

# Quality of Intrapartum Care Received by Parturients during Active Phase of First Stage of Labour at a Tertiary Hospital, Ibadan, Nigeria

## Authors' contributions

*This work was carried out in collaboration between both authors. Authors IAG and KOO developed the research questions, reviewed existing literature and designed the methodology. Author IAG collected the data and ran preliminary analysis. Author IAG wrote the first draft of the manuscript while both authors IAG and KOO were responsible for proof-reading and approving the final manuscript.*

## ABSTRACT

**Aim:** To examine intra-partum care received by parturients during active phase of first stage of labour.

**Study Design:** A descriptive cross-sectional prospective design

**Place and Duration of Study:** Labour ward complex of a tertiary hospital in Ibadan, Nigeria between June 2013 and September, 2013.

**Methodology:** Three hundred and forty-five parturients who had spontaneous vaginal deliveries (SVDs) were included in the study. Labour records of parturients during first stage of labour were reviewed and a checklist was used to document data on hourly blood pressure (BP) monitoring, hourly pulse rate (PR) monitoring, four-hourly vaginal examination (VE), half-hourly fetal heart rate (FHR) monitoring and proper documentation of progress of active phase of first stage of labour on partogram of parturients. Pre-tested self-administered questionnaire was used to assess level of psycho-social support received by parturients. Chi-Square test was used to determine relationships between variables. Level of Significance was set at .05.

**Results:** Three hundred and forty-five parturients participated in the study with 100% response rate. Their mean age was  $30.4 \pm 3.8$  years. 41.4% and 41.1% parturients had BP and PR monitored hourly respectively while 85% had VE conducted on them four-hourly and 61.5% had FHR monitored half-hourly. Progress report of active phase of first stage of labour was timely documented on the partogram in 35.1% of parturients 40% received optimal psychosocial support.

**Conclusion:** Overall quality of intra-partum care was optimal in 46.4% of parturients during active phase of first stage of labour. Continuous professional education on the importance and application of intrapartum monitoring in decision making concerning parturients as well as monitored provision of psycho-social support are suggested.

**Keywords:** Intra-partum care, Parturient, Psychosocial support, Partogram.

## 1. INTRODUCTION

Intrapartum care refers to the medical and nursing care given to a pregnant woman and her family during labour and after delivery.<sup>1</sup> Intrapartum and immediate postpartum period extends from the beginning of contractions that causes cervical dilatation to the first 1 to 4 hours after delivery of the newborn and placenta.<sup>2</sup> Childbirth is a time of greatest risk for maternal deaths with at least 42% of the annual estimated 352,000 maternal deaths occurring during labour and the first two days after birth; hence, childbirth should be handled by competent personnel who are skilled in all areas related to child delivery.<sup>3</sup> High-quality intrapartum care is an effective strategy aimed at reducing maternal mortality and morbidity associated with labour and childbirth with consequent positive outcome for mother and child.<sup>4</sup>

The overall aim of caring for women during labour is to engender a positive experience for the woman and her family, while maintaining their physical and emotional health, preventing complications and responding to emergencies. In order to successfully achieve this aim, good intrapartum care by those involved in the care of women during the process of childbearing is crucial.<sup>5</sup> These efforts are usually complimented by psycho-social support such as praise, reassurance, measures to improve the comfort of the mother, physical contact such as rubbing the mother's back and holding her hands, explanation of what is going on during labour and delivery and a constant friendly presence or companionship provided by spouse and other family relations during labour and childbirth.<sup>6,7</sup> Reports of randomized controlled trials on support in labour showed that continuous empathetic and physical support during labour resulted in many benefits including shorter labour, lower pain scores, significantly less medication and epidural analgesia, fewer Apgar scores of <7, fewer operative deliveries and early initiation of breast-feeding.<sup>6,7</sup>

