



Residents' Perception of Postgraduate Radiology Training in Nigeria

Résidents Perception de la formation postdoctorale en radiologie Nigeria

A. A. Adeyekun

ABSTRACT

BACKGROUND: Literature on radiology residency in Nigeria is sparse, even for decades after its commencement. There is therefore the need to inquire into the problems and prospects of the programme, at least from the perspectives of the residents.

OBJECTIVE: To determine residents' perception of the radiology residency programme, residents' view on state of facilities, and their opinion on the future of radiology training in Nigeria.

METHODS: Self-administered semi-structured questionnaires, were given to residents to complete. Contacts were made with residents during update courses and radiologists' conferences or meetings.

RESULTS: One hundred and twenty-five questionnaires were given out and 120 were completed and returned, giving a response rate of 96 %. Fifty-eight (48%) respondents mentioned academic interest as the major influencing factor for enrolling into the programme. Only 20 (16%) residents had made up their minds to do radiology residency as medical students. All the residents identified conventional radiography and ultrasound as the only regularly functioning modalities in their centres, while 72 (60%) respondents mentioned same for cross sectional imaging modalities; that is CT and MRI. One hundred and ten (90%) respondents had rotation through available modalities as the plank of their training programmes, and 96 (80%) did not feel happy about the state of teaching aids at their centres. Ninety-six (80%) of the residents expressed satisfaction at the efforts of the supervisory postgraduate medical colleges at organising update courses. Eighty respondents (65%) mentioned limited (or lack of) exposure to modern imaging modalities as the greatest threat to the future of radiology residency in Nigeria.

CONCLUSION: Nigerian radiology residents are concerned about lack of modern imaging tools, facilities at their centres, as well as opportunities for exposure overseas, and the likely impact of these on their training and the future of the speciality in Nigeria. *WAJM 2010; 29(5): 314–317.*

Keywords: Radiology, Radiology Residency, Nigeria.

RÉSUMÉ

CONTEXTE: La littérature sur la résidence en radiologie au Nigeria sont rares, voire des décennies après son commencement. Il ya donc la nécessité d'enquêter sur les problèmes et les perspectives du programme, du moins du point de vue des résidents.

OBJECTIF: Pour déterminer la perception des résidents du programme de résidence en radiologie, vue des résidents sur l'état des installations, et leur opinion sur l'avenir de la formation en radiologie au Nigeria.

MÉTHODES: questionnaires auto-administrés semi-structurés, ont été donnés aux résidents à remplir. Contacts ont été pris avec les résidents pendant les cours et conférences mise à jour des radiologistes ou des réunions.

RÉSULTATS: Cent vingt-cinq questionnaires ont été distribués et 120 ont été remplis et retournés, soit un taux de réponse de 96%. Cinquante-huit personnes interrogées (48%) ont mentionné l'intérêt académique comme le facteur influençant majeur pour l'inscription dans le programme. Seuls 20 (16%) des résidents ont fait leur choix de faire de résidence en radiologie que les étudiants en médecine. Tous les résidents identifié la radiographie conventionnelle et l'échographie que les modalités de fonctionnement seulement régulièrement dans leurs centres, tandis que 72 (60%) répondants ont mentionné de même pour la Croix modalités d'imagerie en coupe, c'est-CT et IRM. Cent dix (90%) des répondants avaient de rotation grâce à des modalités disponibles que la planche de leurs programmes de formation, et 96 (80%) ne se sentait pas heureux de l'état des outils pédagogiques dans leurs centres. Quarante-vingt-six (80%) des résidents ont exprimé leur satisfaction devant les efforts de la surveillance post-universitaire des universités de médecine à l'organisation de cours de mise à jour. Quarante-vingts personnes interrogées (65%) ont mentionné limitée (ou l'absence de) l'exposition à des modalités d'imagerie moderne, comme la plus grande menace pour l'avenir de résidence en radiologie au Nigeria.

CONCLUSION: les résidents en radiologie du Nigeria sont préoccupés par le manque d'outils d'imagerie modernes, des installations à leur centre, ainsi que les occasions d'exposition à l'étranger, et l'impact probable de ces sur leur formation et l'avenir de la spécialité au Nigeria. *WAJM 2010; 29 (5): 314–317.*

Mots-clés: radiologie, de résidence en radiologie, Nigeria.

