilities of a high-level mentorship, access to top researchers who volunteer to help them carry out a research project for two years. Again, some mentees are developing projects related to antimicrobial resistance.

ESCMID is a scientific society and therefore science is a pillar in all our activities. ESCMID has published an evidence-based guideline with recommendations for the control of multidrug-resistant Gram-negative bacteria, and is preparing others for the clinical management of these bacteria and decolonization. ESCMID members collaborate with the ECDC and WHO in guidance documents, including the ECDC document on prevention of trans-border transmission of carbapenemase-producing Enterobacteriaceae, and the World Health Organization (WHO) priority list of pathogens for which research in new drugs are required. ESCMID is a key partner of WHO in the CAESAR project, which is developing an antimicrobial resistance surveillance system for European countries not participating in EARS-Net, and for which data were lacking; ESCMID is also partner in some European research projects related to resistance, including the TROCAR and GRACE projects, among others. ESCMID co-organizes with ASM a yearly conference in October dealing with drug development to meet the challenge of antimicrobial resistance, held alternately in locations in Europe and the United States. This conference has become a landmark for academic researchers and industry. Of course, ECCMID, the largest congress covering infectious diseases and clinical microbiology and attracting more than 12,000 attendants, devotes an important part of its programme to antimicrobial resistance, including educational workshops, symposia, poster sessions and oral presentations. Finally, ESCMID provides in its webpage links to all its activities and to other valuable initiatives on antimicrobial resistance. Our eLibrary, freely accessible to all our members, provides all presentations given at ECCMID and all our conferences and courses for their use as study and teaching material.

With the work and commitment of our members, ESCMID is developing an intense activity to better prevent, diagnose and manage infections that are difficult to treat due to antimicrobial resistance, for the benefit of the society as a whole, the policy-makers and the professionals implicated in this public health problem. ■

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