Evidence abounds on the poor quality of intrapartum care in the study setting. For example, a review of labour records of 338 parturients at 12 selected government secondary health facilities in Osun State, Nigeria revealed that 15.4% of parturients received optimal care in hourly blood pressure (BP) monitoring, 21.6% in half-hourly fetal heart rate (FHR) monitoring and 71.9% in four-hourly vaginal examination (VE).<sup>8</sup> Furthermore, an investigation carried out to assess the effectiveness of promoting the use of the World Health Organization (WHO) partogram by midwives in a maternity home revealed that 92.4% of 338 parturients were not correctly completed.<sup>9</sup> There is paucity of data on psycho-social support in labour and childbirth. Available data showed that spousal participation in labour and delivery remains very low; only 32.1% of men ever accompanied their spouses for maternity care.<sup>10</sup>

From the above facts, assessing the quality of intrapartum care received by parturients is highly desirable and findings may be found useful as follows: firstly, data on the quality of service provided to parturients during active phase of first stage of labour in studied hospital will be available. Secondly, findings could inform appropriate interventions aimed at improving provision of obstetrics services by the hospital management and thirdly, additional information would be added to the existing literature on intrapartum care in Nigeria which might generate further research on the subject.

## 2. METHODOLOGY

A cross-sectional study design was used to investigate the quality of intrapartum care received by pregnant women who had spontaneous vagina delivery (SVD) in the labour ward of a tertiary hospital in Ibadan from June to September 2013. The study population comprised all booked and unbooked parturients who reached full cervical dilatation i.e. 10cm one hour and above from the time of admission into the labour ward. A sample size of 345 was derived from Leslie-Kish formula ( $n = Z\alpha^2pq/d^2$ ) for descriptive studies and using 71.9% as the proportion of parturients who had optimal vagina examination done in a previous study.<sup>8</sup> Eligible parturients were consecutively recruited as they were admitted into the labour ward until the sample size was attained.

Study instruments consisted of a checklist and a semi-structured questionnaire. Section A of the checklist was used to document records retrieved from the case notes of the parturients with respect to four domains of intrapartum care: hourly blood pressure (BP), hourly pulse rate (PR), half-hourly fetal heart rate (FHR) and four-hourly vagina examination (VE) performed on them during active phase of first stage of labour in accordance with the Safe Motherhood Needs Assessment (SMNA) package.<sup>11</sup> Section B was used to assess the timely documentation or otherwise of the parameters used to evaluate progress of active phase of first stage of labour on partograms of parturients using the WHO partograph as a reference.<sup>12</sup> The following 13 parameters were assessed: condition of amnion membranes, cervical dilatation, uterine contractions, descent of presenting part, FHR, volume of urine passed, urine test for ketones, urine test for proteins, BP/PR measurement, temperature readings, condition of liquor, degree of moulding, medications and intravenous fluids. The questionnaire was translated into local Yoruba language, pretested in the study setting with about 20% of the sample size and subsequently interviewer-administered before the women were discharged home from the postnatal wards. It also consisted of two sections: section A elicited information on socio-demographic characteristics of the parturients while

section B assessed the psycho-social support received during active phase of first stage of labour on 3-item Likert scale in which participants were requested to respond to appropriate options which ranged from “agree”, “disagree” to “undecided”. Content validity of the questionnaire was done and Cronbach Alpha of 0.713 was obtained following the pretest. The authority and Ethical Review Committee of the hospital gave approval for the study protocol while informed consent was taken from individual participants.

