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EDITORIAL

ECMM Center of Excellence: A Shared Vision for the Diagnosis and Treatment of Fungal Infections

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The European Confederation of Medical Mycology (ECMM) was created in 1993 at the Institute Pasteur in Paris by 12 founding countries. In 2023, at their 30th anniversary, the ECMM includes 29 affiliated National Medical Mycology Societies or groups across Europe with the ambition to coordinate clinical and scientific activities in medical mycology on an international level. Education, epidemiology, diagnosis, treatment, translational and basic research are the key words of ECMM. A first and essential goal of ECMM is to disseminate knowledge on medical mycology via the organization of the international mycological meeting "Trends in Medical Mycology" (TIMM) and of educational workshops. The second essential purpose of ECMM is to advocate for more standardization in the management of fungal infections and to support the implementation of knowledge and research sharing strategies with the goal to improve the prognosis of fungal diseases worldwide. Multiple initiatives have been deployed to meet these objectives such as collaborative working groups on dedicated projects [1, 2], the One World—One Guideline initiative for the diagnosis and treatment of fungal diseases [3], and the creation of networks of skills and excellence with the Academy of fellows (a global community network of experts and renowned leaders in mycology) and the network of ECMM Excellence Centres (ECMM EC) [4, 5].

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The ECMM has also been successful in setting up multicentre studies in the fields of epidemiology, diagnosis and treatment of invasive, chronic and superficial fungal infections and to address numerous challenges in global healthcare [6].

Incidence of invasive fungal infections (IFIs), which are caused by a wide range of pathogens is increasing worldwide. They occur primarily in individuals with underlying immunocompromising conditions, such as those with hematologic malignancies or those critically ill in the intensive care unit (ICU), but outbreaks associated with medical procedures in previously healthy people have been described [7]. It is largely believed that risk factors for IFIs are predominantly influenced by social determinants of health and differences in exposure risk [8], with some of the highest numbers of IFIs found in Low- and Middle-Income countries (LMICs). Early accurate diagnosis followed by prompt and targeted antifungal treatment are key for survival. Diagnosis remains challenging, often requiring antigen and molecular testing, with histology rarely available, and culture being the gold-standard but lacking sensitivity. When it comes to access to IFI diagnostics, susceptibility testing, and antifungal drugs, there are sharp differences globally, within continents and even within countries, with options decreasing in line with lower gross domestic product [9, 10]. Clinical expertise in managing IFIs is also highly variable and mainly depends on the number of IFIs diagnosed and treated, with limited expertise outside of specialized centres when it comes to IFIs caused by rare fungal pathogens. To address these challenges, the ECMM founded the Excellence Center (EC) initiative in 2015. The implementation of these ECs has two main objectives: showcasing excellence in diagnosing and treating fungal infections and serving as a point of contact for such complex patient cases to ensure medical interventions of highest standards of care [5]. An Excellence Center is designated by the ECMM and is characterized by expertise, contribution to research, international collaborations and advancements in the field of medical mycology. Based on expertise, capacity and individual international activities, the ECCM distinguishes four different types of ECMM ECs: Diamond, Gold, Silver and Blue Status. The Diamond ECMM EC status is the highest level of expertise and demonstrates excellence in both, laboratory and clinical mycology as well as participation in ECMM endorsed clinical and epidemiological studies. The Blue Center status considers potential future excellence Centers and demonstrates a minimum level of mycological expertise being present [5]. ECMM EC Centers are expected to engage in various activities pertaining to both research and practical applications. These include cutting-edge research, international collaboration, education and training, clinical practice and patient care, knowledge sharing, quality assurance and standards, innovation and technology, and finally participation in the one world guideline process. Educational initiatives offer multidisciplinary training programs, workshops, and conferences.

ECMM Centers actively engage in collaborations not only within their institution but also with other Centers, universities, research groups, and industry partners globally. The Centers serve as consultation hubs, providing expert advice and guidance to healthcare professionals, researchers, and institutions facing complex cases or seeking specialized knowledge in mycology. The multidisciplinary approach brings experts from various fields together to comprehensively ensure the challenges posed by fungal infections. Hence, these Centers emphasize a patient-centric approach to ensure a comprehensive understanding of the patient's condition and tailors treatment strategies accordingly. Given that the ECMM EC represent a unique structure not only for multicenter studies [11, 12], but also for providing external consulting for clinical management of fungal infections, the ECMM expert consult initiative had been initiated in 2020 [13].

In this issue of the journal, Salmanton-García and colleagues report on the external consultation service for invasive fungal infections from the the Cologne ECMM Center of Excellence [14]. In 2017, the Cologne Center reached Diamond status because of its international engagements. Physician interactions are mainly conducted through email/phone, and clinical and laboratory data sharing is facilitated by an encrypted cloud platform with a turnaround time of 24 h or less. The authors conducted a two-year retrospective analysis of the Cologne Center's activities. A majority of 189 requests in 2021–2022 originated in Germany with nearly one-half coming from institutions within a 100 km reach of the Center [14]. The three most common topics were diagnosis and management of invasive infections due to *Aspergillus*, *Candida*, and *Mucorales*. Sixteen countries accounted for the 27 consultation international requests. The authors provided a critical analysis of the utilization patterns with special emphasis on the role of geography, language, and healthcare systems. They

recognize the need to build upon the Cologne Center's activities for wider international engagements by active promotions on the social media using podcasts, webinars, and workshops [14].

With the ECMM EC network now including 14 Centers on two continents (of note Austria has currently the most ECs, namely three), and with further applications being currently evaluated, Salmanton-Garcia et al. have set in motion an important self-evaluation of the ECMM Centers of Excellence Expert consult initiative. We expect that further analysis and recommendations will be forthcoming for the optimum placements of these institutions to improve the diagnosis and treatment of fungal infections globally. In the interim, we call hereby for increased participation and communications so that the ECMM EC resources can be better utilized on a global level.

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Declarations

Conflict of interest The authors have not disclosed any competing interests.

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