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CONTROVERSY

EANM–ESR white paper on multimodality imaging. A white paper for a black project: towards the decline of nuclear medicine as an independent specialty in Europe?

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A tragic position paper entitled "White paper of the European Association of Nuclear Medicine (EANM) and the European Society of Radiology (ESR) on multimodality imaging" was published in parallel in the August 2007 issues of the *European Journal of Nuclear Medicine and of Molecular Imaging* and of *European Radiology* [1]. Moreover, an editorial was dedicated to the matter [2]. A new definition of the legal contours of nuclear medicine (and of radiology) is proposed. As explained below, this position paper, in our opinion, may well initiate nothing less than the decline of nuclear medicine as an independent specialty in Europe.

The authors of the white paper justify their initiative by what is presented as significant changes in the imaging field:

1. According to the paper, the first change is related to the demarcation between radiology and nuclear medicine: the former procedure having a greater focus on demonstration of anatomy and pathology and the latter procedure on biology and pathophysiology. It is stated that "this demarcation, however, becomes less evident as newer techniques have been introduced." We challenge this statement suggesting that this demarcation would be dependent only on the equipment in use.
2. The second change that is mentioned is that "research in the field of imaging has become a multi-disciplinary process with radiologist and nuclear medicine specialist working not only with clinicians from other disciplines but also with physicists, biochemists, physiologists, computer experts and bioengineers." Needless to say and fortunately, this is not new.
3. To support the fact that multi-modality imaging techniques "challenge established patterns of professional practice and patient care," the white paper lists a series of clinical indications for multi-modality imaging. This list is actually a reminder that medicine has evolved as a multi-disciplinary activity. Multi-disciplinary discussion of specific clinical cases has become the rule for patient management in oncology, combining the expertise of oncologists, surgeons, radiation therapists, radiologists, nuclear physicians and other participants in palliative care and psychological support. Does it mean that each specialty involved in these clinical panels needs to consider certifications in all the other fields?
4. Image-guided intervention, quoted in the white paper among indications in oncology, is a complex field in which the highest level of expertise is required from all actors.

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This would certainly not be attained by cross-training of physicians responsible for the imaging part of the analysis.

5. Quoting neurological disorders in this series of indications for multi-modality imaging is awkward. Co-registration of positron emission tomography (PET) with MRI started long before PET/CT systems were introduced, and the benefit of hybrid systems in neuronal molecular imaging remains uncertain. The same holds true for the cardiac indications presented. In cardiology, what matters is the intellectual exercise of putting together information gathered by the various procedures involved (clinical evaluation and history, electrophysiology, perfusion imaging, angiography, pharmacological tests, viability imaging etc.), not the fact that some of these procedures may have been performed on a single hybrid imaging system.

Therefore, in our opinion, the justifications by the authors of the white paper are not convincing. The initiative might profoundly affect nuclear medicine activity in Europe. We would like to comment on the undertaking that proposes a new definition of the contours of nuclear medicine (and of radiology) in Europe, based on the technical progress and the recent availability of hybrid systems namely, PET and single-photon emission computed tomography (SPECT) cameras coupled with CT.

Is nuclear medicine comparable to music?

Is it sound to define a medical specialty by its instruments? For decades, radiology has not limited itself to X-rays; it has smoothly evolved to include ultrasound and MRI, for example. All medical specialties have progressively included new technical devices into their clinical practice. Some have adopted imaging techniques. To our knowledge, these evolutions never questioned the definition of the specialties. Has the definition of neurosurgery and its relationship with imaging specialties changed because of the emergence of neuronavigation, making procedures in the operating room extremely dependent on morphological and functional imaging data? Why should it be different for nuclear medicine? Even so, is the new impact of CT more relevant to the definition of nuclear medicine than are biology, chemistry, radiopharmacy, pathophysiology, oncology, cardiology, clinical skills in general etc.?

Does combination of multi-disciplinary information mean adding up certifications?

The nuclear physician has the right and the deontological responsibility to acquire the appropriate knowledge during initial training or continuous education and to collaborate with other specialists as often as necessary. We all agree that morphological imaging information is important to nuclear medicine practice. More generally, a nuclear physician is assumed to master all data relevant to the study he or she has to report on. These data include radiological imaging—as done daily by film reading or picture archiving and communication system consulting—but also anamnestic, clinical, epidemiological, pharmacological, biological, electrophysiological etc. data. However, the nuclear physician is not supposed to be a certified specialist in all the specialties he or she deals with.