## 2.1 Data Analysis

Checklist: the scores ascribed to each domain of intrapartum care (BP, PR, FHR and VE) ranged from zero to 2 points. A procedure which was timely done and recorded **was accorded** a score of 2 points, a procedure which was recorded but not timely done **was accorded** a score of 1 point and a procedure which was not done or recorded at all **was accorded** a score of zero. The maximum obtainable score by each parturient was 8 points (100%). Using 75% as a cut-off point, optimal or quality intrapartum care was considered to have been provided if summation of scores  $\geq 6$  points ( $\geq 75\%$ ) and sub-optimal care or poor quality care if summation of scores was  $<2$  points ( $<25\%$ ). With respect to the partograph, timely documentation or otherwise of 13 parameters assessed; the score ascribed to each parameter ranged from zero to 2 points. A parameter which was assessed and recorded timely **was accorded** a score of 2 points, a parameter which was assessed but not timely recorded **was accorded** a score of 1 point and a parameter which was not assessed or recorded at all **was accorded** a score of zero. The maximum obtainable score by each parturient was 26 points (100%). Using 75% as a cut-off point, optimal or quality intrapartum care was considered to have been provided if summation of scores was  $\geq 19.5$  points (75%) and sub-optimal care or poor quality care if summation of scores was  $<6.5$  points ( $<25\%$ ).

Questionnaire: an “agreed” response to a statement was scored “1” while a “disagreed” or an “undecided” response was scored “0”. The maximum obtainable score by each participant was 6 points (100%). Using 75% as a cut-off point, optimal psycho-social support was considered to have been provided if the summation of scores was  $\geq 4.5$  points ( $\geq 75\%$ ) and sub-optimal psycho-social support if summation of scores was  $<1.5$  points ( $<25\%$ ).

Overall maximum score of 40 points and minimum score of zero point from the six domains of care assessed by this study could be obtained by a participant. Using 75% as a cut-off point, parturients whose overall score was  $<10$  points (25%) were considered to have received sub-optimal intrapartum care and those with overall score of  $\geq 30$  points ( $\geq 75\%$ ) were considered to have received optimal intrapartum care. Any care rendered to the parturients but not documented was taken as not done.

*Statistical Analysis:* data were analyzed using Statistical Packages for Social Sciences (SPSS) version 21.0. Descriptive statistics were used to summarize the data; findings were presented in frequency tables and percentages. Hypotheses were tested using Chi-Square test at the level of significance of .05.

## 3. RESULTS

### 3.1 Socio-demographic Characteristics of Participants

A total of 345 parturients were recruited into the study with 100% response rate. Their mean age was  $30.4 \pm 3.8$  years with age range of 16-43 years. Most participants (55.7%) were in 30-39 years age category with the least found in 40-49 years age group (1.7%). Few of the participants (13.3%) have had 3-5 deliveries in the past while majority (84.3%) was booked patients of the health facility (Table 1). Almost all the participants were married. Majority (60.6%) had a University degree while 68 (19.7%) had a secondary education. Participants belonged to the two major religious faiths: Christianity (69.3%) and Islam (30.7%). Majority of the participants belonged to Yoruba ethnic group.

**Table 1: Socio-demographic Characteristics of Participants (N=345)**

| Socio-demographic Characteristics | Frequency | % |
|-----------------------------------|-----------|---|
|-----------------------------------|-----------|---|

