Duration from Medical School Graduation to Commencement of Surgical Residency Training in Nigeria: Implication for Specialist Surgical Care

*** Nwashilli NJ**

**Department of Surgery, University of Benin Teaching Hospital, Benin City, Edo State*

ABSTRACT

Objective: The duration from medical school graduation to the commencement of surgical residency training determines the age the doctor will eventually qualify to become a consultant. The objective of the study was to determine if the duration from medical school graduation to commencement of surgical residency programme was prolonged.

Methods: The study was carried out at the integrated update course organized by the West African College of Surgeons which took place at University of Benin Teaching Hospital, Benin City in 2014. An informed consent was obtained from the respondents before commencement of the study. A semi-structured self-administered questionnaire was filled by consenting residents. Information requested from the Residents included age, gender, marital status, designation (Registrar/Senior Registrar), training center and duration from medical school graduation to commencement of Residency training. The collated information was analyzed using IBM SPSS version 21.

Results A total of 226 Surgical Residents registered for the Update Course were given the questionnaire to fill. One hundred and sixty-three Residents filled the questionnaire giving a response rate of 72%. There were 153 males and 10 females giving a ratio of 15: 1. The Registrars were 148 while Senior Registrars were 15. Over 70% of the respondents started surgical residency within five years from the time of medical school graduation.

Conclusion The duration from medical school graduation to commencement of surgical residency for majority of surgical residents was not prolonged.

Keywords Surgical Residents, duration from medical school graduation to Residency, Residency training

Correspondence
Dr Nnamdi Jude Nwashilli
Department of Surgery,
University of Benin Teaching Hospital,
Benin City, Edo State
Nigeria
E-mail: namoforever@yahoo.com
ORCID iD- 0000-0003-2714-8024

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INTRODUCTION

Surgical Residents in Nigeria are doctors undergoing specialist training in Surgery over a minimum duration of six years depending on the sub-specialty. Such a doctor must have completed one year of internship programme after graduation from an accredited medical school and fully registered with the Medical and Dental Council of Nigeria, had a mandatory one-year National Youth Service Corps (NYSC) programme or exempted from such, in addition to other criteria as may be stipulated by the postgraduate medical training institutions. It is expected that an aspiring surgical Resident should commence the residency programme once the criteria are met. This may not be the case as some factors may come to play to delay the start of the

programme. Unavailable slots in the various training institutions in the country is a major cause of delay in starting the programme. This is attributable to increased number of doctors aspiring to specialize in surgery with respect to the few available slots in training institutions. Accreditation and administrative problems of training institutions may contribute/hamper intake of surgical trainees. Individual factors may also contribute to the delay. These include not deciding early enough due to one problem or the other, or can be after thought-probably thinking of other specialties and later settling for surgery and failure to pass Primary Fellowship examination required for residency training.

The duration from medical school graduation to the commencement of surgical residency training is very important as it determines the age, the doctor will eventually qualify to become a specialist (consultant) and render service before retirement as well as availability of specialist in the country. Though there is no specific time when a doctor should commence the residency programme after graduation, for the purpose of this study, a period of more than five years is considered prolonged. This is because the Primary Fellowship examination required as one of the criteria for residency expires after five years. An average would-be surgical resident is likely to be in his 4^{th} decade of life (Six years in medical school, one year internship programme and mandatory one year NYSC programme totaling eight years). Additional six years for residency programme giving a total of 14 years. An average secondary school student at graduation is expected to be 18 years (six years before starting primary school, 12 years at completion and additional six years to complete secondary school). Addition of 14 and 18 gives 32 years required to study Medicine, undergo internship and mandatory national youth service. This may be higher in some situations of academic disruptions by industrial disputes in various academic institutions. Also, few more years may be spent trying to pass surgery Primary Fellowship examination; an important criterion for residency programme. To become a Consultant (specialist), an average doctor will be 32 years (32 + 6). If the would-be surgical resident spends more than five years after graduation from medical school before commencing residency programme, addition of more than five years to 32 years gives a total of 38 years or more.

