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## CLINICAL ARTICLE

## Coverage and distribution of obstetricians and gynecologists in Nigeria

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## ABSTRACT

**Objective:** To determine the number, regional spread, and population ratio of obstetricians and gynecologists (OB/GYNs) in Nigeria. **Methods:** Data for the present descriptive study were collected between July 1, 2012, and December 31, 2013, as part of a national survey of OB/GYNs. Information was obtained about characteristics, qualifications, place of work, primary employer, subspecialty interest, and type of practice. **Results:** In total, 968 OB/GYNs were identified, of whom 846 (87.4%) were male. The estimated national population in 2013 was 175 651 197, which meant that there was one OB/GYN for every 181 458 individuals. Lagos State had the highest number of OB/GYNs (179 [18.5%]), whereas Yobe State had only 2 (0.2%) and Jigawa State 1 (0.1%). The geopolitical region with the highest number of OB/GYNs was the South West (315 [32.5%]), whereas the North East had the lowest number (45 [4.6%]). **Conclusion:** The number of OB/GYNs in Nigeria is inadequate in view of the population size, and coverage varies greatly in different states. Efforts to improve maternal health and reduce the maternal mortality ratio should include more investment in training, engagement, and equitable distribution of OB/GYNs in all parts of the country.

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## 1. Introduction

The maternal mortality ratio in Nigeria was estimated to be 576 deaths per 100 000 live births in 2013 [1]. While contributing less than 2% of the world population, Nigeria accounted for approximately 14% of the 289 000 maternal deaths in 2013 [2]. The estimated lifetime risk of maternal death is also much higher in Nigeria (1 in 31) than in high-resource countries (1 in 3700) [2]. The recent report on trends in maternal mortality [2] showed that Nigeria has not made much progress in reducing preventable maternal deaths.

The persistently high maternal mortality ratio in Nigeria is a challenge to the government and healthcare providers. Key interventions that effectively prevent maternal deaths include expert prenatal care for pregnant women, skilled delivery and postpartum services, emergency obstetric services, and family planning. Central to the implementation of these measures is the availability of skilled personnel for maternal health services. WHO and other stakeholders in maternal health have defined skilled providers as professionals such as medical doctors, nurses, and midwives who have been educated and trained to proficiency both in the skills needed to manage normal pregnancies, child birth, and the postnatal period, and in the identification, management, or referral of obstetric complications [3].

The inadequate and inequitable distribution of skilled health workers is a major challenge to the achievement of the Millennium Development Goals related to maternal health and to the protection of the reproductive health and rights of women. The impact of the current global personnel crisis is most acute in low-income countries [4].

In Nigeria—as in many low-income nations with a high maternal mortality ratio—maternity services are rendered by a wide range of individuals, including obstetricians and gynecologists (OB/GYNs), general medical practitioners, nurses, midwives, community midwives, community health extension workers, village health workers, and traditional birth attendants. Most of these providers are poorly trained and unskilled. The 2013 Nigeria Demographic and Health Survey [1] showed that only 60.6% of pregnant women who accessed prenatal care and 38.1% of deliveries were supervised by skilled providers. The shortage of skilled providers for maternity services in the Nigerian health system was first highlighted in 2003 [5].

OB/GYNs are the highest cadre of manpower for maternal health care. OB/GYNs practicing in Nigeria are trained either within or outside the country. Those training abroad have mainly studied at the Royal College of Obstetricians and Gynaecologists in the UK, or the American College of Obstetrics and Gynecology in the USA. In Nigeria, the faculties of obstetrics and gynecology of the National Postgraduate Medical College of Nigeria (NPMCN) and the West African College of Surgeons (WACS) run 5-year residency (postgraduate clinical) training programs. The graduates from the program are certified to practice obstetrics and gynecology inside and outside the country. At the end of 2013, the NPMCN had over 50 hospitals accredited for their program and had produced 553 graduates.

