

History of the Luxembourgish Society of Nuclear Medicine



Introduction

Europe was our chance. In 1951, Luxembourg was a founding member of the *Communauté Européenne du Charbon et de l'Acier* (CECA) and thus of the later European Union (EU). In 2005, from 1 January to 30 June, Luxembourg held the Presidency of the Council of the EU for the tenth time. Since the population of Luxembourg totals about 500,000, as against 450 million in the entire EU, the challenge for this tiny country is to maintain its own cultural individuality “*simul et singularis*” (similar and singular), while intensively networking with the 27 other EU countries. Small countries can act as significant intermediaries, in the EU and in the EANM. The aim is to contribute in building an integrated Europe, a peace-keeping task of historically unprecedented importance.

In Luxembourg, multiculturalism is an everyday reality, with non-nationals (of ca. 150 different nationalities) accounting for up to 38% of residents in the small country. In addition, more than 100,000 persons cross the Belgian, French and German borders every day to work in Luxembourg. As a result, about 70% of persons having a job in Luxembourg are foreigners or non-nationals. To promote the integration of foreigners, a special educational effort is made by the government and by city communes to dispense language courses for free or at a symbolic price. All EU languages can thus be learned in Luxembourg.

Prehistory

Nuclear medicine was introduced into Luxembourg around 1960, when a linear scintigraph was used to perform thyroid scintigrams with ^{131}I and, moreover, treatments with ^{131}I were administered. The two first gamma cameras in our country were acquired in the early 1970s and were the starting point for two departments of “scintigraphy”. Creation of a professional society representing medical practitioners and other scientists dedicated to nuclear medicine nevertheless took as long as 35 years following the introduction of nuclear medicine in Luxembourg.

Creation of the SLMN in 1995

The Luxembourgish Society of Nuclear Medicine (SLMN) was created in 1995 and has since been affiliated to the EANM as a national member society. However, the existence of the SLMN, transiently “forgotten” by the EANM in 2001 [1], has fortunately been fully recognised since! SLMN is indeed a small society, proportional to the small size of the country (999 square miles) and its population (500,000 inhabitants).

Due to intensive efforts to promote the society, SLMN membership grew by 50% between 2000 and 2004. But despite this tremendous growth, we still know each other. A particularity of the SLMN is that all 14 members can communicate together around a

table. Both topical professional discussions and General Assemblies usually include a pasta dinner around the same conference table.

Gender distribution shows a strong imbalance, with women accounting for only 14.3% of members (female to male ratio = 2:14). This ratio is lower than in other countries [2]. In 2007, the proportion of women nuclear medicine specialists varied between 18% in Germany and 53% in Denmark [2].

Nuclear medicine capacity

All radiopharmaceuticals applied in Luxembourg, including ^{18}F -FDG, are imported from abroad, mostly from Belgium, Germany and the Netherlands. Therapies using sealed radioactive sources, radiosynoviorthesis and ^{131}I therapies are performed on an outpatient basis up to an activity of 800 MBq. This represents about 90% of all clinical therapeutic indications. Higher activities are administered in a two-bed hospital unit, equivalent to a national centre, which complies with European regulations concerning radioprotection. The unit was modernised in 2003. A clinical pathway is underway. A scientific board (*Conseil scientifique de radiothérapie métabolique*) discusses treatment protocols and an internal committee (*Comité permanent de radiothérapie*) standardises updates and controls radioprotection procedures.

Nuclear medicine capacity in Luxembourg comprises ten gamma cameras, equivalent to 2.15 per 100,000 inhabitants. Each of the five departments of nuclear medicine runs between one and three gamma cameras. General nuclear medicine examinations and ^{13}C breath tests are performed (about 20,000 in total per year). Ergometric stress testing is performed by specialists in nuclear medicine if they have training in internal medicine, or otherwise by cardiologists.

Due to legal regulations, all five departments of nuclear medicine in the country are located within a hospital structure. In view of the need to fulfil political demands, hospitals try to work out synergies. Consistent with this, the five departments of nuclear medicine establish areas of cooperation and common guidelines. Most progress in this domain has been achieved with PET since 2003.

