

Current State of Affairs with Regard to Continuing Medical Education for Technicians in Radiology in Francophone West Africa

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Abstract

Background: This study aimed to determine the level of continuing medical education (CME) of medical imaging technicians in French-speaking West Africa. **Materials and methods:** This opinion survey was administered to radiology technicians in French-speaking West Africa from 1st June to 31st October 2020, *i.e.* over a period of 5 months concerning their level of CME and their need for CME. **Results:** Out of 100 technicians, 69% were men. The mean age was 40 years, with extremes ranging from age 23 to age 57. The majority of technicians (64%) worked in the public sector and 78% had work experience of less than 11 years. Most technicians were holders of a Bachelor's degree (73%). The types of CMEs they knew were congresses, seminars, and modular training in 46% of the cases. The most available CMEs were seminars (63%). All technicians agreed on the need for CME and 96% said it had an impact on the delivery of radiology services. Technicians who had received CME at least once represented 61%. For 90% of technicians, the specific CME sought was management in radiology (33.33%) and radiation protection (25.81%). **Conclusion:** The need for CME is increasingly indisputable to radiology technicians in French-speaking West Africa; however, it remains a luxury for them, due to its scarcity and its high cost.

Keywords

Continuing Medical Education, Technicians, Radiology, French-Speaking West Africa

1. Introduction

Continuing professional development is a learning process that helps professionals in various fields to acquire new skills during their working life with the aim of returning to or maintaining employment and in order to secure or optimize career paths [1]. It is the most important way to adapt the professional behavior of health workers to current needs or to take into account current trends. This is all the more true in medical imaging where technological advances are permanent, disrupting the techniques and protocols in this field [2]. The medical imaging technician must adapt by relying on solid fundamental knowledge, from which he must constantly adapt his practice, develop and broaden his skills [3]. A study in New Zealand found that 84% to 93% of technicians agreed to acquire new knowledge in medical imaging [4]. In Africa, few studies have been devoted to CMEs of radiology and medical imaging technicians. A study in Togo on the state of play of continuing education for radiology technicians reported that 90.38% of technicians found initial training insufficient and all technicians affirmed the need for continuing education with a preference for training leading to a diploma [5]. Based on this observation, it seemed necessary to us to extend this study to several African countries with the general objective of determining the level of CME of medical imaging technicians in French-speaking West Africa.

2. Materials and Methods

2.1. Type and Period of Study

Our survey was conducted in 6 French-speaking West African countries (Benin, Burkina-Faso, Côte d'Ivoire, Niger, Senegal, and Togo). This was an opinion survey carried out from 1st June to 31st October 2020, over a period of 5 months.

2.2. Study Site

The study took place in the medical imaging department of French-speaking West Africa.

2.3. Methods

We included in the study radiology and medical imaging technicians working in French-speaking West Africa. We designed the questionnaire in two formats, namely a physical copy and a digital copy via Google Forms, in order to collect the opinions of radiology technicians in French-speaking West Africa on the current state of affairs with regard to their continuing education. We first assessed the validity of the questionnaires before submission to the technicians.

2.4. Main Variables

The questionnaire requested for the following information: general characteristics (age, gender, country of practice, sector of activity, professional practice) and specific characteristics (technician training, advice on continuing training

and its impact on care of the patient, participation in continuing training, accessibility to training, financing of training, job prospects).

2.5. Data Collection

We selected the participants by referring to the database of the association of radiology technicians of French-speaking Sub-Saharan Africa. The sample size was defined as 50% of the participants, with a margin of error of 10%.

We considered that the level of medical training was high when the technician had participated in more than 5 training sessions, medium when the technician had participated in between 2 and 5 training sessions, low when the technician had participated in less than 2 training sessions.

2.6. Statistical Analysis

The results were recorded and presented using Excel and Word software from the 2016 office pack and processed by Epi Info version 7.2 software. Bibliographic references were generated with Zotero software. The anonymity and confidentiality of information have been respected.

3. Results

3.1. General Characteristics

A total of 100 technicians were included in the study. The mean age was 40, with extremes ranging from age 23 to age 57. Males represented 69% (n = 69) with a male/female ratio of 2.22:1. Technicians with less than 11 years of professional experience constituted 78%.

3.2. Country of Practice

Technicians working in Togo represented 36% (**Figure 1**).

3.3. Business Sector

Technicians in the public sector represented 64%, as compared to 29% for the private sector (**Figure 2**).

3.4. Opinion on CME

Technicians estimated that CME was necessary in 57% of cases (n = 57) and absolutely essential in 43% of cases (n = 43).

