Improving Nuclear Medicine Practice with UEMS/EBNM Committees

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Nuclear medicine is one of the most dynamic fields in medicine. It is defined in the Accreditation Council for Graduate Medical Education program requirements as follows: "Nuclear medicine is the medical specialty that uses the Tracer Principle, most often with radiopharmaceuticals, to evaluate molecular, metabolic, physiologic, and pathologic conditions of the body for the purposes of diagnosis, therapy, and research" (*1*)

Nuclear medicine training in most European countries comprises a period of 4–6 years, and the spectrum of investigations, particularly in the fields of PET and therapy with radionuclides, has progressed dramatically in recent years. In particular, PET/CT is now an indispensable part of the multidisciplinary decision-making process, first with ^{18}F-FDG and, increasingly, with new tracers such as prostate-specific membrane antigen ligands in prostate cancer and (most probably in the near future) ^{18}F-fibroblast-activated protein inhibitors (*2*).

A high-quality standard is necessary to implement and translate such scientific dynamism into the clinical routine in a proper way. General certification audits, without clinical background, do not specifically cover medical and technical advances, because this specific clinical knowledge is not part of the general audit instruments. To overcome these shortcomings, several committees have been instituted in the Nuclear Medicine Section of the European Union of Medical Specialists (UEMS; www.uems.net), which has existed for more than 50 years in close cooperation with the European Board for Nuclear Medicine (EBNM) and is the political representative organization for medical specialists in the European Union and associated countries.

UEMS was given the task of defining the basic principles in the field of training of European medical specialists to ensure a comparably high level of competence across Europe and thus allow free movement of specialists among member countries. The training requirements for nuclear medicine as a separate medical specialty, achieved by Desmond Craft in 1989 (*3,4*), were updated in 2017 by the Education and Syllabus Committee of UEMS/EBNM (*5*). The document is not limited to trainees; it also describes the requirements for trainers and training centers. In collaboration with the European Association of Nuclear Medicine (EANM), the committee has also prepared a European Nuclear Medicine Guide that is freely available to everyone in the field (https://www.eanm.org/publications/european-nuclear-medicine-guide/).

The UEMS/EBNM Fellowship Examination Committee is responsible for setting up a "Nuclear Board Examination" to award the title of "Fellow of the EBNM," with the acronym FEBNM. To be awarded a Certificate of Fellowship of the EBNM, candidates must pass the full fellowship examination (written and oral exams) and be specialists in nuclear medicine approved by their national health authorities. The European Board Certificate in Nuclear Medicine proves that the candidate's knowledge and ability in nuclear medicine satisfy European standards independently from the origin of training. Although this quality recognition is optional and does not interfere with national requirements for specialization in nuclear medicine, it has already proven to be helpful in the careers of young nuclear medicine physicians. The first EBNM fellowship examination took place in 1996 in Copenhagen (Denmark) during the EANM Congress. Since that time, hundreds of colleagues from countries all over the world have obtained the title of FEBNM. This examination is open to all nuclear medicine physicians and residents in their final year of training in compliance with the training syllabus. It is a 2-step examination with a written multichoice question (MCQ) exam and an oral exam. The written exam must be passed in order to proceed to the oral exam. The MCQ exam includes 140 type A questions covering the entire range of basic and clinical nuclear medicine. It has now evolved toward an online format, with the first such session introduced in May 2019. This was a major step forward, providing a digital and flexible platform for any applicant connecting from her/his home without traveling to the examination center. The oral exam is organized during the Annual EANM Congress, and a preparation session is offered to candidates on the same day. This exam aims to test the ability of the candidates to evaluate and manage common clinical cases in everyday practice. Successful candidates are invited to a certificate handover during the EANM Annual Congress.

Many applicants come from outside Europe, mainly from South Asia. In 2014, the UEMS/EBNM Fellowship Examination Committee was invited by the Asian Nuclear Medicine Board (ANMB) to act as external auditors for the setup of the first fellowship examination of the ANMB. The Fellowship Examination Committee has achieved a significant level of experience in these examinations, and a collaboration with the European School of Multimodality Imaging and Therapy (ESMIT) was set up in 2017 to prepare high-quality questions for ESMIT training assessment.

The Continuing Medical Education (CME) Committee of UEMS/EBNM was established in 1999 as a scientific and technical body devoted to the evaluation and accreditation of CME activities in the field of nuclear medicine

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by the broadest spectrum of nuclear medicine practitioners throughout the world.

SNMMI also supports the nuclear medicine community by involving professionals in councils, centers, and committees to work together to advance scientific and professional activities and connects them through social networks and continuous updates on news and information.

These activities—and others still in the planning stages—have different missions and different target groups. But they share the extraordinary benefit of continuing to build our modern nuclear medicine community. In the United States, our field was once so small that many members knew one another simply through connections in training, practice, and professional meetings—small enough to produce a community cookbook. Today, this community is exponentially larger, spanning the globe. This brings the potential for enhanced visibility, a more powerful voice in the broader field of medicine, and successful collaborative efforts to advance the benefits of nuclear medicine to more patients. Our success depends on our dedication to maintaining both the spirit of and commitment to a global community in our field.

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and molecular imaging. The purpose of the UEMS/EBNM CME Committee is to guarantee high-quality CME programs of scientific and educational excellence that are free of influence from the health care industry. The roles of this committee include: evaluation and accreditation of nuclear medicine CME activities in Europe, monitoring CME activities relating to nuclear medicine in Europe, and, in agreement with the European Accreditation Council for Continuing Medical Education (EACCME; https://eaccme.uems.eu/home.aspx), ensuring full reciprocity of credits within most European countries and beyond. The EACCME has signed agreements with the American Medical Association and the Royal College of Physicians and Surgeons of Canada that ensure full recognition of CME credits for participants who attend CME events in European countries. The committee is also dedicated to assuring and guaranteeing the high quality of the scientific and educational content of CME in nuclear medicine and ensuring, in compliance with EBNM/EACCME guidelines, the transparency and independence of CME activities. In addition, the committee facilitates and accredits all types of CME modalities in nuclear medicine and promotes the application of new CME technologies (e.g., webinars).

The UEMS/EBNM CME Committee accredits through EACCME major events of international status and importance in the field of nuclear medicine in Europe and beyond. Smaller but high-quality educational events in Europe are accredited in the same way. Meanwhile, CME activities have been expanded, especially in collaboration with the International Atomic Energy Agency, to promote nuclear medicine in non-European countries.

The Committees of Accreditation of Nuclear Medicine Departments and Training Centers were joined in recent years. Accredited centers (35 centers as of January 2020) must fulfill certain objective criteria concerning staff, equipment, number, and spectra of diagnostic and therapeutic procedures, teaching, and quality control. To obtain accreditation as training centers (14 centers as of January 2020), sites must be accredited as nuclear medicine departments and follow the training requirements for the nuclear medicine specialty edited by the Education and Syllabus Committee of UEMS/EBNM (*5*). Accreditation is currently provided by questionnaire and clinical protocol examination, not by visitation. Visits could be performed in the future, if travel costs were covered by applicant centers.

In order to harmonize nuclear medicine with high-quality standards, it would be beneficial for the specialty to enhance synergistic efforts in a global manner. UEMS/EBNM committees are open and would appreciate global cooperation with other non-EU nuclear medicine organizations in the different efforts described here.

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