Should nuclear medicine be merged into another specialty?

Various proposals were discussed in the past between nuclear medicine and specific clinical fields to merge them into new entities such as “nuclear endocrinology”, “nuclear cardiology”, “nuclear oncology”, etc. Anything is possible and might even operate locally, especially in academic institutions or in pathology-dedicated groups. However, it remains the case that the quality of nuclear medicine procedures is better ensured under the responsibility of a dedicated nuclear medicine specialist. No patient benefit can be expected from a systematic fusion of nuclear medicine with other specialties. Even if the white paper does not dare to openly propose a merger with radiology, exactly that is implicitly announced in the proposed changes.

Is radiology a more relevant partner to nuclear medicine than any other specialty?

With radiologists, we have in common the handling, communication and archiving of digital images, as clinicians can share patient files. However, we have different cultures. Schematically, morphological imaging develops anatomical knowledge, and molecular imaging relies on pathophysiological understanding. It would be ideal to be an expert in both, but this is unrealistic given the enormous amount of data currently available, and this is not going to become any easier in the future. Contrarily to what the white paper states, it is improbable that the line of demarcation between the two specialties will tend to disappear. Today, the partnership arising from the existence of hybrid imaging devices certainly will bring us closer to our radiology colleagues. However, nuclear medicine has already been brought closer to other disciplines at different stages of its evolution, and this will happen again in the future with other specialties. Any evolution will entail adaptation of our training. However, this is nothing new.

Multi-modality imaging is not fundamentally different from other advances we have made and does not justify re-defining our specialty.

With regard to the white paper propositions

This is a highly unfair trade

Currently, nuclear physicians handle SPECT and PET studies without restrictions—having the responsibility of collecting all necessary complementary data including those from other imaging techniques. Radiologists ought to do the same with respect to morphological imaging. Now, with the proposed 'special competency certification' for hybrid imaging, a radiologist investing a relatively short time, compared to the rest of his curriculum, will be allowed to practise all aspects of modern nuclear medicine. For the same price, a nuclear physician will get nothing but the right to continue practising his job! It will not take long before European medical students will realize that, even for nuclear medicine practice, radiology training is a good deal. As the number of radiologists per country outweighs by far that of nuclear physicians, varying from 10:1 to 20:1, any increase in the number of radiologists also practising nuclear medicine will rapidly have a high demographic impact. Because of the overwhelming material and financial preponderance of radiology compared to nuclear medicine, nuclear medicine would at the best be degraded to a sub-specialty of radiology.

This is an unnecessary re-definition of nuclear medicine

Exchanges in expertise are necessary, but this has already been the case previously. It introduces rhythm and dynamics to all steps of nuclear medicine evolution: Nuclear cardiology is an example. As we have experienced to date, these exchanges have not implied specialty re-definitions or new certifications. They have stimulated inter-disciplinary collaborations and continuous improvements in nuclear medicine training. This has been beneficial to our discipline as well as to our patients. The introduction of anatomical imaging into nuclear medicine, i.e. the introduction of new instruments, cannot per se justify a specialty re-definition.

The white paper: bad answers but good questions

These changes in our daily practice are accompanied by appropriate modifications in nuclear medicine training, so we invest in continuing medical education on morphological imaging (CT, MRI). For basic training, this must be included into the curriculum, if not done already. Continuous training has to be set up in a same way. Naturally, further collaboration will take place in multi-disciplinary meetings where results and opinions on the different imaging techniques will be exchanged to the benefit of our patients. We rise up against the introduction of the proposed 'special competency certification.'

The propositions made by the authors of the white paper may have a profound impact on our specialty. Such propositions require serious discussions among national societies and members before further steps are undertaken. We regret that the publication of the white paper has preceded such democratic debates.

We have good reason to worry about the negative impact of the white paper publication. Its deleterious effects on nuclear medicine might be immediate, starting with reduced recruitment of fellows who are attracted by the potential of molecular imaging but choose another track when they compare professional perspectives. The increasing interest in nuclear medicine that we currently observe among medical students and young physicians is thus likely to dry up, leading to a decline of our specialty.

The recent emergence of hybrid imaging does not dictate immediate and drastic changes in the definition of nuclear medicine. Instead, it should be analysed in a long-term perspective that takes into account the natural evolution of all medical specialties.

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