3.5. Knowledge about Types of CME

The types of CME that technicians knew about were congresses, seminars and modular training in 46% of cases (**Figure 3**).

3.6. Types of CME Available

Seminars were the most readily available CME according to 63% (n = 63) of technicians (**Figure 4**).

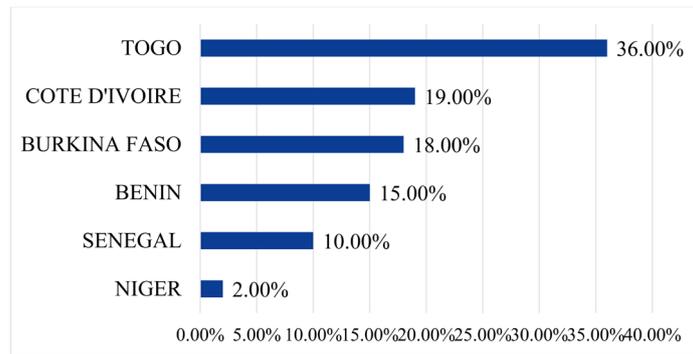


Figure 1. Distribution of technicians by country of practice.

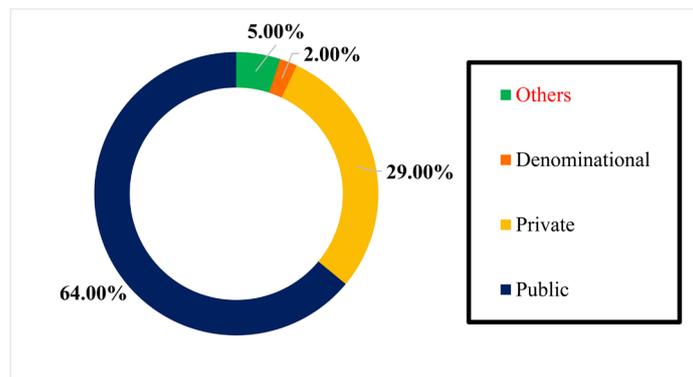


Figure 2. Distribution of technicians by business sector.

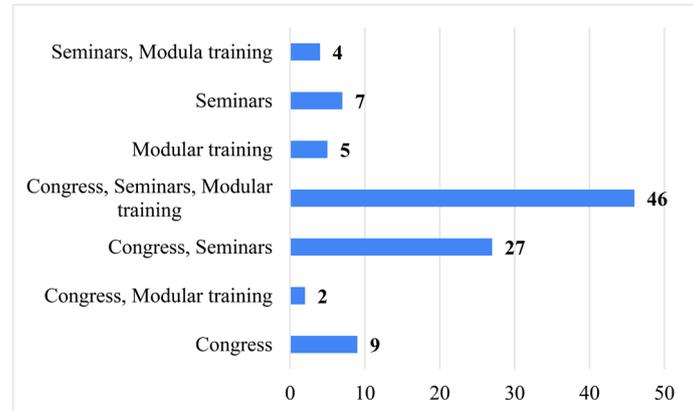


Figure 3. Distribution of technicians according to knowledge of types of CME.

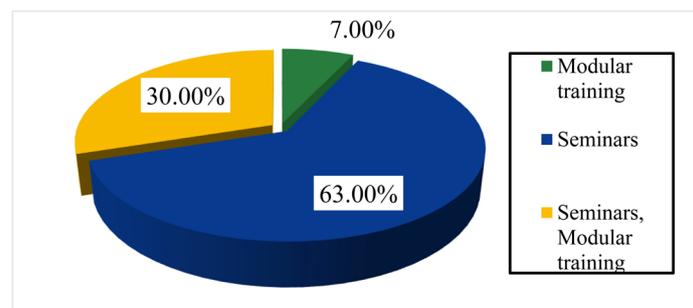


Figure 4. Type of CME available.

3.7. Need to Do CME after Initial Training

Among the technicians, 48% (n = 48) felt it was necessary to do CME after the initial training while 52% (n = 52) believed there was no need for it.

3.8. Participation in a CME

61% (n = 61) of technicians had received continuing education after graduation. Among the technicians, 9% had a high level of continuing education, 26% had a medium level and 65% had a low level.

The types of CME they received were dominated by congresses (26%) (Figure 5).

Their goal for participating in CME was to improve their skills for 55.22% (n = 34) of them (Figure 6).

3.9. Funding of Continuing Education

Funding of continuing education was totally the responsibility of 24% (n = 24) of technicians, fully funded by the institution in 11% (n = 11) of cases and partially funded by the institution for 26% (n = 26) of technicians.