In Nigeria, the civil service retirement age is 60 years. This means that the doctor can only render service as a specialist for a maximum of 28 years before retirement or less than 22 years if unduly delayed before starting residency. Furthermore, as a developing nation lacking in medical specialist care will impart on the number of available specialists to render care for the teeming population.

The objective of this study was to determine the duration from medical school graduation to commencement of residency training by surgical resident doctors in Nigeria, with a view to establishing if the duration is prolonged.

MATERIALS AND METHODS

The study was carried out at the integrated update course organized by the West African College of Surgeons which took place at University of Benin Teaching Hospital, Benin City between 1^{st}- 13^{th} of September 2014. The course was attended by surgical residents from different training centres in Nigeria. This afforded the opportunity to survey the opinion of the surgical residents from different parts of the country and training centres who attended the update course. An informed consent was obtained from the respondents before commencement of the study. A semi-structured self-administered questionnaire was filled by consenting residents. Information requested from the residents included age, gender, marital status, designation {Junior resident (Registrar)/Senior resident (Senior Registrar)}, training centre and time interval from medical school graduation to commencement of residency training. A time interval greater than five years from medical school graduation was considered prolonged for the purpose of this study. The collated information was analyzed using IBM SPSS version 21.0

RESULTS

A total of 226 Surgical Residents registered for the Update Course were given the questionnaire to fill. Surgical residents from 33 training centres in Nigeria participated in the update course. One hundred and sixty-three residents filled the questionnaire giving a response rate of 72%. The remaining 63 that did not fill or incompletely filled the questionnaire were excluded. There were 153(94%) males and 10(6%) females with male to female ratio of approximately 15: 1. One hundred and forty-eight (91%) were Registrars while 15(9%) were Senior Registrars. A total of 105(64%) were married while 58(36%) were single. The median duration for commencement of residency training is 2-5 years. Other results are in the Tables.

Table 1: Age distribution among surgical residents

Age (years)	Frequency (%)
20-29	24 (14.7)
30-39	118 (72.4)
40-49	20 (12.3)
50-59	1 (0.6)
Total	163 (100.0)

Table 2: Training centre and accredited slot among participating surgical residents in Nigeria

Training Centre	n (%)	Accredited Slot
University of Ilorin Teaching Hospital	15 (9.2)	51
University of Abuja Teaching Hospital, Gwagwalada	14 (8.6)	26
Jos University Teaching Hospital	11 (6.7)	48
University of Benin Teaching Hospital	10 (6.1)	46
Nnamdi Azikiwe University Teaching Hospital, Nnewi	9 (5.5)	30
Onabisi Onabanjo University teaching Hospital, Sagamu	9 (5.5)	15
Federal Teaching Hospital Abakaliki, Ebonyi	8 (4.9)	34
Ahmadu Bello University, Zaria	8 (4.9)	56
University College Hospital, Ibadan	8 (4.9)	70
National Orthopaedic Hospital, Igbobi, Lagos	7 (4.3)	17
Benue State University Teaching Hospital	5 (3.1)	19
Federal Medical Center, Lokoja	5 (3.1)	19
National Hospital, Abuja	5 (3.1)	39
Obafemi Awolowo University Teaching Hospital	5 (3.1)	70
University of Uyo Teaching Hospital	5 (3.1)	4
University of Nigeria Teaching Hospital	4 (2.4)	42
Lagos University Teaching Hospital, Idi-Araba	4 (2.4)	55
Usman Danfodio University Teaching Hospital	4 (2.4)	28
Federal Medical Center, Asaba	3 (1.8)	20
Federal Medical Center, Makurdi	3 (1.8)	13
Federal Teaching Hospital, Gombe	3 (1.8)	-
Aminu Kano Teaching Hospital, Kano	3 (1.8)	28
Federal Medical Center, Katsina	2 (1.2)	18
Federal Medical Center, Owo	2 (1.2)	19
Lagos State University Teaching Hospital, Ikeja	2 (1.2)	34
University of Port-Harcourt Teaching Hospital	2 (1.2)	31
National Orthopaedic Hospital, Kano	1 (0.6)	10
Federal Medical Center, Abeokuta	1 (0.6)	-
Federal Medical Center, Gombe	1 (0.6)	28
Federal Medical Center, Umuahia, Imo state	1 (0.6)	19
Irrua Specialist Teaching Hospital, Edo State	1 (0.6)	26
Ladoke Akintola University Teaching Hospital, Ogbomoso	1 (0.6)	22
University of Maiduguri Teaching Hospital	1 (0.6)	38
Total	163 (100.0)	