|                                       |     |      |
|---------------------------------------|-----|------|
| <b>Age (years)</b>                    |     |      |
| < 20                                  | 6   | 1.7  |
| 20-29                                 | 141 | 40.9 |
| 30-39                                 | 192 | 55.7 |
| 40-49                                 | 6   | 1.7  |
| Mean age (30.4±3.8 years)             |     |      |
| <b>Parity</b>                         |     |      |
| Zero                                  | 132 | 38.3 |
| 1-2                                   | 167 | 48.4 |
| 3-5                                   | 46  | 13.3 |
| Median no of births (1)               |     |      |
| <b>Booking status</b>                 |     |      |
| Booked                                | 291 | 84.3 |
| Un-booked                             | 54  | 15.7 |
| <b>Occupation</b>                     |     |      |
| Civil service                         | 125 | 36.2 |
| Trading                               | 82  | 23.8 |
| Self-employed                         | 54  | 15.7 |
| Student                               | 24  | 7.0  |
| Full-time housewife                   | 23  | 6.7  |
| Artisan                               | 3   | 0.9  |
| Applicant/Unemployed                  | 12  | 3.5  |
| Workers in private sector             | 22  | 6.4  |
| <b>Highest educational attainment</b> |     |      |
| No formal education                   | 3   | 0.9  |
| Primary                               | 11  | 3.2  |
| Secondary                             | 68  | 19.7 |
| OND/NCE <sup>!</sup>                  | 54  | 15.7 |
| University degree                     | 207 | 60.6 |
| <b>Marital status</b>                 |     |      |
| Married                               | 332 | 96.2 |
| Single                                | 10  | 2.9  |
| Separated/divorced                    | 3   | 0.9  |
| <b>Religion</b>                       |     |      |
| Islam                                 | 106 | 30.7 |
| Christianity                          | 239 | 69.3 |
| <b>Ethnicity</b>                      |     |      |
| Yoruba                                | 286 | 82.9 |
| Igbo                                  | 34  | 9.9  |
| Hausa                                 | 4   | 1.2  |
| Others*                               | 21  | 6.0  |

<sup>!</sup> – OND/NCE: Ordinary National Diploma/National Certificate of Education

Others\*: Tiv, Ijaw, Esan, Urobo, Efik, Isoko and Idoma

### 3.2 Monitoring and Documentation of Blood Pressure, Pulse Rate, Fetal Heart Rate and Vaginal Examination

Less than half (41.4%) of the parturients had their BP monitored and recorded hourly while 55.1% had it monitored and recorded but not on hourly basis; there was no documentation of BP in 12 (3.5%) parturients (Table 2). For PR, it was monitored and recorded hourly in 41.1% of parturients while monitoring was not done hourly in 55.4%; there was no documentation of PR in 11 (3.5%) parturients. FHR was monitored and recorded half-hourly in (61.5%) of the parturients while monitoring was not done half-hourly in 36.8%; there was no documentation of FHR in 6 (1.7%). Majority of the parturients (85.0%)

had VE conducted and recorded four-hourly; in 27 (7.8%) parturients, it was not done four-hourly while there was no documentation of VE in 24 (7.2%).

**Table 2: Monitoring and Documentation of Blood Pressure, Pulse Rate, Fetal Heart Rate and Vaginal Examination (N = 345)**

| Domains of Intrapartum Care     | Timely Assessed & Documented<br>n (%) | Not Timely Assessed & Not Timely Documented<br>n (%) | No Assessment/<br>No Documentation<br>n (%) |
|---------------------------------|---------------------------------------|------------------------------------------------------|---------------------------------------------|
| Hourly Blood Pressure           | 143 (41.4)                            | 190 (55.1)                                           | 12 (3.5)                                    |
| Hourly Pulse Rate               | 142 (41.1)                            | 191 (55.4)                                           | 12 (3.5)                                    |
| Half-hourly Fetal Heart Rate    | 212 (61.5)                            | 127 (36.8)                                           | 6 (1.7)                                     |
| Four-hourly Vaginal Examination | 293 (85.0)                            | 27 (7.8)                                             | 25 (7.2)                                    |

### 3.3 Documentation of Parameters for Assessing Progress of Active First Stage of Labour on Partogram

The labour parameters which were frequently assessed and documented in a timely fashion were the condition of membranes (37.1%), cervical dilatation (33.6%) and uterine contractions (30.7%). Descent of presenting part and FHR were timely assessed in 23.2% and 20.0% of parturients respectively. BP/PR and FHR were among the common labour parameters which were recorded but not timely assessed in 37.4% and 35.1% of parturients respectively. There was no documentation on volume of urine passed, urine tested for ketones at each micturition and urine tested for protein at each micturition in 96.6%, 93.3% and 92.2% of parturients respectively (Table 3).

