

## Reply to responsible growth of nuclear cardiology in Spain

We thank Drs Ferreira and Cerqueira for their editorial on our paper and would like to reply to their recommendations.

Of the 42 responding centers, 32 were public hospitals serving 39% of Spain's population representing 23% of nuclear medicine (NM) departments listed by the Spanish Society of Nuclear Medicine and Molecular Imaging (SEMNM) including some private centers not performing nuclear cardiology (NC). Broader sampling is frequently unfeasible due to high rates of nonresponse to online questionnaires and this shouldn't deter us from analyzing the answers received. Our survey's population is actually superior to other NC surveys.<sup>1,2</sup>

Regarding radiation exposure, the 16% of centers using thallium did so only for particular settings (viability). The use of appropriate use criteria (AUC) is commonplace in Spain where the NC Working Group of SEMNM has advocated AUC for many years and recently launched a multicentric national trial assessing its use. In the INCAPS study<sup>3</sup> the dose for southern Europe (Italy, Portugal, and Spain) was not significantly different from central-northern Europe (Austria, Belgium, Denmark, Finland, France, Germany, Luxembourg, Netherlands, Sweden, Switzerland, and United Kingdom),  $8.39 \pm 2.11$  vs  $8.19 \pm 3.24$  mSv, respectively, with some northern countries exhibiting values of 13.6 mSv while the highest value in Spain was 10.5 mSv. Use of stress-only in Spain (60%), is superior to mean INCAPS<sup>3</sup> values (46% Europe, 16% North America, 30% total).

Relative to communication between NM physicians and cardiologists, 79% of centers had a cardiologist present during the stress procedure (33% alone and 46%

together with a NM physician). The report being written solely by the NM physician in 70% of centers doesn't imply the absence of intense communication with the cardiologist regarding the stress procedure and the image findings.

Amelia Jimenez-Heffernan, MD, PhD, FEBNM, FASNC<sup>a</sup>

Santiago Aguadé-Bruix, MD, PhD<sup>b</sup>

Irene Casans-Tormo, MD, PhD<sup>c</sup>

<sup>a</sup>Hospital Juan Ramon Jimenez,

Huelva, Spain;

ameliam.jimenez.sspa@juntadeandalucia.es.

<sup>b</sup>Hospital Universitari Vall d'Hebron,

Barcelona, Spain

<sup>c</sup>Hospital Clinico Universitario Valencia,

Valencia, Spain

### Disclosure

The authors Amelia Jimenez-Heffernan, Santiago Aguadé-Bruix and Irene Casans-Tormo declare that they have no conflict of interest.

### References

1. Underwood S, Wiener S. Myocardial perfusion scintigraphy in Europe 2005. *Eur J Nucl Med Mol Imaging* 2009;36:260-8.
2. Reyes E, Wiener S, Underwood SR. Myocardial perfusion scintigraphy in Europe 2007: A survey of the European Council of Nuclear Cardiology. *Eur J Nucl Med Mol Imaging* 2012;39:160-4.
3. Einstein AJ, Pascual TNB, Mercuri M, Karthikeyan G, Vitola JV, Mahmarian JJ, et al Current worldwide nuclear cardiology practices and radiation exposure: Results from the 65 country IAEA nuclear cardiology protocols cross-sectional study (INCAPS). *Eur Heart J* 2015;36:1689-96.

doi:10.1007/s12350-017-1133-3