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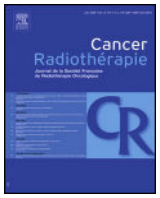

Original article

Survey on the radiotherapy dosimetrist workforce in France: Present state and perspectives



Enquête sur le métier de dosimétriste en radiothérapie en France : état des lieux et perspectives

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INFO ARTICLE

Keywords :
Dosimetrist
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ABSTRACT

Purpose: The purpose of the study was to give an overview of the radiotherapy dosimetrist workforce in France, to provide quantitative indicators that can support actions or decisions aimed at better recognizing this profession in France.
Materials and methods: A survey was addressed to dosimetrists working in France (metropolitan France and overseas departments and territories) from April to May 2023. This survey covered four themes: (1) workplaces, staffing levels, and demographic data; (2) tasks performed; (3) training and status; (4) respondents' expectations.
Results: A total of 239 people completed all or parts of the survey. Seventy-five percents of respondents were part of a team of at least three dosimetrists. Ninety percents of participants were under 50 years old and 75 % had more than 5 years of experience. A majority (61 %) of respondents reported to only perform treatment planning tasks. Apart from this, image fusion (75 %) and patient quality controls (54 %) were predominant. Before being dosimetrists, 54 % of respondents had been radiation therapy technologists. Fifty-six percents held a dosimetrist diploma. For 36 % of participants, salary grids differed within the same centre.
Conclusion: This is the first survey to provide an overview of the dosimetrist profession in France. It underlines a wide variety of career paths, profiles, and statuses. This situation highlights the need to raise awareness on this profession in order to guarantee the quality and safety of radiotherapy care. A French version of this article is available as supplementary material.

Mots clés :
Dosimétriste
Radiothérapie
Enquête
Professions médicotechniques

RÉSUMÉ

Objectifs de l'étude : Il s'agissait de dresser un état des lieux du métier de dosimétriste en France et de fournir des indicateurs chiffrés qui pourront servir à appuyer des actions ou des décisions visant à mieux reconnaître cette profession.
Matériels et méthodes : Un questionnaire a été proposé aux dosimétristes exerçant en France (métropolitaine et dom-tom) d'avril à mai 2023. Cette enquête portait sur quatre thématiques : (1) les lieux d'exercice, les effectifs, et les données démographiques ; (2) les tâches effectuées ; (3) la formation et le statut ; (4) les attentes.
Résultats : En tout, 239 personnes ont répondu à tout ou partie au questionnaire. Parmi les résultats, 75 % des répondants faisaient partie d'une équipe d'au moins trois dosimétristes ; 90 % avaient moins de 50 ans et 75 % avaient plus de 5 ans d'ancienneté. Une majorité (61 %) des répondants déclaraient ne pratiquer que la tâche de planification dosimétrique. En dehors de cela, la fusion d'images (75 %) et les contrôles qualité patient (54 %) étaient prédominants. Avant d'exercer ce métier, 54 % des répondants avaient été des manipulateurs en électroradiologie, 56 % détenaient un diplôme de dosimétriste. Pour 36 % des participants, les grilles de salaire étaient différentes au sein d'un même centre.

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1278-3218/© 2026 The Authors. Published by Elsevier Masson SAS on behalf of Société française de radiothérapie oncologique (SFRO). This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

Conclusions : Il s'agit de la première enquête dont les résultats permettent de brosser un portrait général du métier de dosimétriste en France. Elle a mis en évidence une grande variété de parcours, de profils et de statuts. Cette situation souligne la nécessité de mieux faire reconnaître leur métier, afin de garantir la qualité et la sécurité des soins en radiothérapie. La version française de cet article est disponible en matériel supplémentaire en ligne.

1. Introduction

Radiotherapy is now estimated to be part of the treatment plan for 50 to 60 % of new cancer patients [1]. From a technical standpoint, the management of a patient undergoing radiotherapy involves successive interdependent steps, from the initial computed tomography (CT) scan to the delivery of radiation. Each step requires the combined expertise of several healthcare professionals working together.

One of the key steps is the preparation of a treatment plan that meets the medical objectives of the radiation oncologist. This step consists of optimizing the treatment ballistics by using software to calculate the radiation dose delivered to the patient's tissues based on a simulation scan. After several verification and validation steps, this plan, which constitutes the basis of the treatment, is delivered using dedicated medical devices.