**Table 3: Documentation of Parameters for Assessing Progress of Active First Stage of Labour on Partogram (N=345)**

| Labour Parameters                                        | Documentation on Partogram            |                                                      |                                         |
|----------------------------------------------------------|---------------------------------------|------------------------------------------------------|-----------------------------------------|
|                                                          | Timely Assessed & Documented<br>n (%) | Not Timely Assessed & Not Timely Documented<br>n (%) | No Assessment/No documentation<br>n (%) |
| Condition of amnion membranes                            | 128 (37.1)                            | 33 (9.6)                                             | 184 (53.3)                              |
| FHR                                                      | 69 (20.0)                             | 121 (35.1)                                           | 155 (44.9)                              |
| Condition of liquor                                      | 37 (10.7)                             | 68 (19.7)                                            | 240 (69.6)                              |
| Degree of moulding                                       | 35 (10.2)                             | 75 (21.7)                                            | 235 (68.1)                              |
| Cervical dilation                                        | 116 (33.6)                            | 87 (25.2)                                            | 142 (41.2)                              |
| Descent of the presenting part                           | 80 (23.2)                             | 94 (27.2)                                            | 171 (49.6)                              |
| Frequency, strength and duration of uterine contractions | 106 (30.7)                            | 90 (26.1)                                            | 149 (43.2)                              |
| Medications and intravenous fluids                       | 50 (14.5)                             | 37 (10.7)                                            | 258 (74.8)                              |
| BP and PR Measurements                                   | 15 (4.3)                              | 129 (37.4)                                           | 201 (58.3)                              |
| Temperature readings                                     | 22 (6.4)                              | 19 (5.5)                                             | 304 (88.1)                              |
| Volume of urine passed                                   | 6 (1.7)                               | 6 (1.7)                                              | 333 (96.6)                              |
| Urine test for protein at each micturition               | 14 (4.0)                              | 13 (3.8)                                             | 318 (92.2)                              |
| Urine test for ketones at each micturition               | 11 (3.2)                              | 12 (3.5)                                             | 322 (93.3)                              |

### 3.4 Psycho-Social Supports Received by Parturient During Active Phase of First Stage of Labour

Majority of the participants (94.5%) reported that their privacy was respected by the midwives and doctors while encouraging, calming and re-assuring words were reportedly given in 91.6% of parturients. In 91.3% parturients, labour ward staff were readily available and gave assistance whenever they were called upon; parturients were carried along with their care by midwife/doctor in 86.4% and back rubs or analgesia were provided to 43.5%. A family relation was allowed to accompany parturients in only 28.7%.

### 3.5 Rating of Monitoring and Documentation of BP, PR, FHR, VE, Partogram Documentation and Psychosocial Support

Majority of parturients (63.8%) received optimal care with respect to hourly blood pressure, hourly pulse rate, half-hourly fetal heart rate and four-hourly vaginal examination intrapartum procedures. Partogram documentation was optimal in 35.1% while optimal care in psychosocial support was received by 40% of parturients. Overall level of optimal care was received by 46.4% parturients (Table 4). No socio-demographic characteristic or obstetric history was found to be significantly related to quality of intrapartum care.

**Table 4: Rating of Monitoring and Documentation of BP, PR, FHR, VE, Partogram Documentation and Psychosocial Support (N=345)**

| Domains of Care         | Optimal Care (%) | Sub-Optimal Care (%) |
|-------------------------|------------------|----------------------|
| BP, PR, FHR & VE        | 220 (63.8)       | 125 (36.2)           |
| Partogram Documentation | 121 (35.1)       | 224 (64.9)           |
| Psychosocial support    | 138 (40.0)       | 207 (60.0)           |
| Overall level of care   | 160 (46.4)       | 185 (53.6)           |

