

## ORIGINAL ARTICLE

## Anaesthesia manpower need in Nigeria

Fidelis A ONYEKWULU<sup>1</sup>  
Arinze DG NWOSU<sup>2</sup>  
Virginus O AJUZIEOGU<sup>1</sup>

<sup>1</sup>Department of Anaesthesia  
Faculty of Medical Sciences  
College of Medicine, University of  
Nigeria Enugu Campus  
Enugu State, NIGERIA

<sup>2</sup>Department of Anaesthesia  
National Orthopaedic Hospital  
Enugu, Enugu State, NIGERIA

Author for Correspondence

Dr. FA ONYEKWULU  
Department of Anaesthesia  
University of Nigeria  
Teaching Hospital (UNTH)  
Enugu, NIGERIA

## Email:

faonyekwulu@yahoo.com

Phone: +234-806-564-7285

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## INTRODUCTION

Physician anaesthesia provider per 100,000 population is quite low in poor African nations when compared to Europe and North America.<sup>1,2,3</sup> Nigeria, with a population of over 167 million people (according to Nigerian population commission 2012) is no different.

However, anaesthesia as a specialty is not attractive to young medical graduates for various reasons including poor job satisfaction and lack of appreciation by

## ABSTRACT

**Aims:** To compare the anaesthesia and surgical manpower in four tertiary hospitals in Nigeria and assess the anaesthesia work load in those institutions; to determine the per capita anaesthetist manpower in Nigeria (anaesthesia providers per 100,000 population) and compare with what obtains in other regions of the world.

**Materials and Methods:** This is a multicentre study carried out in four tertiary hospitals in Nigeria between June 2011 and June 2012. The hospitals were University of Nigeria Teaching Hospital (UNTH) Enugu, National Orthopaedic Hospital Enugu (NOHE), University of Benin Teaching Hospital (UBTH) Benin and Jos University Teaching Hospital (JUTH) Jos. Data were collected from the records of the various hospital operative rooms and intensive care units (ICU).

**Results:** Our study revealed that the ratio of consultant anaesthetist to consultant surgeon was 1:6.6 in UBTH Benin, 1:7.9 in UNTH Enugu, 1:11.7 in JUTH Jos, and 1:9.5 in NOH Enugu. The ratio of resident doctors in training in anaesthesia to those of surgery was 1: 7.3 in UBTH, 1: 5.3 in UNTH: and 1:10.6 in JUTH. On the whole, there were a total of 100 anaesthetists to 767 surgeons (consultant plus resident doctors) in these four hospitals. The physician anaesthesia provider per 100,000 people in Nigeria was 0.113.

**Conclusion:** The per capita anaesthetist manpower in Nigeria is extremely low when compared to developed countries. Training institutions must ensure sufficient funding and recruitment into the training programme in order to develop the specialty and improve expertise.

**Keywords:** Hospital, physician, specialist, surgeons, tertiary, training

patients and sometimes, colleagues, of the worth of the anaesthetist. This is reflected in the employment quota granted by the various chief executives of our hospitals for residency training in the specialty. The residency training prepares doctors through a post-graduate scientific and professional apprenticeship for appointment as consultants.

We undertook this study to appraise the anaesthetic manpower situation in four tertiary hospitals in different parts of Nigeria

and compared them with what is obtained internationally.

#### METHODOLOGY

This is a multi-centre study carried out in four tertiary hospitals in Nigeria between June 2011 and June 2012. The hospitals were University of Nigeria Teaching Hospital (UNTH) Enugu, National Orthopaedic Hospital Enugu (NOHE), University of Benin Teaching Hospital (UBTH) Benin, and Jos University Teaching Hospital (JUTH) Jos.

Data were collected from the records of the various hospital operating rooms and intensive care units (ICU). While the personnel data was obtained from the various departments' nominal rolls.

Data obtained from each hospital included: total number of anaesthetists (consultants, senior registrars and registrars) and total number of surgeons (consultants, senior registrars and registrars).

**Exclusion Criteria:** Doctors who were on external posting outside their department during the period under consideration were excluded from the study. The staff disposition was as at June 2012. Resident doctors on rotation from the departments of surgery and obstetrics and gynaecology at the time of the study, were included. Other data obtained included total number of ICU admissions and total number of surgical operations in different sub-specialties.