Table 3: Duration from medical school graduation to commencement of residency training

Duration (years)	Frequency (%)
< 2	6 (3.7)
2-5	115 (70.6)
> 5	38 (23.3)
Unfilled response	4 (2.5)
Total	163 (100.0)

Table 4: Comparing duration of commencement of residency, age and resident status

Duration (years)	Age (years)	Resident Status	
		Registrar	Senior Registrar
< 2	20-29= 3	3	-
	30-39= 3	3	-
2-5	20-29= 21	21	-
	30-39= 89	79	10
	40-49= 5	3	2
>5	30-39= 22	22	-
	40-49= 15	12	3
	50-59= 1	1	-
Total	159	144	15

Unfilled response to Duration = 4

Table 5: Choice of surgical specialty among surgical residents

Specialty	Frequency (%)
General Surgery	44 (27.0)
Urology	37 (22.7)
Orthopaedic	35 (21.5)
Neurosurgery	17 (10.4)
Plastic Surgery	14 (8.6)
Paediatric Surgery	12 (7.4)
Cardiothoracic Surgery	4 (2.5)
Total	163 (100)

DISCUSSION

Majority (72.4%) of the residents surveyed are in their 4th decade of life (Table 1). This is expected taking into consideration the number of years spent from primary to secondary school and university education in addition to one year of internship and NYSC each. In addition, delays in various universities due to industrial disputes, time spent to pass the surgery primary as well as to secure a slot in training institutions all add up to the age of a prospecting surgical trainee. Studies (Mayer et al., 2001; Wijnhoven et al., 2008) carried out in United States of America and Netherland on surgical trainees reported a similar age trend, but mostly in their early 4th decade.

Most of the residents (94%) were males while only 6% were females. female doctors tend to view surgery specialties as being stressful and may not augur well with their lifestyle and that of their families. This agrees with a study by Ojo et al. (2014) (3.4% females) on surgical trainees in Nigeria and a multinational study (Mc Murray et al 2002) carried out in Australia, England, Canada and United States of America that reported a lower number of female doctors (20% to 30%) in surgical training but differs from a study (Mayer et al., 2001) in United States of America where up to 22% of the surgical trainees are females and a study (Wijnhoven et al., 2008) in Netherland where almost one-third (28%) of the trainees were females. Barriers to females' choice of

surgery include perceived gender bias, discrimination experienced during training and lack of role models especially same gender during surgical training (Park et al., 2005). Addressing these problems by encouraging and motivating the female doctors to specialize in surgery will go a long way in increasing more females interest in specializing in surgery.

There were higher number of junior residents (74.9%) compared to the senior residents. Ojo et al. (2014) also reported similar higher number in their study of post-graduate surgical training in Nigeria. However, no reason was adduced for their high number. It takes minimum of two and half years as a junior resident to be eligible for part 1 Fellowship examination. It is after passing the examination that a resident is promoted to a senior resident. The examination is highly competitive and a rate limiting step towards becoming senior resident hence the fewer senior residents.

A total of 33 accredited training centres participated in this study (Table 2). These centres are distributed across the six geo-political zones of Nigeria. This ensured good spread and representation of the residents in various training centres hence a good reflection of the information obtained. Ojo et al. (2014) also carried out a study among surgical trainees in Nigeria capturing 16 academic training centres spread across the six geopolitical zones of Nigeria in order to achieve a good representation and true reflection of information obtained.