INTRODUCTION

The future of radiology as a rapidly growing and technologically advancing specialty rests mainly on the continued production of specialist radiologists.¹ The 'engine room' for this is the residency programme. It stands to reason, therefore, that the quality of the residency programme has a direct bearing on the quality of specialists that it can produce.² Vital components of such training programme include the radiology residents. Thus it is important to regularly 'feel the pulse' of residents in order to identify their perceptions and attitudes towards their training. In particular information about available facilities for training, library facilities, archiving systems, curricula, and possible concern over the future of the specialty should be sought. When this is done, their level of satisfaction or dissatisfaction can be assessed. Thus changes that can improve their training can be proffered and ultimately implemented.

Radiology residency programmes are available in about 14 accredited centres across Nigeria. In most centres, entry into the programme is based on passing the primary fellowship examination. The programme usually lasts for five years. After two years of junior residency, a trainee is expected to sit for the Part I fellowship examination and, after the next two and half years, as a senior resident, the Part II or final fellowship examination. All programmes are based in government/public tertiary care centres. No private or non-governmental programme exists.

While radiology residency training commenced in Nigeria over three decades ago,³ literature remains very sparse on the subject, especially the aspects of residents' impression of their training. This, therefore, is the rationale for the present study.

SUBJECTS, MATERIALS, AND METHODS

One hundred and twenty five semi-structured questionnaires were distributed to residents during update courses and conferences. Only residents who had spent more than 12 months in a programme were included in the study. Prior to its administration, face validation

was used to assess the questionnaire and confirmation of validity was given by a clinical psychologist involved in research. The following areas were covered in each questionnaire; the period already spent in the programme, major influence for choosing radiology and the time in their medical career when the choice was made. Information was also sought about availability and functionality of facilities at the training centres, the curriculum, as well as the teaching and archiving systems. Questions were asked about quality of teaching/instruction, consultants/residents interaction and the roles of the regulatory postgraduate colleges. The questionnaire also sought to know their concerns (if any) about the future of radiology residency in Nigeria. An explanation of the aims of the study was made and assurance of confidentiality given.

The responses were collated and analysed. Answers were assigned as positive or negative and where applicable, consensus was worked out. No particular statistical package was employed. Simple, descriptive statistics and use of tables and were used in the analysis of results.

RESULTS

One hundred and twenty completed and returned questionnaires were analysed; giving a response rate of 96%. Sixty (50%) residents were within the age range 31–35 years and the sex ratio was 2.7:1 (M: F). Senior residents (over two years in training) constituted 46 (32%) respondents, while 74 (61%) respondents were junior residents.

Influence for Choosing Radiology Residency

Fifty-eight 48% of the respondents came into radiology in order to pursue academic careers in the future; as shown in Table 1. Only six (5%) were influenced by senior (practising) radiologists. Ten (8.3%) residents had switched from one training institution to another.

Period when decision to specialise in radiology was taken

Eighty (66%) respondents took the decision to train in radiology after leaving medical school. Only 20 (16%) residents took such decision as undergraduate medical students.

Equipment availability and functionality

All 120 respondents claimed conventional radiographic and ultrasound equipments were available and functional in their centres. However, only 72 (60%) residents mentioned the same for cross sectional imaging modalities like Computed Topography and Magnetic Resonance Imaging.

Curriculum

Table 1 shows curriculum and teaching methods/aids as listed by the residents. One hundred and ten (90%) residents, mentioned clinical rotation through the available modalities as the major plank of their departmental curriculum, while 60 (50%) respondents engaged in any form of research activity. Thirty-six (33%) residents were involved in sleep in call-duty. Eighty (60%) respondents, had a film based (hard copy) teaching archive in their centres. Only 10 (9.4%) residents considered library facilities at their centres as 'good'. Film review sessions and seminars featured regularly in the departmental activities of all the respondents.

Ninety six (80%) respondents, were not happy with the state of teaching facilities at their centres. One hundred and sixteen (96.6%) believed they had enough 'hands on experience' in their programmes and 70 (58%) respondents, believed the level of interaction between residents and their consultants was good.