Data on the total number of specialist physician anaesthetists were collected from the Medical and Dental Council of Nigeria (MDCN) and from personal information. Specialist physician anaesthetist included those with fellowship and diploma certificates of the National Postgraduate Medical College and West African College of Surgeons; and also, diploma from recognized institutions in Nigeria. The information obtained was considered to be best estimates as relocations and demise could not be effectively monitored. These data were analyzed with tables and charts, using Microsoft Excel 2011.

#### RESULTS

Our study revealed that the ratio of consultant anaesthetist: consultant surgeon was 1:6.6 in UBTH Benin, 1: 7.9 in UNTH Enugu, 1:11.7 in JUTH Jos, and 1:9.5 in NOHE (Table 1). The ratio of resident doctors in training in anaesthesia to that of surgery was 1: 7.3 in UBTH, 1: 5.3 in UNTH: and 1:10.6 in JUTH. The NOHE is not an accredited centre for residency training in anaesthesia, but during the period of study, four resident doctors from surgery were undergoing rotation in the department as part of their training.

Table 1. The staff strength of the various hospitals

	UBTH	UNTH	JUTH	NOHE	Total
<b>Consultants</b>					
Surgeon	66	79	47	19	211
Anaesthetist	10	10	4	2	26
<b>Residents</b>					
Surgeon	271	111	127	47	556
Anaesthetist	37	21	12	4	74

On the whole, there were a total of 100 anaesthetists to 767 surgeons (consultant plus resident doctors; Figure 1) in these four hospitals. This gave a ratio of 1:7.7. The ratio of consultant anaesthetists to resident doctors in anaesthesia was 1: 3.7 in UBTH, 1: 2.1 in UNTH, and 1: 3 in JUTH (Figure 2).

Figure 1. Bar chart showing the number of anaesthetists to surgeons

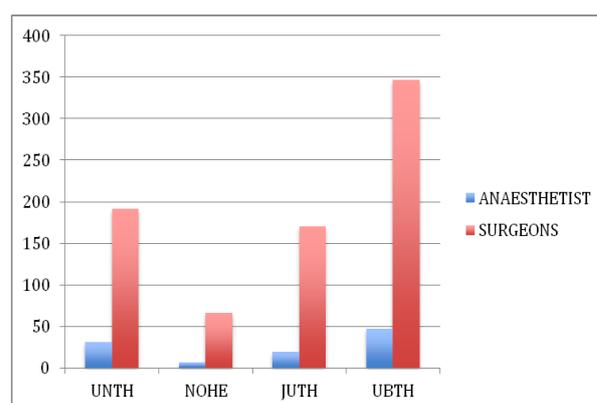
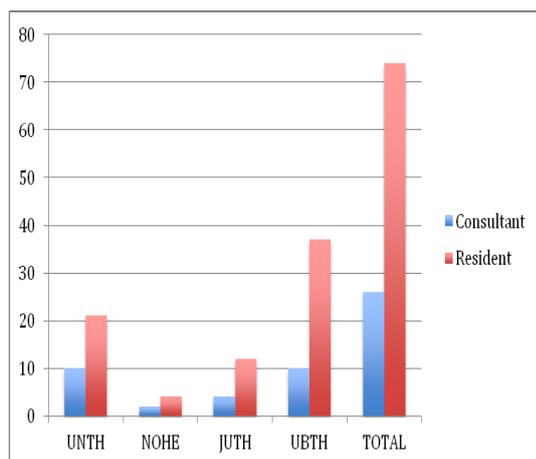


Figure 2. Bar chart showing the number of consultant anaesthetist to residents



The total number of ICU admissions during the period of study was 158 in UBTH, 168 in UNTH, and 152 in JUTH. The total number of operations carried out in these hospitals during this period was 5158 in UBTH, 2830 in UNTH, 2632 in JUTH, and 2874 in NOHE. There were 15 nurse anaesthetists in the department of anaesthesia JUTH, and 26 in NOHE. The specialties of surgery in the four hospitals were as shown in Table 2. The JUTH has no specialist training in cardiothoracic, maxillofacial and trauma surgeries, while NOHE has specialist training in orthopaedic and plastic surgeries, only.

Table 2. Surgical specialties

Cardiothoracic	Orthopaedic	Obstetric/Gynaecology
Maxillofacial	Plastic	Otorhinolaryngology
Trauma	Urology	Ophthalmology
General	Paediatric	Neurosurgery

The physician anaesthesia provider per 100,000 people in Nigeria was 0.113 (total number of physician anaesthetist 183, divided by population count 167 million and then multiplied by 100000).