Majority (74.3%) of the residents started residency program within five years of graduation (Table 3). This shows signs of focus, determination and direction towards specialization immediately after medical school graduation. An average surgical resident understands the enormous tasks and challenges involved in surgical training hence the need to start early and remain focused throughout the training. A few years ago, the medical postgraduate training institutions in Nigeria pegged the viability of the primary examination to five years. This means that after five years of passing the primary Fellowship examination (pre-requisite for residency training) without commencing residency training, it can no longer be tenable for acceptance into residency programme. This is to help curb situation where after passing the primary, the doctor may set it aside and go into other private ventures, only to come back many years after to seek to commence residency programme. Such doctors tend to pose challenges during residency training with difficulty in coping with the training, having been away from academic training for a long time.

In foreign countries, the duration from graduation to commencement of residency programme is earlier than what is obtainable here in Nigeria. This can be understood from the point that different countries have different pathway entry into residency training. In Greece after graduation from medical school which last for six years, a one –year obligatory rural medical service (internship) is required before commencement of residency training that its duration lasts between 3-7years depending on the program/specialty (Resources office Aristotle University of Thessaloniki, 2016). Applicants into the programme are taken based on first-come, first-serve basis. This ensures orderliness and early start up of training by prospecting residents. In Australia, entry into specialist training occurs after completing one year of internship (post-graduate year 1 or PGY1), then for many training institutions, an additional year as a resident (PGY2 onwards) (Australian Medical Association, 2018). The training lengths can range from 3-7 years depending on the specialty. In Canada, some residency programs are direct entry (family medicine, dermatology, neurology, general surgery), meaning that Canadian medical graduates apply to these specialties directly from medical school. With this in place, such would-be residents are likely to secure slots early and commence residency training immediately upon medical school graduation. The reasons for the delay in commencement of residency training in Nigeria compared to foreign countries include few available slots in the various training institutions with respect to increased numbers of doctors aspiring to specialize in surgery, accreditation and administrative problems of training institutions, failure to pass primary examination required for residency training and individual factors like not deciding early enough on the specialty to go for. All these reasons singly or cumulatively add up to increase the age at which a prospecting resident will commence training and the age to become a specialist. Ultimately, this will reduce the years available for such a doctor to render service before attaining retirement age.

Majority 115 (72%) of the surgical residents started residency within 2-5 years from medical school graduation while only 6(4%) started residency in less than two years from graduation (Table 4). This can be understood from the point that a mandatory one year internship and a year of service to the nation (NYSC) are the pre-requisite for admission into

residency training. In addition, an aspiring resident must have passed the surgery primary before seeking for highly competitive few available slots in various accredited training centres. All these account for the majority of the residents falling into the 2-5 years duration category.

General surgery, Urology and Orthopaedics were the most common sub-specialty chosen by the residents while Cardiothoracic surgery was the least (Table 5). This agrees with the work of Alshahrani et al. (2014) which reported general surgery as one of the most preferred specialties among Saudi medical students and interns, though a few of them selected Urology and Orthopaedic surgery. Though the study was carried out among medical students and interns, these are potential residents and their responses may be a true reflection of the situation in the nearest future. However, Gelfend et al. (2002) reported a less interest in General surgery as a career choice. The reasons suggested included the perception that general surgery as a career choice has limited scope of specialty expertise and differential diagnostic skills are underemphasized (Gelfend et al., 2002).

CONCLUSION

This study showed that the duration from medical school graduation to commencement of surgical residency for majority of surgical residents was not prolonged as it was within age of five years defined in this study. However, it is longer than the duration for surgical residents in some foreign countries. I recommend similar studies in other subspecialties to ascertain the trend. Recommendation of increased retirement age for surgical specialist to ensure their availability to offer care and train residents should be considered.

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Conflict of interest

The authors declare that they have no conflicts of interest.

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