3.10. Accessibility to Continuing Education

Access to continuing education was difficult for 84% (n = 84) of technicians.

Among technicians, 90% (n = 90) felt that CME was necessary to specialize. Among them, 33.33% would like to benefit from management training in radiology and medical imaging, and 25.81% would like training in radiation protection (Figure 7).

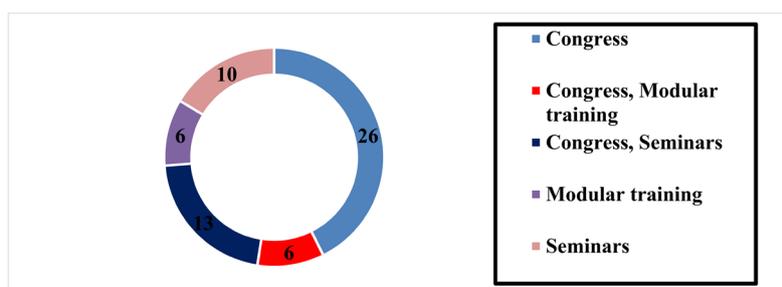


Figure 5. Type of continuing training followed by technicians.

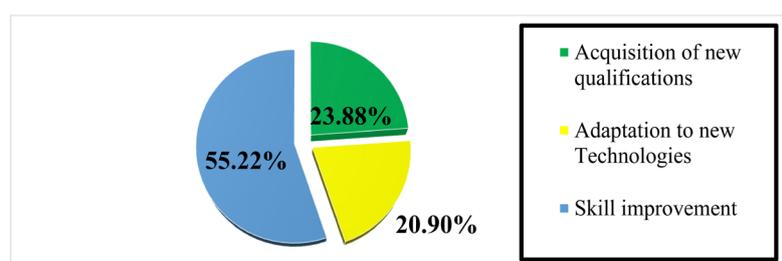


Figure 6. Distribution of technicians according to motivation for continuing education.

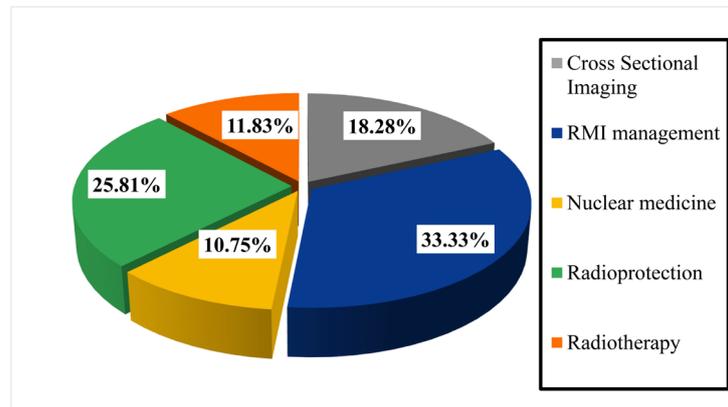


Figure 7. Distribution of technicians according to the type of continuing education desired.

4. Discussion

Our study was an opinion survey on the current state of affairs of continuing medical education (CME) for technicians from 7 countries in French-speaking West Africa. We collected the opinions of 100 technicians, 64% of whom worked in the public sector. We used two channels (electronic and physical) to reach our target population. These two routes are perfectly compatible with the research protocols in medicine, allowing us to achieve the objectives of our study.

Nevertheless, we noted two limitations. The first relates to the very small number of participants in some countries, which prevents us from generalising the results obtained. The second limitation has to do with the electronic method used, which not only could mislead some employees when filling in the questionnaire, but also did not allow us to have access to employees who do not have electronic devices (computer, tablets, smartphones).

The uniqueness of our study lies in the fact that it is one of the very first to be carried out in French-speaking West Africa on the state of play of continuing education for technicians in radiology and medical imaging.

The mean age of technicians was 40 years and there was a predominance of men (male/female ratio of 2.22:1). In the study by Yelder *et al.* [4], 85.3% of technicians were between 30 and 59 years old, with a predominance of women (83.2%) and the majority working in public radiology departments (67%). The predominance of the public sector could be explained by the fact that it is the largest employer of health care personnel including radiology technicians in Africa as well as in developed countries.

4.1. Participation in Continuing Education

All the technicians in our study had recognized the importance of CME to better practice the profession of radiology and medical imaging technician. Thus for radiology technicians, CME is an essential factor of development and progress in order to maintain a standard of competency necessary to adapt to the demands of the profession. 61% of technicians had already participated in a CME, reflect-

ing their desire for continuing education, which is noteworthy since radiology is a constantly evolving field. In the study by Yelder *et al.* [4], 27% of technicians had advanced knowledge in radiology, of which the majority (88%) had received CME in New Zealand and 12% in the United Kingdom, and 81% of them had a background in ultrasound.