## DISCUSSION

Optimal intrapartum care is one of the key interventions desirable for improving pregnancy outcome in the study setting as it allows for early recognition of adverse conditions requiring prompt attention in both the mother and child. It is expected to facilitate making informed decisions and institution of an appropriate recommended standard of care in relation to a particular parturient.<sup>12,13</sup> However, the ability of the constituents of intrapartum care in achieving the desired objectives largely depends on consistent and timely documentation of the monitored parameters in accordance with standard criteria. Overall, two-thirds of the parturients in this study received optimal care of hourly blood pressure, hourly pulse rate, half-hourly fetal heart rate and four-hourly vaginal examination intrapartum monitoring. However, the levels of assessment considered as optimal for these individual parameters varied and ranged from 41% to 85%. These findings are consistent with observations previously reported in a similar setting<sup>8</sup> and suggest a persistent and widespread limitation in early detection of pre-eclampsia and fetal distress in the study setting; furthermore, the capability to adequately monitor and plot cervical dilatation against time and institute appropriate intervention, if required, is in doubt.

Partogram documentation was adjudged as optimally conducted in about one-third of parturients in this study. This finding corroborated the doubt earlier cast on birth attendants' adequate knowledge on partogram as a monitoring tool as well as their skills in its use to inform labour management practices.<sup>8,14</sup> From the foregoing, continuous professional education on the importance and application of intrapartum monitoring in decision making concerning parturients cannot be over-emphasized in the study setting. Thus, birth attendants at the tertiary level of health care delivery could also benefit from WHO training on Life Saving Skills (LSS) which aims at enhancing core midwifery skills and capabilities.<sup>15</sup> Furthermore, there is need to implement current national and domesticated global strategies aimed at improving maternal and newborn health; these strategies include Saving Newborn Lives in Nigeria, The Africa Health Transformation Programme (2015–2020) and The Global Strategy for Women's, Children's and Adolescents' Health (2016-2030), among others.<sup>16-18</sup> These strategies adopt life-course, integrated and multisector approaches, which are essential to achieving the Sustainable Development Goals (SDGs) by 2030.

Despite abundant evidence on the benefits of psycho-social support as part of intrapartum care,<sup>6,7</sup> less than half of the parturients in this study received optimal/quality care. This agreed with the findings in<sup>10</sup> where only 32.1% of men had ever accompanied their spouses for maternity care.<sup>10</sup> Low level of psycho-social in today's intrapartum care requires far-reaching policy implications for improvement. Firstly, staff development activities should incorporate sensitization and re-orientation of birth attendants on the huge benefits of psycho-social as a continuous exercise. Secondly, a favorable environment should be created to support the provision of psycho-social care in a friendly and cordial manner and thirdly, monitoring of process of intrapartum care by supervisors should take special cognizance of how well psycho-social care is provided to parturients.

The review of intrapartum records approach used in this study is not foolproof of limitations especially in developing countries. For example, clinical records had been reported to be fraught with inadequacies; veracity and completeness of records are other contending issues.<sup>9,19,20</sup> Behaviour modification is another challenge if intentions of review are revealed. Hence, patient records alone may not be a good source of information in assessing quality of care. Nevertheless, accurate and timely recording of clinical procedures is itself a separate and legitimate dimension of the quality of practice.<sup>21</sup> While it is desirable to compliment quality of care assessment through patients records with direct observation of practice or interview of health workers, improved record keeping practices health workers deserve attention. This will not only improve quality of practice of health workers but also serve as a credible medium of information required for the evaluation of most other dimensions.<sup>21</sup>