## DISCUSSION

The results from this study clearly showed that, compared to surgeons, the number of anaesthetists was very small. This could be due to the lopsided employment of anaesthetists, both resident doctors and consultants or apathy by doctors in Nigeria towards the specialty of anaesthesia. In a study carried out by Soyannwo, *et al*, on the anaesthetic manpower development in West Africa, they discovered, as a major factor, that there was apathy towards the.<sup>4</sup> The end point of the training in the West African Postgraduate Medical College produced 292 fellows in the five-year period (1992 to 1996) with only six in anaesthesia, i.e. 1 anaesthetist to 49 surgeons.

In the last one and half decades the interest in anaesthesia by medical graduates has grown as shown by the staff nominal roll in the index institutions. This may be due to improvement in the wages of medical doctors in public institutions, stiffer competitions for positions in 'choice specialties' and the looming unemployment in the country. These factors drive medical graduates into specialties which they do not have genuine interests in.

Anaesthesia manpower shortage has also continued probably due to the attitude of the Chief Medical Directors of the training institutions. The employment of resident doctors in anaesthesia when compared to surgical specialties and their schedule of duties is grossly inadequate. This includes duties in the operating room, ICU, pain management, trauma and burns, radiology and emergencies. The post-graduate medical college training regulations of one consultant to four resident doctors is often ignored as shown in Table 1. This was the observed pattern in all the hospitals, and the need has arisen for this issue to be addressed by the Nigerian Society of Anaesthetists and the Federal Ministry of Health.

The demand for anaesthesia services will continue to rise. Even in Europe and North America the demand for anaesthesiologists has continued to increase and conscious

efforts are being made to improve on the number of practitioners to ensure a sufficient number of anaesthesiologists.<sup>5,6,7</sup> There should be a well articulated guideline for recruitment into the residency training programme that must be strictly adhered to by the training institutions so that the growth of the specialty would not be stunted.

The sub-specialization in the surgical specialties has encouraged and also improved manpower development in this area. Anaesthesia training and manpower development should also follow this pattern.<sup>8</sup> This will improve anaesthesia practice in Nigeria as well as increase the numerical strength of anaesthetists.

When compared to European countries the physician anaesthesia providers per 100,000 people in Nigeria is extremely low.<sup>9</sup> Similar figures are also observed in other low and middle income countries particularly in sub-Saharan Africa.<sup>1</sup> Poor working conditions, lack of infrastructure and equipment are also a barrier to recruitment of trainees.<sup>1</sup> When hospitals rely on donated old (sometimes archaic) anaesthetic equipments, it makes the specialty unattractive. This has a direct effect on the anaesthesia-related morbidity and mortality, as well as lower rates of surgery in these countries.<sup>10, 11</sup>

Capacity building and training of middle level manpower in anaesthesia should be encouraged. More institutions should be encouraged in terms of funding and technical assistance in running diploma anaesthesia programmes for physicians. As it stands now, high and middle level manpower is concentrated in the urban areas and particularly in tertiary health care centres leaving the secondary health care centres and rural hospitals unattended.<sup>12</sup> There are few schools of post-basic nursing anaesthesia in the country, which train nurses for a period of 18 months with a limited certification to practice anaesthesia. Due to shortage of manpower (specialist physician anaesthetist), the nurse anaesthetists are found in some tertiary health care centres delivering anaesthesia care. Even anaesthetic technicians

are employed to administer anaesthesia in some private hospitals. This gloomy spectacle in our health system is also partly fuelled by the greater consideration for a cheap workforce, by employers of labour in the health sector, in negation of quality and safety of the patient.

## CONCLUSION

The per capita anaesthetist manpower in Nigeria is extremely low when compared to developed countries. Training institutions must ensure sufficient funding and recruitment into the training programme in order to develop the specialty and improve expertise.

## LIMITATIONS OF THE STUDY

Resident doctors (anaesthesia) who were on external posting outside their department during the period under consideration were excluded from the study and those on rotation from the departments of surgery and obstetrics and gynaecology at the time of the study were included.

The total number of physician anaesthetist is considered to be best estimates as relocations and demise could not be effectively monitored.

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