Despite the willingness of most technicians to participate in a CME, it was observed that access to CME remains difficult according to 84% (n = 84) of them. This is due to the lack of financial means and the non-availability of CME. In our study, continuing education was fully funded by 24% of technicians themselves, and partially funded by 26% of technicians. These results could be explained by the absence of a scheme set up by institutions to care for the CME of technicians. This forces technicians to go for training at their own expense. The study by Yelder *et al.* [4] also highlighted the lack of financial resources as an impediment on CME for technicians.

4.2. Continuing Education and Job Prospects

Need for Specific Continuing Education

During our study, 90% of technicians expressed the need to undergo continuing training. Thus, it is obvious that continuing training is necessary to equip technicians with skills needed to cope with the constant evolution of technology, computer science, as well as the computerization and digitization of radiological equipment. In our study, management in radiology and medical imaging together with training in radiation protection were the most desired fields for CME. According to Bengana [6], concerning the administrative field, the “Diplôme universitaire de management en imagerie médicale libérale” (University diploma in management of private practice medical imaging) will enable the technician to integrate or be an administrative head of an imaging department. According to him, the new role of the medical imaging technician will take several forms. These include: acquisition of specific medical training in ultrasound in order to offset the deficit in patient contact time, specialization in cross-sectional image processing for vascular reconstructions or virtual navigation, acting as a network manager who would be in charge of the maintenance of the RIS (radiological information system) and the PACS (picture archiving and communication system), would manage access authorizations and would be the contact person for IT suppliers. Other responsibilities include management of the risk of exposure of personnel and patients to radiation under the direction of a radiation protection officer (RPO), considering that the constraints in terms of X-ray monitoring are becoming increasingly burdensome. According to Dillenseger [7], the specializations to which technicians aspire are numerous and varied, including ultrasonography, dosimetry, interventional radiology, quality control in electro-radiology, network management in electro-radiology, research associate in electro-radiology, etc. There are genuine needs that have to be met in all these fields. However, until 2015, specialization in electro-radiology was available online only. Indeed, in the absence of academic and statutory recognition, spe-

cialization does not exist.

5. Conclusion

Continuing education has become more than a necessity and an obligation for health care workers in general and for radiology and medical imaging technicians in particular in the face of increasing progress in technology. All technicians agree on the importance of CME. Unfortunately, the lack of financial resources and the non-availability of most types of CME make continuing medical education inaccessible.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Survey Form

Please, we are entreating you to complete a questionnaire which will take you just about ten minutes and which is of course completely anonymous. The data collected will be used exclusively for this study.

There are no right or wrong answers to the following questions; only your opinion matters to us in order to better evaluate the answers.

Thank you for your participation.

Instruction: Tick the corresponding answer box then fill in the spaces reserved for open questions.

- 1) Age.....
- 2) Sex
 - Male
 - Female
- 3) Certificate
 - TSRIM
 - IIRIM
- 4) Nationality.....
- 5) In what year did you complete your training?.....
- 6) In which institution do you work?
 - Public
 - Private
 - Denominational
 - Others (indicate).....
- 7) Did you start practicing right at the end of your training?

.....

.....

.....
- 8) Do you think that your initial training is sufficient to practice your profession?
 - Yes
 - No
- 9) What do you think of continuing education?
 - Absolutely essential
 - Necessary
 - Not necessary
- 10) What are the different types of continuing education that you know?
 - Congress
 - Seminars
 - Modular training
 - Other (indicate).....
- 11) Do you think that it is necessary to do continuing education after the initial training?
 - Yes
 - No

12) In your opinion, does continuing education have an impact on the delivery of RMI (radiology and medical imaging) services?

Yes

No

13) In your opinion, does continuing education contribute to improvement in patient care?

Yes

No

14) Have you done any since you graduated?

Yes

No

15) If yes, what type of continuing education?

Congress

Seminar

Modular training

Other (indicate)

16) If yes, which country?

Togo

Africa (indicate the country)

Europe (indicate the country)

Other (indicate)

17) If yes, how did you finance this continuing education?

Financed by myself

Fully financed by institution

Partially financed by institution

Other (indicate)

18) Is it easy to have access to continuing education?

Yes

No

19) If no, why?

Non-availability of continuing education in this country

Lack of financial resources

Employer's refusal

Others (indicate)

20) Is there a budget for continuing education in your institution?

Yes

No

21) If yes, what is the contribution of your health facility to continuing education?

.....
.....
.....