One national PET-CT camera (*Centre National PET*, ISO certified, accredited by UEMS, section Nuclear Medicine) is open to nuclear medicine specialists from the five centres, who, since 2003, have examined their own patients on a rotating basis 5 days a week (8-12 patients per day). With the exception of Monaco, the density of PET and PET-CT systems in Luxembourg is the highest in the world! PET imaging files are electronically sent to the department of nuclear medicine of the specialist in charge. She/he is responsible for the medical report. Health insurance reimburses only oncological indications; hence, no PET studies are currently being performed for neurological or cardiac indications. Supervisory committees represent the major institutions in the country. The PET Scientific Committee and the PET Management Committee are in charge of supervision and accreditation. The latter committee includes the members of managing boards of different hospitals and a representative of the State. A convenient dedicated PET examination request form (*ordonnance*) has been jointly developed, allowing easy



selection of PET indication and clinical details (Fig. 1). The advantage is that relevant clinical information is available to the nuclear medicine specialist responsible for the medical report.

As concerns SPECT-CT, we have unfortunately been waiting for state permission to install a dedicated machine since 2005. We hope that the inexplicable Luxembourgish delay in the matter – which stands in contrast to the performance of the world champion, France, which already had 60 SPECT-CT cameras in 2010 – will soon belong to the past. We truly hope that patients in Luxembourg will be able to benefit from this remarkable technical and scientific advance in the near future.

Some departments of nuclear medicine write elaborate annual reports on their activities. For instance, the 2009 annual report of one department had as many as 95 pages. The aim is to document the medical and technical workload that was actually performed, manpower, newly introduced techniques, technical difficulties encountered, external events influencing the work and the demography of referring physicians.

Scientific activities

Scientific activities organised by the SLMN take place irregularly. Some national symposia have been organised (Table 1).

Subject of symposium	Year
PET workshop	1997
Breast scintigraphy and relevance in breast cancer	1998
Radioisotopes in the treatment of osseous and articular pain	1999
PET meeting 2001	2001
Conference on telemedicine	2002
Nuclear medicine in diabetic coronary disease	2004
Radionuclide therapy	2006
Treatment of secondary hepatic tumours	2008
Round Table: Towards medical shortage of scintigraphy?	2011
French-Belgian-Luxembourgish Joint Congress of Nuclear Medicine 2011	2011

Table 1. National symposia organised by the SLMN

Our biggest project so far has been a joint multinational congress in May 2011, organised by three national societies: The *Congrès Franco-Belgo-Luxembourgeois de Médecine Nucléaire 2011* (Figs. 2,3). On this occasion, the French and Belgian Societies of Nuclear Medicine, instead of organising their individual annual meetings, chose to unite with the SLMN for a joint 2011 meeting in Luxembourg. The Congress took place in the Conference Centre of the European Ministers in Luxembourg. To underscore the European

dimension of the event, Jean-Claude Juncker, Prime Minister of Luxembourg, Dean of the European Chiefs of Government and President of the Eurogroup, had agreed to give the opening speech at the Philharmonie of Luxembourg. The Prime Minister unfortunately had to cancel at the last moment, as his duties within the Eurogroup regarding economic matters required him to go to Lisbon. As a result of the Congress, media visibility of nuclear medicine problems, such as the worldwide molybdenum crisis in 2008-10, was enhanced. We hope that this 2011 multinational congress marked the beginning of a fruitful cooperation in scientific and professional matters between France and the BENELUX countries. A scientific cooperation with the platform POSITROMICS in Nancy is underway.

Media coverage

The 2011 multinational congress in Luxembourg was intensively covered by the media and moreover the organisers had the honour of being received by our Head of State, His Royal Highness, Henri, Grand-Duke of Luxembourg. A weekly newspaper, the *JEUDI*, published an 18-page thematic supplement on nuclear medicine, distributed to all letterboxes across the country as well as to congress participants. All 22 manuscripts had been written by nuclear medicine colleagues from France, Belgium, Luxembourg and the Netherlands in an accessible style. The technetium crisis, the accompanying risk of limited availability of nuclear medicine procedures and the urgent necessity to build at least one new nuclear reactor in Europe were especially outlined. The *JEUDI* supplement on nuclear medicine was granted the 'AIPES Press Award 2011' during the EANM Congress in Birmingham.