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However, subspecialty training is not yet fully developed in the NPMCN and WACS programs; subspecialty certification is mainly obtained from high-income countries. Nevertheless, attendance at management courses is obligatory, and trainees can pursue other masters and doctorate programs in the local programs.

Once trained, OB/GYNs are engaged in the public and private sectors. In the public sector, they function mainly in federal and state university teaching hospitals, medical centers, and specialist hospitals. In addition to clinical care, OB/GYNs also provide leadership, mentorship, and training to other maternal healthcare providers.

As in most low-income countries, Nigeria has experienced the migration of skilled human resources for health, including OB/GYNs, to other countries. The ongoing specialist training program of the NPMCN and WACS has, however, ensured the availability of a critical mass of medical specialists [6,7].

On the basis of the 2006 census of 140 million individuals [8,9] and an annual exponential growth rate of 3.2% [9,10], the projected population of Nigeria in 2013 was about 170 million. There is a paucity of information on the number and distribution of OB/GYNs in Nigeria across this population. A publication by the Society of Gynecology and Obstetrics of Nigeria (SOGON) in 2012 [11] suggested that there is inadequate and inequitable national coverage, with most OB/GYNs practicing in urban areas. The aim of the present study was to present current information on the number and distribution of OB/GYNs practicing in Nigeria, along with their qualifications and subspecialty interests.

## 2. Materials and methods

Data for the present descriptive study were collected between July 1, 2012, and December 31, 2013, as part of a national survey of SOGON members to create a database of OB/GYNs engaged in the health sector in Nigeria. Ethics committee approval was not needed because the study was not experimental and did not require the use of patient data. Informed consent was obtained from every respondent.

A data collection form was designed and pretested before use. Nigeria comprises 36 states and a Federal Capital Territory, which were grouped into six geopolitical zones: South West, South East, South South, North West, North East, and North Central. Representatives of SOGON in each state and geopolitical zone distributed the form to members across the country. Members completed the forms before returning them to their representative. Information was obtained about characteristics, qualifications, place of work, employer, subspecialty interest, and practice.

The main outcome measure was the ratio of OB/GYNs to the general population. The numerator was determined by the interview process, and the denominator (population) was estimated by using the formula  $P_1 = P_0 e^{(RT)}$ , where  $P_1$  is the 2013 population,  $P_0$  is the 2006 population,  $e$  is the constant 2.71828,  $R$  is the exponential growth rate, and  $T$  is the time in years [12].

The data were entered into and processed with EPI Info version 3.5.1 (Centers for Disease Control and Prevention, Atlanta, GA, USA). The results are presented as descriptive statistics.

## 3. Results

By the end of 2013, 968 OB/GYNs had been identified, all of whom provided relevant information. Overall, 846 (87.4%) OB/GYNs were male. There were wide disparities in the numbers of OB/GYNs across the states and geopolitical zones (Table 1). For example, almost one-third of the study population were located in the South West, whereas only approximately 5% were from the North East (Table 1). Almost one-fifth were located in Lagos State, whereas only one OB/GYN was located in Jigawa State (Table 1).

On the basis of the estimated population in 2013, the ratio of OB/GYNs to population in Nigeria was 1 to 181 458 individuals. There