Role of the Supervisory Postgraduate Medical Colleges

Ninety-six (83%) residents were satisfied with the regularity and organisation of course updates conducted by the colleges. However, only 28 (25%) respondents felt satisfied with the level of supervision carried out by the colleges on the training centres. Sixty (50%) residents would want the postgraduate medical colleges to arrange short-term (supplementary) courses in Europe and North America to make training more meaningful.

Future of Radiology Residency in Nigeria

Eighty (66%) residents mentioned limited exposure to advanced/modern imaging methods as the greatest threat to the future of radiology training in Nigeria.

Table 1: Distribution of Responses by Questionnaire Items

Item	Frequency N(%)
Major influence for choosing Radiology Residency	
Professional/Academic	58(48.0)
Specialisation	50(42.0)
Others	12(10.0)
Total	120(100.0)
Available Facilities at Training Centres	
Plain Radiography	120(100.0)
Fluoroscopy	78(65.0)
Angiography	08(6.6)
CT	60(50.0)
Ultrasound	120(100.0)
MRI	12(10.0)
Curriculum Content	
Rotation through modalities	110(91.6)
Research opportunities	60(50.0)
Sponsorship for updates/conferences	74(61.0)
Sleep-In/Call Duty	36(30.0)
Teaching Methods	
Film Review Session	120(100.0)
Slide Projection/Audiovisuals	76(63.3)
Departmental Seminars	110(91.6)
Clinicoradiologic Meetings	96(80.0)

Twenty-four (25%) residents saw high failure rate at Board exams as portending danger for radiology residency. Only 10 (8.3%) residents "regretted" enrolling into the programme.

DISCUSSION

Postgraduate training in radiology commenced in Nigeria over thirty years ago with the establishment of the Nigerian National Postgraduate Medical College and the West African Postgraduate Medical College.^{3,4} It is worthy of note, however, that till date there are no studies assessing the perception of residents' about their training. The excellent response rate in this study nevertheless shows the enthusiasm of Nigerian radiology residents in contributing to measures that would improve the residency programme.

The gender ratio in this study was disproportionately (three times) in favour of males. This reflects a similar finding in an American study.⁵ A possible explanation for this is misconceived impression, in our environment, that the slightest exposure to ionising radiation may adversely affect a woman's reproductive life.⁶

Period of Choice of Radiology Residency and Major influence for the Choice

Only twenty (16%) of the residents chose radiology specialty from their medical school years, thus supporting earlier study among Nigerian medical undergraduates,⁷ in which a similar low percentage indicated willingness to embrace radiology on completion of their studies. Lack of mentoring probably plays a role in this regard, as reflected in this study where only six (5%) of the residents were influenced into the specialty by practicing radiologists. Maniero had highlighted the positive role mentoring plays in the development of successful radiologists.⁸ This should be seen as a further wake up call to stimulate the interest of radiology among medical students in developing countries. The specialty should no longer be seen as a "fall back" option when entry into other specialization programmes become unsuccessful. Good medical student teaching may also help in improving these attitudes, as was reported in an American study.⁹

Availability and Functionality of Equipment

The generally poor state of facilities (for teaching, learning and archiving) deserves a mention. Only 60% of respondents admitted that cross sectional imaging modalities (CT & MRT) were available and functional in their centres. Without updating these facilities, the quality of the programmes would become compromised and it becomes more difficult to attract 'would be' residents. There is thus the urgent need for improved funding, in order to improve these facilities.

Curriculum

The curriculum of the training programmes needs to be addressed. For

most of the residents, rotation through the available modalities and film review sessions seem to be the only regular activities at their centres. The quality of teaching did not seem to impress the residents, with only 12 survey respondents or 20% expressing satisfaction with the quality of teaching they receive. This probably has to do with the twin problems of inadequate manpower and teaching aids, again reflected in the finding of only 23 residents or 20% of respondents expressing satisfaction with level of teaching received at their centres. Research does not feature in the routine activities of over half of the residents. It has been postulated that residents who don't participate in research during their training may never play any role as scientific investigators. They devote more time to learning only clinical radiology and in particular passing their board examinations.¹ Thus there is the need to place more emphasis on developing the research capabilities of these residents. It is necessary to involve more residents in on-call duties from the present low level of 33% as studies have shown the acceptability and usefulness of call duties to residents especially when introduced after twelve months of commencement of training.^{10,11}