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

## REFERENCES

1. Fabayo CO. Maternal and child health for health workers: a practical approach to mother and child care. Ilorin; Samadex Printing Press, Ilorin, Nigeria. 2010
2. National Institute for Health and Clinical Excellence Clinical Guideline. Intrapartum care: care of healthy mother and their babies during childbirth. Mid City place, London. 2007
3. Hogan MC, Naghavi M, Ahn SY, Wang M, Makela SM, Lopez AD, Lozano R' Murray CJ. Maternal mortality for 181 countries, 1980-2008: a systematic analysis of progress towards millennium development goal 5. *Lancet*. 2010;375 (9726): 1609-1623.
4. Tordsson TBE. Assessment of care in labour in a delivery ward in Gulbarga, India. 2010.
5. National Collaborating Centre for Women's and Children's Health. Normal labour: first stage. National Centre for Biotechnology Information, United State National Library of Medicine, 8600 Rockville Pike, Bethesda MD, 20894 United State of America. 2007.
6. Hodnett ED, Gates S, Hofmeyr GJ, Sakala C, Weston J. Continuous support for women during childbirth. *Cochrane Database of Systematic Reviews*. 2011. Doi: 10.1002/14651858. www.childbirthconnect.
7. Morhason-Bello IO, Adedokun BO, Ojengbede OA, Olayemi O, Oladokun A, Fabamwo AO. Assessment of the effect of psychosocial support during childbirth in Ibadan, south-west Nigeria: a randomised controlled trial. *Aust N Z J Obstet Gynaecol*. 2009 Apr;49(2):145-50. doi: 10.1111/j.1479-828X.2009.00983.x.
8. Osungbade KO, Oginni SA, Olumide EAA, Owoaje ET. Clinical of audit of intra-partum care at secondary health facilities in Nigeria. *Nigerian Journal of Clinical Practice*. 2010;13(2): 210-214.
9. Fahdhy M, Chongsuvivatwong V. Evaluation of World Health Organization partograph. 2005
10. Iliyasu Z, Abubakar IS, Galadanci HS, Aliyu MH. Birth preparedness, complication readiness and fathers' participation in maternity care in a northern Nigerian community. *Afr J Reprod Health*. 2010;14:21–32.
11. World Health Organization. Safe Motherhood Needs Assessment. Division of Reproductive Health (Technical Support), Family and Reproductive Health, Geneva: WHO, 1998.
12. World Health Organization. The Partograph. A managerial tool for the prevention of prolonged labour. Section 1: The Principle and Strategy. WHO document number: WHO/ MCH/88.3. Geneva: WHO, 1988.
13. World Health Organization. Managing complications in pregnancy and childbirth: A guide for midwives and doctors. Geneva: WHO, 2003.
14. Oladapo OT, Daniel OJ, Olatunji AO. Knowledge and use of the partograph among healthcare personnel at the peripheral maternity centres in Nigeria. *J Obstet Gynaecol* 2006;26(6), 538 -541.
15. World Health Organization. Making pregnancy safer: the critical role of the skilled attendant. A joint statement by WHO, ICM and FIGO. Department of Reproductive Health and Research. WHO, 2004. ([http://www.who.int/reproductive-health/publications/2004/skilled\\_attendant.pdf](http://www.who.int/reproductive-health/publications/2004/skilled_attendant.pdf)). Accessed 05/03/2008
16. Federal Ministry of Health. Saving newborn lives in Nigeria: Newborn health in the context of the Integrated Maternal, Newborn and Child Health Strategy. 2nd edition. Abuja: Federal Ministry of Health, Save the Children, Jhpiego; 2011.
17. WHO Regional Office for Africa, 2015. The Africa Health Transformation Programme 2015–2020: A Vision for Universal Health Coverage.
18. United Nations 2015. The Global Strategy for Women's, Children's and Adolescents' Health (2016-2030).
19. Peterson OL, et al. An Analytical Study of North Carolina General Practice: 1953-1954. *J Med Educ* 1956;31, 1165, Part 2.
20. Clute KF. The General Practitioner: A Study of Medical Education and Practice in Ontario and Nova Scotia. Toronto, University of Toronto Press; 1963, chapters 1, 2, 16, 17 and 18.
21. Donabedian A. Evaluating the Quality of Medical Care. *The Milbank Quarterly* 2005;83(4), 691-729.