Legally in France, the medical physicist guarantees that the dose delivered to patients complies with medical prescriptions and contribute to the quality and dosimetric or technical safety of the treatment as a whole [2]. However, in recent decades, major technological advances coupled with the increasing number of tasks required of this radiation expert have led to delegate some of these tasks to other professionals. It is in this context that, around 30 years ago, the profession of treatment planning technician, more commonly known as "dosimetrist", emerged [3]. Their core activity consists of preparing the treatment plan in accordance with the physician's prescription and under the supervision of the physicist. The preparation of each treatment must then be validated by a physician and a medical physicist [4].

In the United States (USA), this profession is organized into an association, the American Association of Medical Dosimetrists (AAMD), which celebrated its 50th anniversary at its annual conference in 2025. In 2018, their profession, with 3000 members, was recognized by the US Bureau of Labor Statistics [5]. However, this situation remains exceptional in the world. The European Society for Radiotherapy and Oncology (ESTRO) Health Economics in Radiation Oncology (HERO) project, which carried out an inventory of human resources in radiotherapy in Europe, showed that the term "dosimetrist" may not exist in certain countries and that the planning task could be carried out by other professions, mainly by radiotherapy technologists [6,7].

In France, as early as 2013, the Société française de physique médicale (SFPM, the French society of medical physics) published a report containing proposals for defining a set of competencies required to practice as a dosimetrist [8]. The discussion then focused on the possibility of delegating this task to radiotherapy technologists with additional training or the creation of a diploma of qualification for treatment planning (*diplôme de qualification pour la planification de traitement* [DQPT]) [9]. The latter option made it possible to take into account situations where professionals other than radiotherapy technologists were already working as dosimetrists. In December 2014, dosimetrists were included in the directory of civil service professions under the job code 05L60 by the Direction générale de l'offre de soins (DGOS, the general directorate for healthcare provision) [10]. This classification places them within the family of medicotechnical professions.

Among the actions (Action 4.3) of the 2014–2019 cancer plan, it was recommended to clarify the status of dosimetrist in order to improve the safety of radiotherapy treatments [11]. From 2014 to 2017, work was then carried out by the DGOS in collaboration with the SFPM, the Société française de radiothérapie oncologique (SFRO, the French society of radiation oncologists) and the Association française du personnel paramédical d'électroradiologie (AFPPE, the French association of radiotherapy technologists), in order to develop a skills framework for the practice of this profession and to consider it as a specialization route for radiotherapy technologists. Unfortunately, in the words of the 2022 white paper for radiotherapy technologists: "Since June 2017, the meetings have been stopped, and this project has remained as it is. It remains one of the AFPPE's concerns to this day" [12].

Apart from the Institut national du cancer (INCa, the French national cancer institute) observatory that monitors the number of dosimetrists in radiotherapy departments, no report or other scientific publication has been proposed to provide an overview of the dosimetrists situation in France [13]. In 2023 and 2024, several written questions from members of the French National Assembly drew the attention of the minister of Health and Access to Care "to the recognition of the profession of dosimetrist which has existed for more than 30 years without specific status or training" [14,15].

The present survey aimed to establish an inventory of the dosimetrist. The questions covered four major themes of investigation: (i) workplaces, staffing levels, and demographic data; (ii) tasks performed; (iii) training and status; (iv) expectations and feedback from respondents. To our knowledge, no study has been led in France to quantify such a wide range of characteristics of this group. Its purpose was to provide numerical indicators that can support actions or decisions aimed at better recognizing the profession of treatment planning technician or dosimetrist.

2. Materials and methods

In 2023, two dosimetrists created a survey on Google Forms for their colleagues practicing in France (metropolitan France and overseas departments and territories) in order to establish an inventory of their profession (Table 1). This survey was distributed via a mailing list gathering medical physics professionals in France, mainly medical physicists and dosimetrists. Word of mouth also allowed the survey to be disseminated. The survey response collection period extended from April to May 2023. A maximum of 239 dosimetrists practicing in France responded during this period.