The Round Table dealing with the technetium crises on May 6, 2011 was open to the general public, and was professionally filmed. The resulting film has already been shown several times on the private Luxembourgish television channel doc.lu.

Humanitarian engagement

Following the French-Belgian-Luxembourgish Joint Congress of Nuclear Medicine 2011, a cheque for 7,000 euros was handed over to the Luxembourgish Red Cross on September 28, 2011 to support a humanitarian project in Nepal. This sum was raised through private donations as well as the selling of silk roses during the official Congress evening.

Social activities

About once a year, SLMN organises social events, for instance a guided visit to an industrial bakery or to the publisher of a national newspaper. We once visited the nuclear power plant in Cattenom, France, close to the border. Some football games, involving staff from nuclear medicine departments and their families, have been organised.

Website

The website of the SLMN (www.medecine-nucleaire.lu) was created in 2009 by two of the members with the aim of promoting the visibility of nuclear medicine in Luxembourg and networking with other national and European societies.



Multiculturalism

Mirroring the multicultural Luxembourgish society, 47% of the SLMN members are Luxembourgish, the others being Belgian, German, South African and Iranian. Some patients speak Portuguese, Spanish, German, English or another language. Languages spoken with patients in our nuclear medicine departments are typically Luxembourgish (about two-thirds of cases) and French (about one-third of cases).

Multiculturalism is also represented among the three physicists, all women, who supervise facilities (the five departments of nuclear medicine, the PET-CT unit and radiology departments) with respect to quality control, in that they are of three different nationalities: French, Greek and Spanish. Efforts are made to achieve a standardised quality control.

SLMN, EU integration and future perspectives

The famous Schengen Agreement was signed 25 years ago, on 2 June 1985 – in humorous circumstances according to popular accounts. Negotiations on free trans-frontier circulation of European citizens were held on board a passenger ship cruising the Moselle river, a symbolic link between the three countries of Luxembourg, France and Germany. When the agreement was signed, the ship was just passing a little wine village with a castle where the famous French writer Victor Hugo had been a guest during his political exile from France on 13 September 1871. “How do you call this village?”, someone asked. “Schengen” was the reply.

By analogy, the SLMN is open to accept representatives of nuclear medicine departments of the Saar-Lor-Lux region. We hope that the French-Belgian-Luxembourgish Joint Congress of Nuclear Medicine 2011, under the auspices of the EANM, which proved a scientific success, will boost nuclear medicine in Luxembourg. The subtitle of the Congress was: “SPECT-CT and PET-CT: towards functional imaging of the future”, and we especially hope that several SPECT-CT facilities will be installed in the country in the near future, for the benefit of our patients.

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Request for ¹⁸F-FDG PET examination (fasting state, water permitted)

please return to the Centre National PET by fax: (+352) 44 12 84

Information required for patient referral/registration

Patient: ☎:

Full address:

Reference no.: Health Insurance: Copy to Dr:

Referring physician:

