Competence building in radiopharmaceutical technologies

Over the last decades, we have witnessed a steady increase in the use of radiopharmaceuticals. In addition, novel isotopes are being developed to improve successful cancer treatment.

In order to assure a competent workforce in the different stages of the isotope production cycle and its application, i.e. research & development, production, application in hospitals and aftercare (decontamination and waste), adequate education and training is needed.

The objective of this survey is to determine the current and future educational and vocational training needs in the radiopharmaceutical industry.

This information will be used to develop targeted programs and resources to bridge potential gaps and support your workforce development. Your responses will remain confidential, and the data collected will be used for research purposes only.

1. Name:
2. First name:
3. Function:
4. Email:
5. Organisation name:
6. Organisation location (city, country):
7. Your organisation is active in (please choose one or more answers):
   - ☐ a. R&D
   - ☐ b. Production of medical radioisotopes
   - ☐ c. Processing and preparation of medical radioisotopes
   - ☐ d. Transport of medical radioisotopes
   - ☐ e. Medical use of radioisotopes
   - ☐ f. Manufacturer/distributor of hardware related to the production or use of medical radioisotopes
   - ☐ g. Manufacturer/distributor of software related to the production or use of medical radioisotopes
   - ☐ h. Consulting activities in the use of medical radioisotopes (e.g. medical physics, radiation protection,…)
   - ☐ i. Construction of facilities using medical radioisotopes
   - ☐ j. Decommissioning and dismantlement of facilities using medical radioisotopes
   - ☐ k. Education and training
   - ☐ l. Agencies and associations
   - ☐ m. Other (Please specify)

In order to anticipate on the needs in the sector, we would like to get an insight in the current and future staffing of persons requiring nuclear-medical-related competences. (Nuclear-medical-related competences can be understood in a broad sense, including knowledge on the use of ionising radiation for medical applications)

6. How many employees with nuclear-medical-related competences do you currently employ? (please list according to their educational level)

	CURRENT NUMBER OF EMPLOYEES				
	Secondary education	BSc degree	MSc degree	PhD degree	Total
Technical staff (e.g. service engineers, lab technicians, production staff,…)					
Supporting and administrative staff (e.g. licensing preparation, safety staff, …)					
Management					

7. How many employees with nuclear-medical-related competences will be required in the future, in your company/organisation? (*indicate an estimated percentage).

	EMPLOYMENT PROJECTION (IN 1-2 YEARS)			EMPLOYMENT PROJECTION (IN 3-5 YEARS)			EMPLOYMENT PROJECTION (IN 6-10 YEARS)		
	Decrease (%)*	No change	Increase (%)*	Decrease (%)*	No change	Increase (%)*	Decrease (%)*	No change	Increase (%)*
Technical staff (e.g. service engineers, lab technicians, production staff,…)									
Supporting and administrative staff (e.g. licensing preparation, safety staff, …)									
Management									

8. Are you having difficulties to recruit certain nuclear-related competences? Yes ◯ No ◯
9. If so, what could be the reason? (please indicate on or more answers)

• Specific knowledge is lacking	☐
• Specific skills and experience are lacking	☐
• Competition between employers (war on talent)	☐
• Limited offer in specialized training programs	☐
• Other (please describe)	☐

10. For future employment, which educational backgrounds are you looking for?

Level - degree	Yes	No
Professional and academic bachelors	☐	☐
• (bio)medical laboratorium techniques	☐	☐
• Radiographer – technologists - dosimetrist	☐	☐
• Nurse	☐	☐
• Chemistry	☐	☐
• Physics	☐	☐
• Engineering	☐	☐
• Biotechnology	☐	☐
• Other (please describe):	☐	
	☐	☐
Master degrees	☐	☐
• Physics	☐	☐
• (bio-)Chemistry (& process engineering)	☐	☐
• (bio-)Engineering	☐	☐
• Biomedical sciences (or engineering)	☐	☐
• Medicine (MD)	☐	☐
• Pharmacy	☐	☐
• (clinical) Biology	☐	☐
• Other (please describe):	☐	
	☐	☐
Academic postgraduate degrees	☐	☐
• Postgraduate in radiation protection	☐	☐
• Postgraduate in medical physics	☐	☐
• Postgraduate in clinical research	☐	☐
• Other (please describe):	☐	

11. Are the nuclear-related competences obtained via these scientific degrees matching the needs of your company? Yes ◯ No ◯

12. If no, could you explain why?

13. Are more specialized training programmes needed in the field of radiopharmaceuticals?
    Yes ◯ No ◯
14. If yes, do they need to be academic ◯ or vocational ◯ ?
15. What specific competences are currently hard to find via the existing training programmes?(please indicate)

Topic/target audience	Technical staff	Supporting staff	Management
Radiation protection	☐	☐	☐
Radiopharmaceutical production techniques	☐	☐	☐
Regulatory compliance and quality assurance	☐	☐	☐
Radiopharmaceutical handling and transportation	☐	☐	☐
Radiopharmaceutical synthesis and labeling	☐	☐	☐
Radiation monitoring and dosimetry	☐	☐	☐
Other (please describe):			

16. If specialized training would be offered in a vocational way (aimed at professionals), which method of delivery do you prefer?

Topic	1 week short course	Series of 1 day courses	Distance learning (e.g. webinars)	e- learning	Hands-on training	Other – please specify
	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	

Please check this box ☐ if you would like to receive updates related to the radiopharmaceutical education and training initiatives.

Please check this box ☐ if you allow us to contact you to request future information about this survey.

Thank you for taking the time to complete this survey. Your input is invaluable in shaping the future of education and training programs in the radiopharmaceutical sector. More information can be obtained at academy@sckcen.be.

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