3. Results

3.1. Workplaces, staffing levels, and demographic data

Fig. 1a shows the distribution of respondents according to the type of centre where they work. Fig. 1b summarizes the geographical distribution of workplaces. Of the 18 regions currently in France, Mayotte and French Guiana were the only ones not to have a representative for this survey. Fig. 2a summarizes the number of full-time equivalent (FTE) dosimetrists per centre. The majority of respondents reported being part of a team of at least three FTE dosimetrists, while a quarter indicated working in a team of two FTE or less. Participants were also asked to provide feedback on the number of FTEs of the medical physicists with whom they worked. A significant linear correlation between the numbers of dosimetrists and physicists was found (Fig. 2b).

Experience and presence in dosimetry, and demographic data are reported in Table 2.

Table 1
Survey on the radiotherapy dosimetrist workforce in France: overview of the questionnaire.

Question number	Questions	Response method	Number of responses
1	What type of facility do you work in?	Multiple choice, single answer	239
2	In which region do you practice?	Multiple choice, single answer	239
3	How many full-time equivalent dosimetrists work in your centre?	Short answer	One answer per centre: 89
4	How many full-time equivalent medical physicists work in your centre?	Short answer	One answer per centre: 89
5	How old are you?	Short answer	232
6	Position held?	Multiple choice, single answer with free writing option	239
7	What is your full-time equivalent (FTE) in dosimetry?	Short answer	231
8	Before becoming a dosimetrist, did you work as a radiotherapy technologist?	Binary answer	239
9	Do you have a dosimetrist diploma?	Binary answer	239
	If yes, what is this diploma?	Multiple choice, with free writing option	134
	Was this diploma required for you to work as a dosimetrist?	Binary answer	134
10	How long have you been working as a dosimetrist (in years)?	Binary answer	237
11	What types of dosimetric treatment planning do you perform in radiotherapy?	Checkbox(es) with free writing option	239
12	Do you participate in accelerator quality control(s)? If so, which ones?	Checkbox(es) with free writing option	239
13	What other activities do you have	Checkbox(es) with free writing option	236
14	What salary grid are you on?	Multiple choice, single answer with free writing option	239
15	Do all dosimetrists at your centre have the same salary grid?	Binary answer	232
16	What is the status displayed on your payslip?	Multiple choice, single answer with free writing option	239
17	Would you be interested in creating a dosimetrist discussion group?	Multiple choice, with free writing option	239
18	In all transparency, would you be willing to participate in a dosimetrist group or association?	Multiple choice, single answer	239
19	Comments	Free writing option	58

Table 2
Results of a survey on the radiotherapy dosimetrist workforce in France: experience and presence in dosimetry, and demographic data (n = 239).

Presence in dosimetry (percentage of working time)	
Full-time	67.7 %
80–100 %	21.2 %
50–80 %	8.4 %
Less than 50 %	7 %
Age	
Average	39.4 years
Under 25 years	2.6 %
25–30 years	9.5 %
30–40 years	41.4 %
40–50 years	34.1 %
Over 50 years	12.4 %
Experience as a dosimetrist	
Average	10.5 years
Less than 2 years	7.2 %
2–5 years	17.8 %
5–10 years	26.3 %
10–20 years	36.0 %
More than 20 years	12.7 %

3.2. *Tasks performed*

A large majority of respondents reported only performing dosimetry planning tasks (Table 3). Almost all of the professionals who responded carried out dosimetric planning in three-dimensional (3D) conformal radiotherapy and intensity modulation (Table 3). Only a minority participated in brachytherapy activity. A quarter of respondents worked as technicians in addition to their dosimetry activities. Other functions (radiation protection expert, radiotherapy technologists, physics assistant, etc.) were in the minority. Half of the respondents stated that they did not participate in accelerator quality controls. When they did participate, the daily, weekly, and monthly accelerator controls were the most frequently performed (Table 3) [16].

Among the tasks performed, apart from dosimetric planning, image registration and patient quality controls were predominant (Table 3). Of the 236 respondents, only four people reported performing the task of delineating organs at risks under medical delegation (Table 3). Among other activities, participation in experience feedback committee (*Comité de retour d'expérience* [crex]) was very widespread among respondents. The survey also revealed a strong involvement of professionals in the training of interns and participation in their centre's projects (Table 3).

