# Summary of external evaluation

**ASSISTANCE PUBLIQUE - HÔPITAUX DE PARIS (AP-HP) - HÔPITAL COCHIN-PORT ROYAL**

## Department of Nuclear Medicine

**Nature:** Inspection related to the control of radiation protection

**Audit date:** 15 and 16 February 2021

**Organization**: French Nuclear Safety Authority Autorité de Sûreté Nucléaire (ASN)

### 1-Summary of the inspection

The objective of the inspection was to check, by sampling, the measures taken to ensure the radiation protection of patients, workers and the environment, in the context of the possession and use of 3 X-ray tomography scanners, unsealed sources and sealed sources within the hospital's nuclear medicine facilities.

The inspectors noted the strong involvement of the radiation protection staff. Clear answers were given to the various questions asked by the inspectors, who underlined the quality of the exchanges during the videoconference and during the on-site inspection.

The following positive points were noted, some of which had already been noted during previous inspections:
The satisfactory organisation of radiation protection formalised in a radiation protection organisation plan detailing the tasks and resources available to the hospital's two PCRs;
- Satisfactory monitoring of category B workers:
- All the workers in the nuclear medicine department had a medical check-up at the regulatory frequency, as well as all the workers in the pneumology department who monitor the patients treated in the hospital unit;
- All workers have received training in radiation protection at the regulatory three-yearly intervals;
- Rigorous individual dosimetric monitoring, including the wearing of two dosimetric rings (one for each hand) by workers handling unsealed sources to assess the equivalent dose to the extremities; the performance of on-site anthroporadiametric measurements to monitor internal contamination. In addition, the doses received by workers are monitored and any heterogeneities between workers are explained;
- The satisfactory number of measuring devices made available to workers to regularly check the absence of contamination of personnel and work surfaces;
- The rigorous periodic checks of the workplaces, with numerous measurement points, the carrying out of measurements around the pipes carrying contaminated liquid effluents, the use of numerous ambient dosimeters;
- The organization of the radiopharmacy with, in particular: the optimization of the circuit of radiopharmaceutical products from their delivery to their administration to patients in order to reduce the risk of administration errors; the recording of all undesirable events that occur within the radiopharmacy; the authorization of new arrivals to work with a planned recording of the acquisition of skills;
- Rigorous monitoring of internal and external quality controls by the medical physicists;
- The collection and analysis of doses with respect to the diagnostic reference levels and, if necessary, the implementation of corrective actions for a better optimization

## 2- Assessment of the findings:

- 8 requests for corrective action
- 4 requests for additional information
- 2 observations

| Type | N° | Wording of the finding | Thematic | Site concerné |
|---|---|---|---|---|
| Request for corrective action | A1 | Ensure that each classified worker benefits from reinforced individual monitoring in accordance with the regulatory provisions of the Labour Code | Reinforced individual monitoring of classified workers | CCH |
| Request for corrective action | A2 | Ensure that unclassified workers can only access the restricted areas of the nuclear medicine facilities (nuclear medicine department in the Copernic building and the internal vectored radiotherapy sector in the Cornil building) if you have authorized them to do so on the basis of the following<br>have access to the delimited areas of the nuclear medicine facilities (nuclear medicine department in the Copernic building and the vectorised internal radiotherapy sector in the Cornil building) only if you have authorised them to do so on the basis of their individual assessment of the risk due to ionising radiation | Terms and conditions of access to demarcated areas | CCH |
| Request for corrective action | A3 | Update on SISERI the administrative information relating to workers in the nuclear medicine department and the vectorised internal radiotherapy sector | SISERI: Administrative information on workers | CCH |
| Request for corrective action | A4 | Ensure that all relevant staff are trained in patient radiation protection. This training must be renewed every 7 years and be documented | Training in radiation protection for patients | CCH |
| Request for corrective action | A5 | Take back expired sealed sources and regularise your inventory<br>with the IRSN | Outdated sources | CCH |
| Request for corrective action | A6 | Review and send us the updated classification in category A, B, C or D, as defined in annexes 13-7 and 13-8 of the public health code, of the sources or batches of sealed sources held or used in the nuclear medicine department. D, as defined in annexes 13-7 and 13-8 of the public health code, of the sources or batches of sealed sources held or used within the nuclear medicine department | Categorisation of sources and batches of sources | CCH |
| Request for corrective action | A7 | Ensure that specific and appropriate signage is put in place for the delimitation of the zones selected for the radiation protection enclosures | Delimitation of areas | CCH |
| Request for corrective action | A8 | Ensure that tanks and septic tanks are dedicated to the storage of radioactive effluents only | Room dedicated to the storage of radioactive effluents | CCH |
| Further information | B1 | Provide details of the calculations made in the assessment of exposure levels performed to identify the extremity areas within the radiopharmacy | Délimitation des zones | CCH |
| Further information | B2 | o transmit the report on the annual periodic inspection of the ventilation system of all the workplaces with specific pollution in the nuclear medicine | Monitoring the ventilation system | CCH |

| | | | | |
|---|---|---|---|---|
| | | sector according to the procedures provided for by the decree of 8 October 1987, carried out in all the premises of the nuclear medicine department (Copernic building) and in the vectorised internal radiotherapy sector<br>(Cornil building).<br>You should ensure that the performance of your ventilation and sanitation installations comply with the reference values defined at the time of their design, and that these reports mention<br>- The results of the examination of the condition of all the elements of the installation (collection system, ducts,<br>The results of the examination of the condition of all elements of the installation (collection system, ducts, dust collectors, scrubbers, compensating air supply systems, etc.);<br>- A conclusion on the conformity of each measurement carried out by comparing it with the expected reference value | | |
| Further information | B3 | identify the reasons why certain radionuclides, and in particular lutetium-177 at the outfall draining the waste water from the Copernic building, exceed the values for the activity by volume of the effluents discharged into the sewage system specified in your management plan for contaminated effluents and waste, and, if necessary, take the necessary corrective measures | Estimation of doses likely to be received by persons working in sewage networks and treatment plants | CCH |
| Further information | B4 | Transmit an updated estimate of the doses likely to be received by people working in sewage networks and treatment plants, taking into account all the radionuclides administered to patients. Either the digital tool Calcul d'Impact des Déversements Radioactifs dans les Réseaux (CIDRRE) developed by the IRSN and available on its website or another model should be used | Estimation of doses likely to be received by persons working in sewage networks and treatment plants | CCH |
| Observation | C1 | The ASN recalls that the purpose of periodic verification of a sealed source is to ensure that it is maintained in compliance, particularly with regard to the results of its first periodic verification | Periodic verification of sealed sources | CCH |
| Observation | C2 | The ASN recalls that Article 13 of the Order of 23 October 2020, which came into force on 28 October 2020, stipulates that radiological cleanliness must be verified in workplaces adjacent to delimited areas where unsealed sources are used | Periodic verification of workplaces | CCH |