Role of the Postgraduate Medical Colleges

Residents expressed satisfaction with the number and frequency of update courses organised by the boards/postgraduate colleges. They were however unhappy with the supervisory role of the colleges over the training centres. This probably has to do with provision of equipment and instructional materials. For example modern archiving/instructional materials like PACS are generally non-existent in Nigerian postgraduate radiology centres, inspite of the recognition of such as beneficial in instructional radiology by reports from the United States.¹² Library facilities are generally very poor; a situation reflected in the finding that only 10% of the respondents were satisfied with the state of library facilities at their centres.

Future of Radiology Residency in Nigeria

The residents' worry over the future of radiology residency in Nigeria deserves attention. There is the urgent need to restore the 'one year abroad' programme, whereby senior residents enjoyed at least 12 months government sponsorship for further training and deepening of knowledge in industrialized countries. Without serious efforts at improving health care funding, it will be impossible to adequately equip the training centres. The quality of the training programme is thus compromised and attracting new entrants becomes difficult. This may ultimately threaten the future of the specialty in the country. Apart from improving the quality of residency programme, provision of modern equipment has been shown to encourage a trend towards subspecialty training.¹³

Conclusion

Nigerian radiology residents feel the residency programme lacks adequate training and teaching facilities. Thus, there is need to improve and/or, upgrade facilities for training residents together with continuous exposure to advanced training methods overseas. The curricula

need to be revised regularly, to keep with modern standards. Regular interactions between the residents and consultants should be encouraged.

REFERENCES

1. Gundermann R B, Nyce J M, Steele J. Radiology Research: the residents' perspective. *Radiology* 2002; **223**: 308–10.
2. Howard WJ, Marter D, Bosshart D. Educational Objectives for Diagnostic Radiology Residency. *Invest Radiol*. 1986; **21**: 932–4.
3. Ohwovoriole AE, Obembe A. A review of the results of the examinations for Fellowship of the Nigerian Postgraduate Medical College (1972–1984). *Med Educ*. 1987; **21**: 250–4.
4. West African College of Surgeons. College History. <http://wacs-coac.org>. accessed 05.03.2010.
5. Baker SR, Barry M, Chaudhry H, Hubbi B. Women as radiologists: are there barriers to entry and advancement. *J Am Coll Radiol* 2006; **3**: 131–4.
6. Adeyekun AA, Ogunrin AO. Radiology rotation: attitudes and perspectives of students at the University of Benin Medical School. *Journal of Medicine and Biomedical Research* 2003; **2**: 64–9.
7. Adeyekun AA. A post rotation survey of medical students' attitude to radiology. *Afr J Med. Med Sci*. 2003; **32**: 405–7.
8. Mancero M B. Mentoring radiology residents; why, who, when and how? *J Am Coll Radiol* 2007; **4**: 547–50.
9. Gundermann R B, Alexander S, Jackson V P, Lane K A, Siddqui A R, Tarver R D. The value of good medical student teaching; increasing the number of radiology residency applicants. *Acad Radiol* 2000; **7**: 560–4.
10. McDonald J M, Berbaum K, Bennet D H, Mullan B. Radiology residency call: residents' perception of the on-call experience. *J Am Coll Radiol* 2006; **3**: 932–8.
11. Berger W G, Gibson S W, Krupinski E A, Morais J D. Proposed ACGME change in length of radiology residency training before independent call; results of a survey of programme directors and chief residents. *J Am Coll Radiol* 2007; **4**: 595–601.
12. Mullins M E, Menta A, Patel H, Mchond T C, Novelline R A. Impact of PACS in the education of radiology residents; the residents' perspective. *Acad Radiol* 2001; **8**: 67–73.
13. Shitty S K, Ventakessan A M, Foster K M, Galdino G M, Lawrimire T M, Darila J A. The radiology class of 2005: post-residency plans. *J Am Coll Radiol* 2005; **2**: 852–8.