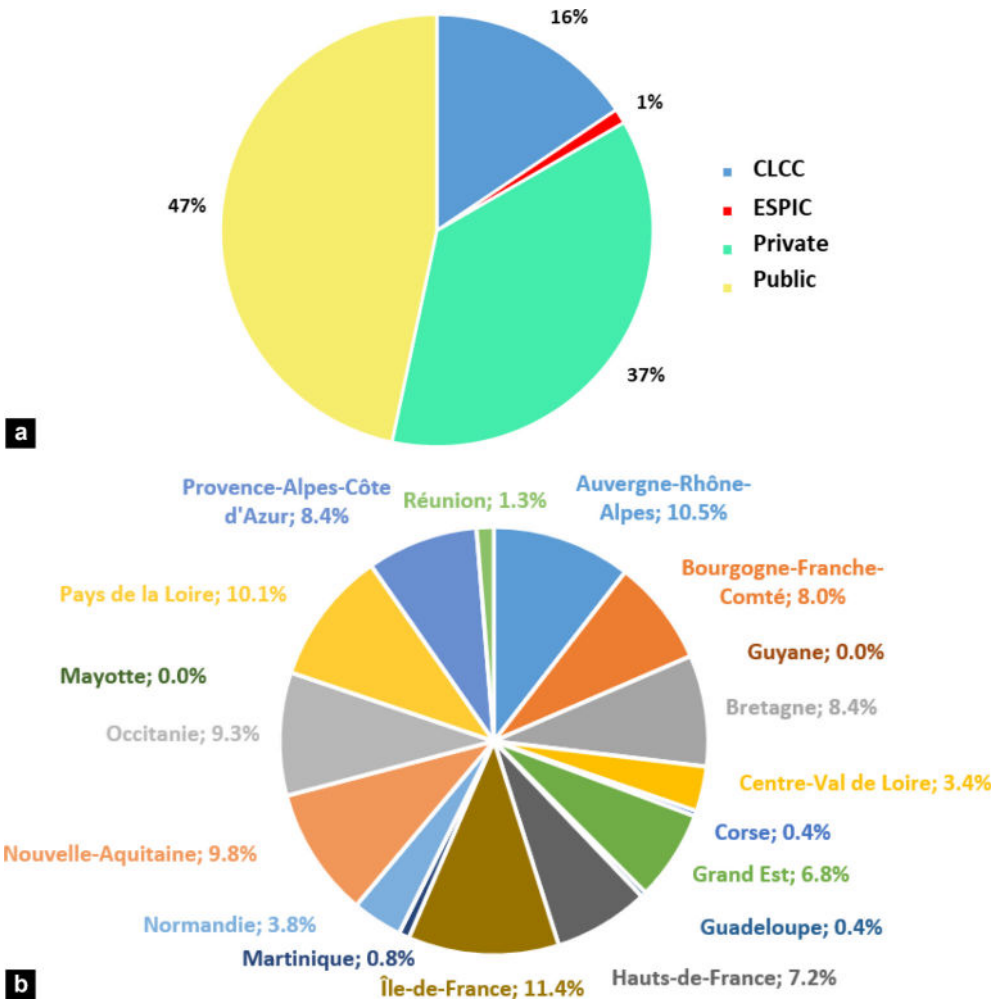

Fig. 1. Results of a survey on the radiotherapy dosimetrist workforce in France: distribution of respondents to the survey (n = 239). a: according to the type of centre; b: by region. CLCC: *centres de lutte contre le cancer* (comprehensive cancer centres); Espic: *établissement de santé privé d'intérêt collectif* (private healthcare centre of collective interest).

3.3. Training and status

Before working as a dosimetrist, just over half of the respondents had been radiotherapy technologists. Just over half of respondents also reported holding a dosimetrist diploma. In this case, a large majority reported holding a medical dosimetry and radiation protection bachelor of science diploma (*Dosimétrie et radioprotections médicales* [Dora]; Table 4). A university diploma or validation of acquired experience was other possible qualification path. In three-quarters of cases, these diplomas were required to work as a dosimetrist. The diversity of training paths was reflected in the status indicated on the payslip (Table 4). Among the respondents, 37 % indicated that they received a salary increase or bonus (Table 4). For 35.6 % of respondents, the salary grids differed from one dosimetrist to another within the same centre.