**Table 1**  
Distribution of obstetricians and gynecologists in Nigeria.

Geopolitical zones and states	Obstetricians and gynecologists (n = 968)			Estimated population, 2013	Ratio of obstetricians and gynecologists to the population
	Male	Female	Total (%)		
South West	276	39	315 (32.5)	34 732 996	1/110 263
Lagos	148	31	179 (18.5)	11 401 765	1/63 697
Osun	32	3	35 (3.6)	4 274 857	1/122 138
Ogun	34	0	34 (3.5)	4 725 907	1/138 997
Oyo	32	4	36 (3.7)	7 080 530	1/196 681
Ekiti	14	0	14 (1.4)	2 980 330	1/212 880
Ondo	16	1	17 (1.8)	4 269 607	1/251 153
South East	154	10	164 (16.9)	20 113 206	1/122 641
Enugu	47	5	52 (5.4)	4 031 458	1/77 528
Ebonyi	25	2	27 (2.8)	2 648 314	1/98 085
Abia	27	2	29 (3.0)	3 437 335	1/118 528
Anambra	37	0	37 (3.8)	5 082 439	1/137 363
Imo	18	1	19 (2.0)	4 913 660	1/258 614
South South	174	19	193 (19.9)	26 229 496	1/135 904
Edo	47	6	53 (5.5)	3 906 038	1/73 699
Delta	37	2	39 (4.0)	5 144 960	1/131 922
Rivers	39	8	47 (4.9)	6 595 658	1/140 333
Bayelsa	14	0	14 (1.4)	2 088 154	1/149 154
Cross-River	20	2	22 (2.3)	3 544 119	1/161 096
Akwa-Ibom	17	1	18 (1.9)	4 950 567	1/275 032
North Central	148	32	180 (18.6)	26 147 854	1/145 266
Federal Capital Territory	75	16	91 (9.4)	2 696 402	1/29 631
Plateau	21	4	25 (2.6)	3 873 620	1/154 945
Kwara	10	7	17 (1.8)	2 918 084	1/171 652
Nasarawa	11	0	11 (1.1)	2 306 209	1/209 655
Kogi	12	1	13 (1.3)	4 088 461	1/314 497
Benue	13	2	15 (1.5)	5 247 623	1/349 842
Niger	6	2	8 (0.8)	5 017 455	1/627 182
North East	39	6	45 (4.6)	23 825 669	1/529 459
Borno	14	4	18 (1.9)	5 291 917	1/293 995
Gombe	7	0	7 (0.7)	2 958 832	1/422 690
Taraba	5	0	5 (0.5)	2 811 296	1/562 259
Bauchi	9	1	10 (1.0)	5 903 387	1/590 339
Adamawa	3	0	3 (0.3)	3 894 443	1/1 298 148
Yobe	1	1	2 (0.2)	2 965 792	1/1 482 896
North West	55	16	71 (7.3)	44 601 976	1/628 197
Kaduna	18	10	28 (2.9)	7 542 093	1/269 360
Sokoto	10	1	11 (1.1)	4 567 910	1/415 265
Zamfara	6	0	6 (0.6)	4 102 102	1/683 684
Kano	13	4	17 (1.8)	11 844 298	1/696 723
Kebbi	2	1	3 (0.3)	4 045 744	1/1 348 581
Katsina	5	0	5 (0.5)	7 157 286	1/1 431 457
Jigawa	1	0	1 (0.1)	5 342 543	1/5 342 543
Total	846	122	968 (100.0)	175 651 197	1/181 458

were marked variations in this ratio among the states and geopolitical zones across the country (Table 1).

The federal government employed 452 (46.7%) OB/GYNs, state governments employed 277 (28.6%), the private sector 229 (23.7%), and non-governmental organizations 10 (1.0%).

Most of the OB/GYNs were trained in Nigeria (Table 2). Overall, 142 (14.7%) had completed their postgraduate training abroad, mainly in the UK. A total of 455 (47.0%) had a subspecialty interest, but only 53 (5.5%) had a certificate of subspecialty training. Although most OB/GYNs received some training in management as part of the fellowship programs of the WACS and NPMCN, further management training had been pursued by 25 (2.6%).

## 4. Discussion

The present study identified 968 OB/GYNs in Nigeria, with an average national coverage of one OB/GYN per 181 458 individuals. Most OB/GYNs were employed by the federal government or by state governments. Additionally, most had undergone training in Nigeria.

The ratio of OB/GYNs to the general population in the present study shows that improvements have been made in Nigeria, because the ratio

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