Patient hospitalised: No Yes, departments to be informed

<p>• ONCOLOGICAL INDICATION</p> <p>Malignancy of a suspicious lesion <input type="checkbox"/></p> <p>Search for primary tumour (CUP) <input type="checkbox"/></p> <p>Staging before treatment <input type="checkbox"/></p> <p>Suspicion of recurrence <input type="checkbox"/></p> <p>Therapeutic efficacy (start of treatment) <input type="checkbox"/></p> <p>Evaluation 4 weeks after end of treatment <input type="checkbox"/></p> <p>Follow-up <input type="checkbox"/></p> <p>Other <input type="checkbox"/></p> <p>• PRIMARY TUMOUR (please indicate site)</p> <p>Lung <input type="checkbox"/></p> <p>Breast <input type="checkbox"/></p> <p>Lymphoma <input type="checkbox"/></p> <p>HNO <input type="checkbox"/></p> <p>Oesophagus <input type="checkbox"/></p> <p>Pancreas <input type="checkbox"/></p> <p>Colorectal <input type="checkbox"/></p> <p>Ovarian <input type="checkbox"/></p> <p>Melanoma <input type="checkbox"/></p> <p>Brain <input type="checkbox"/></p> <p>Unknown localisation <input type="checkbox"/></p> <p>Other, please indicate <input type="checkbox"/></p> <p>• NEUROLOGICAL INDICATION</p> <p>Suspicion of neurodegenerative pathology <input type="checkbox"/></p> <p>Suspicion of vascular pathology <input type="checkbox"/></p> <p>Other suspicion <input type="checkbox"/></p> <p>• CARDIOLOGICAL INDICATION</p> <p>Ejection fraction ↓ ↓ : myocardial viability? <input type="checkbox"/></p> <p>• HISTOLOGY (date, findings)</p> <p>• GENERAL DATA</p> <p>Weight kg height cm</p> <p>Diabetes, ID yes <input type="checkbox"/> no <input type="checkbox"/></p> <p>Diabetes, non-ID yes <input type="checkbox"/> no <input type="checkbox"/></p> <p>Claustrophobia yes <input type="checkbox"/> no <input type="checkbox"/></p> <p>Dependent patient yes <input type="checkbox"/> no <input type="checkbox"/></p> <p>Metallic prostheses/pacemaker yes <input type="checkbox"/> no <input type="checkbox"/></p> <p> Maximal glycaemia 140 mg/dl required</p>	<p>• RESULTS of DIAGNOSTIC WORK-UP</p> <p>Medical imaging <input type="checkbox"/> NO <input type="checkbox"/> YES: (results / dates)</p> <p>Endoscopy / date</p> <p>Tumour markers / date</p> <p>• PREVIOUS TREATMENTS (please indicate)</p> <p>Surgery: <input type="checkbox"/> NO <input type="checkbox"/> YES: (date)</p> <p>Percutaneous radiotherapy <input type="checkbox"/> NO <input type="checkbox"/> YES: (date)</p> <p>Chemotherapy <input type="checkbox"/> NO <input type="checkbox"/> YES: (date)</p> <p>Others/dates</p> <p>• COMMENTS</p>
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Centre National PET · c/o Centre Hospitalier de Luxembourg · Tél : (+352) 4411-2187 · Fax : (+352) 44 12 84

Fig. 1 National FDG PET examination request form, developed jointly by the members of the SLMN. It is exclusively used whenever referring PET patients to the unique Centre National PET, facilitating communication between doctors



Fig. 2 Promotional poster of the “French-Belgian-Luxembourgish Joint Congress of Nuclear Medicine 2011”. This multinational event in Luxembourg was a joint venture between France and the BENELUX countries. It aimed to emphasise the global dimension of nuclear medicine, which had become more evident as a result of the worldwide molybdenum/technetium crisis in 2008-2010



Fig. 3 Cover page of the thematic supplement on nuclear medicine published in JEUDI, a weekly newspaper in Luxembourg (edition April 28, 2011). The 18-page supplement was distributed to all letterboxes in the country

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Fig. 4 Before opening the French-Belgian-Luxembourgish Congress of Nuclear Medicine 2011, relevance of professional networking was outlined by the honour of a private audience at the Court of Luxembourg on May 6, 2011. From left to right: C. Picard (Luxembourg), M. Lonneux (Brussels), C. Als (Luxembourg), H.R.H. Henri Grand-Duke of Luxembourg, P. Bourguet, President of EANM, F. Jamar (Brussels), G. Karcher (Nancy)



Fig. 5 SLMN had risen funds in favour of a humanitarian project in Nepal (under auspices of Luxembourgish Red Cross and of Ministry of Cooperation) around the French-Belgian Luxembourgish Congress of Nuclear Medicine 2011. A cheque of 7000 Euro was thus handed over during a ceremony at the seat of the Red Cross on September 28, 2012, in presence of sponsors and of the nuclear medicine community

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