3.4. Expectations and feedback from respondents

A very large majority of respondents approved the creation of a dosimetrist discussion group in France (Table 5). WhatsApp was the most popular medium of communication among respondents, followed by Facebook. The survey participants were willing to get involved in a dosimetrist group or association, either by donating their time or financially. A significant minority stated that they were currently unable to get involved. The survey also allowed participants to share open-ended comments. Fifty-eight comments were received, mainly containing thanks for the initiative and a strong request for recognition of their profession.

4. Discussion

According to the INCa national radiotherapy observatory, the number of FTEs dedicated to treatment planning was approximately 489 in 2023 [13]. Nationally, with 174 authorized radiotherapy centres in 2018, this represents an average of 2.9 FTEs per centre [13,17]. This survey, in which 239 dosimetrists participated, therefore showed a participation rate of around 50 %.

This investigation was initiated following two observations: the lack of status for dosimetrists and a difficulty in gaining recognition within their establishment, whether public or private. Furthermore, the profession is also struggling to structure and represent itself, and to date there is no association or union for dosimetrist. The SFPM recently reactivated a dosimetrists section for this purpose.

Their responsibilities (treatment planning, treatment and equipment quality control, delineation, fusion) depend on the centre where they work, as do their status and salary grids. This situation is due to the lack of a training framework with clearly defined missions and skills. As a result, their activities depend on the delegation of tasks from medical physicists and physicians, who may have a plural definition of the dosimetrist profession. Therefore, task delegation issues and the resulting responsibilities clearly arise. In the absence of official recog-

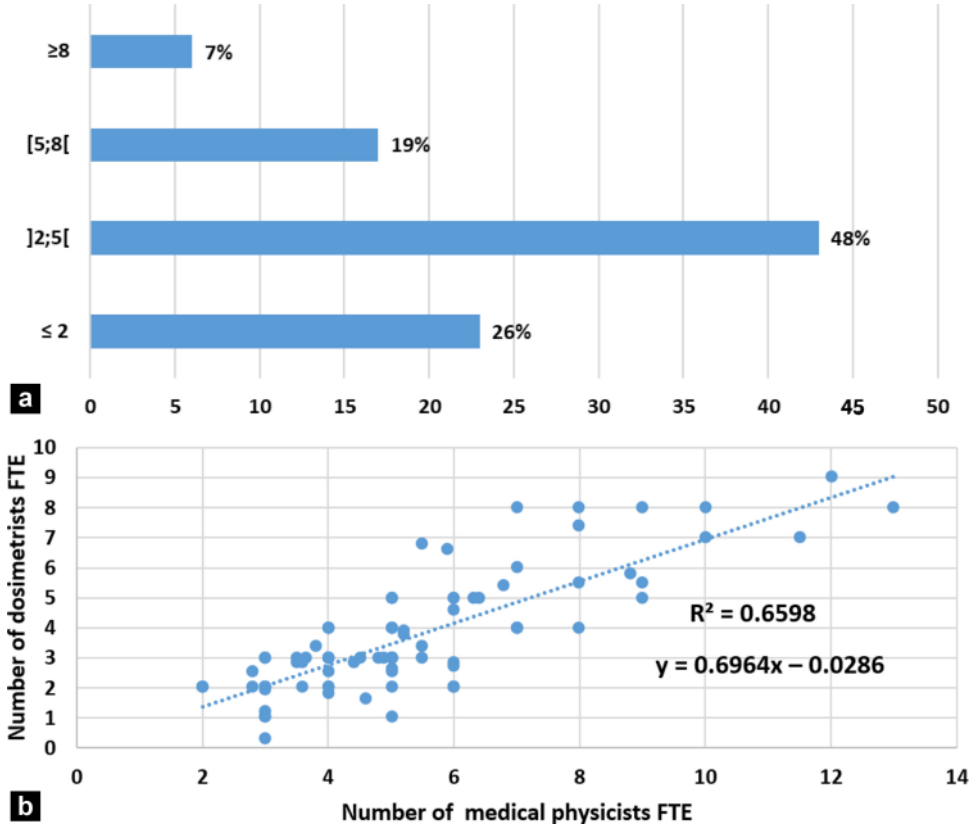

Fig. 2. Results of a survey on the radiotherapy dosimetrist workforce in France (n = 239). a: number of full-time equivalent (FTE) dosimetrists per centre; b: correlation with the number of FTE medical physicist in the same centre.

Table 3
Results of a survey on the radiotherapy dosimetrist workforce in France: summary of the activities and functions of dosimetrists (n = 239).

Themes	Responses	%
Function performed	Dosimetrist only	61.5
	Dosimetrist and technician	25.1
	Dosimetrist and radiotherapy technologists (all activities)	7.9
	Dosimetrist and radiation protection expert	2.5
	Dosimetrist and physics assistant	1.7
	Dosimetrist and other	1.3
Treatment planning technique	Intensity-modulated radiotherapy, volumetric modulated arc therapy	97.0
	Three-dimensional conformal radiotherapy	95.0
	Stereotactic treatment	41.0
	Brachytherapy	6.0
Accelerator quality controls	None	48.1
	Daily	38.5
	Weekly	36.8
	Monthly	32.6
	Semi-annual	24.3
	Annual	18.8
Activities other than treatment plan calculation	Feedback committee	82.0
	Supervision of interns	76.6
	Service projects	76.2
	Image registration	75.3
	Patient quality controls	54.4
	Other	9.6
	Radiation protection expert	3.8
	Quality management	2.5
	Organs at risks contouring	1.7

nition, dosimetrists' salaries often depend on the status of their original training, the institutions that employ them and their interest in the profession.

The dosimetrist population is experienced: most of them had more than 5 years of experience and were aged between 30 and 50. Given the constant evolution of their field of activity and the growing demand

Table 4
Results of a survey on the radiotherapy dosimetrist workforce in France: diplomas, payslip status, and salary grids of dosimetrists.

Responses	%
Diplomas held	
Dosimétrie et radioprotections médicales (Dora, medical dosimetry and radiation protection) bachelor of science	70.2
Validation of acquired experience	13.5
University diploma	10.4
Certificate of dosimetry training in Grenoble	4.5
Société française de physique médicale (SFPM, the French society of medical physics) training	0.7
Other	0.7
Payslip status	
Dosimetrist	35.1
Technician	29.7
Radiotherapy technologist	27.7
Radiotherapy technologist with a specialty (all combined)	4.2
Non-managerial supervisor	1.7
Engineer	0.4
Policy officer	0.4
Physics assistant	0.4
Other	0.4
Salary grids	
Unspecified	30.0
Radiotherapy technologist pay grid without salary revaluation	26.0
Radiotherapy technologist pay grid with salary revaluation	14.0
Radiotherapy technologist pay grid with bonus	10.0
Pay grid for technicians without salary revaluation	8.0
Pay grid for technicians with bonus	8.0
Pay grid for technicians with salary revaluation	5.0

Table 5
Results of a survey on the radiotherapy dosimetrist workforce in France: interest in a dosimetrist discussion group, involvement and communication (n = 239).

Opinion on the creation of a dosimetrist discussion group in France	
In favour	88 %
Not interested	12 %
Preferred medium of communication	
WhatsApp	69 %
Facebook	44 %
Type of involvement	
Donating time	56 %
Financial	19 %
Currently unable to get involved	39 %

for quality and safety of care, it is surprising that these professionals do not work according to clearly defined and regulated training, skills and activity standards. This situation could lead to demotivation, as indicated in a section of the 2011 report from the Institut de radioprotection et de sûreté nucléaire (IRSN, the French institute for radiation protection and nuclear safety), which already warned about the situation of dosimetrists [18].

The low number of staff per clinical facility (74 % of teams have fewer than four full-time dosimetrists) undoubtedly explains the difficulty in gaining recognition for many dosimetrists in their work place. Unlike the situation observed in the United States and Canada (the AAMD association is also open to Canadian dosimetrists), attempts by the authorities and expert societies to organize the profession in France have been so far unsuccessful. However, the need for recognition continues to grow among these professionals, due to the increase in their skills and associated responsibilities. In France, several written questions to the government have raised the issue of the profession through meetings with members of parliament in recent years as part of individual initiatives [14,15]. To date, no government response has been provided.

The risk is that this profession will end up in the same current situation as that of radiotherapy technologists. Le Tallec et al. pointed out that the radiotherapy technologist profession has lacked attractiveness and professional recognition for several years [19]. Their study proposed two interesting approaches for resolving these problems: (i) given the increase in tasks delegated to radiotherapy technologists, the need to establish local or national cooperation protocols; these documents serve to describe in a regulatory manner the activities or acts of care transferred from one health professional to another; (ii) the establishment of a framework for radiotherapy technologists in advanced practice. The objective is to recognize the expertise of radiotherapy technologists when they perform tasks outside their scope of activities (image-guided radiotherapy, delineation of organs at risk, etc.). In order to take into account the developments inherent in technical and technological advances, the approaches proposed by the authors of the study could be interesting for the dosimetrist profession. However, the low number of professionals in France and the absence of a legal framework of skills will make it more difficult for dosimetrists to implement this type of action.

A concrete example of an evolution that could be the subject of a cooperation protocol is the investment by the majority of centres in task automation tools, some of which are based on artificial intelligence (automatic contouring software, creation of scripts for the automation of repetitive tasks, automated planning, etc.), which has considerably changed daily practices and raises questions about the role of the various actors in the services, particularly dosimetrists. In AAMD Technical Report No. 6, dosimetrists interviewed on the subject stated that the workload had not decreased with the arrival of artificial intelligence, but that it had become more oriented towards the examination of its results and the possibility of improving them [20]. Petragallo et al. also addressed this issue, identifying barriers and facilitators to the adoption of automated systems among dosimetrists [21]. The survey was conducted among US dosimetrists between 2020 and 2021. One of the main points raised was the fear that automation would make their work less satisfying and less safe. The authors therefore highlighted the need to change this negative perception by paying more attention to the role of the dosimetrist as these technologies become more widespread in centres.

In an effort to anticipate the staffing needs of American dosimetrists for the coming years, the AAMD study predicted a shortage of more than 400 dosimetrists by 2035 [20]. This estimate takes into account, in particular, the continued increase in the incidence of cancer, expected to be around 40 % compared to today [22]. No such work has been carried out for French dosimetrists. On the other hand, in 2023 the results of a study regarding radiotherapy technologists could provide indications on the consequences of a shortage in the recruitment of one of the key professionals in the overall care of a patient in radiotherapy [23]. The study showed that the difficulty in recruiting radiotherapy technologists had a significant impact on oncology-radiotherapy care. Citing them, the authors drew the following conclusion: “This survey shows a significant impact of the lack of recruitment of Radiation Therapy Technologists on oncology-radiotherapy care (delays in treatment, access to time for caregiver support, workload on treatment teams), and represents a major obstacle to the development of radiotherapy structures”. Today, dosimetrists are, without a doubt, also one of the key elements in the overall care of radiotherapy patients.

The present survey is a first step towards recognition of the dosimetrist profession. Other surveys could address topics not covered in this document. The question of salary, for example, was raised but could not be addressed, despite its importance. While the participation rate was interesting, a longer data collection period could have improved this score. As this profession is not represented by a professional organization, it was not possible to individually contact every dosimetrist practicing in France. The creation of an email address book could improve this point.

The survey helped creating a link between dosimetrists. The need to make their demands heard and regularize their status resulted in a massive enrolment in a WhatsApp communication group that now has around 400 members. A group of committed volunteers was then formed to represent professionals in dealing with institutions, with the support of the SFPM. This mobilization helped relaunch the dosimetrists section within the scientific society.

5. Conclusions

To our knowledge, this is the first survey to provide a general profile of the dosimetrist profession in France. The quantitative results presented in this document identify where they work, their numbers, their demographic characteristics, the tasks they perform, their training, and their status within their workplace. The survey also highlighted their clear desire to have their profession recognized by public institutions. This recognition is an essential condition for meeting the growing demand for quality and safety in radiotherapy care. This document aims to provide quantified indicators that can guide actions or decisions in favour of the recognition of one of the key players in patient care in radiotherapy.

Author contributions

E.F., N.H.: conceptualization, formal analysis, investigation, methodology, validation, writing – original draft, review and editing; L.P.: methodology, validation, writing – original draft, review and editing; A.H.H.: formal analysis, methodology, validation, supervision, validation, writing – original draft, review and editing.

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Disclosure of interest

The authors declare that they have no competing interest.

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Appendix A. Supplementary data

The French version of this article can be found, in the online version as supplementary material, at doi:10.1016/j.canrad.2026.104856.

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