

## CLINICAL AUDIT OF INTRA-PARTUM CARE AT SECONDARY HEALTH FACILITIES IN NIGERIA

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### ABSTRACT

**Objective:** Intra-partum care has a significant influence on birth outcomes. Gap however exists between evidence and practice. This study documented pattern of intra-partum monitoring among birth attendants in public secondary healthcare facilities and related findings to quality of care provided.

**Method:** Intra-partum monitoring records of vaginal examination, fetal heart and blood pressure were reviewed. Research assistants extracted information and documented same in appropriate section of Safe Motherhood Needs Assessment forms. Monitoring records were categorized into optimal and sub-optimal care. Proportions were calculated for parturients who received either optimal or sub-optimal care. Chi-square test of statistics was used to explore differences. Level of significance was  $p < 0.05$ .

**Result:** A review of 349 records of parturients was carried out. Their mean age was  $23.4 \pm 3.3$  years. Pregnancy outcome was a live-birth in 329 (97.3%). Optimal care of vaginal examination, fetal heart monitoring and blood pressure measurement was provided in 243 (71.9%), 73 (21.6%) and 52 (15.4%) parturients respectively and diminished significantly as labour progressed.

**Conclusion:** Intra-partum care provided by birth attendants was generally sub-optimal and use of the monitoring records to influence birth outcome is doubtful. Improvement in record keeping practices and skills in intra-partum monitoring for decision making, are suggested.

**Key Words:** clinical audit, intra-partum care, birth attendants, health facilities, quality

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### INTRODUCTION

Maternal mortality remains high as about 515, 000 maternal deaths occur every year from complications of pregnancy and childbirth.<sup>1</sup> In developing countries, maternal mortality ratio is estimated at 40 - 800 per 100,000 live births; this is about 200 times higher than that obtained in western countries.<sup>2,3</sup> This situation has been reported to indicate the widening discrepancy in the level of care and the outcome of reproduction between advanced and developing countries.<sup>4,5</sup> Gap persists between evidence and practice in both developed and developing countries<sup>6</sup> and this may account for the high maternal mortality. Appropriate care during childbirth has a significant influence on birth outcomes as it provides opportunity for early detection of prolonged labour, thereby providing evidence required in making early decision on appropriate intervention.<sup>7</sup> Evidence abound that reductions in maternal mortality could be achieved by improved midwifery skills of birth attendants, coupled with establishment of standards for quality of care among other health interventions.<sup>8</sup>

In Nigeria, maternal mortality is recognized as an increasing public health problem.<sup>9</sup> As part of the Safe

Motherhood Initiative, launched in 1987, the World Health organization has introduced and promoted partograph as an effective tool for monitoring progress of labour<sup>10</sup> and has become a mandatory component of care in all health facilities providing maternity services in Nigeria.<sup>11</sup> The aim of the partograph is to improve the quality of intra-partum care as it facilitates early detection of prolonged labour, indicates when augmentation of labour is appropriate and helps in recognizing cephalo-pelvic disproportion long before labour becomes obstructed.<sup>7</sup> The extent to which the partograph can achieve its purpose will partly be dependent on the thoroughness of birth attendants as well as their adherence to carrying out the set minimal procedures on parturients. Despite the importance of childbirth in Nigeria with a total fertility rate of 5.6<sup>12</sup>, there is paucity of published data on routine intra-partum care. The importance of clinical auditing of intra-partum monitoring provided by birth attendants cannot be over-emphasized as this would serve to instigate changes required to improving the quality of care received by parturients and birth outcomes. The study therefore sought to document routine intra-partum monitoring practices of birth attendants in secondary health care facilities and related findings to the quality of obstetric care received by parturients.

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## MATERIALS AND METHODS

This was a cross-sectional descriptive survey involving a review of intra-partum monitoring records of women who had spontaneous vaginal deliveries (SVD) of either a live or stillbirth baby in public secondary healthcare facilities between January and December 2001. The facilities were located in Osun zonal area of southwest Nigeria where they served as referral centres for the peripheral clinics and provided specialized care including emergency obstetric services (EOC) to a population of about 2.9 million. Twelve of the 33 existing health facilities which provide antenatal and delivery services were studied. A minimum sample size of 329 deliveries was required using 31% as the proportion of pregnant women who deliver in health facilities.<sup>13</sup> Before commencement of field work, the appropriate government authorities and the Joint University of Ibadan/University College Hospital (UI/UCH) ethical committee gave approval to conduct the study.

Registers of all spontaneous vaginal deliveries, which occurred in the studied facilities during the year under review, were sought and a total sum of all SVD was calculated. Based on the number of deliveries recorded in a health facility during the period under review, a proportionate sampling was carried out to estimate the number of intra-partum monitoring records required for review in each health facility. A systematic sampling procedure was then used to select the required number of intra-partum monitoring records from a facility's delivery register; sampling fraction thus varied between the health facilities. Records staff in each healthcare facility assisted to find all the selected records while four trained non-clinical research assistants, who were closely supervised by the investigators extracted all necessary information from the childbirth care records. Normal Delivery Record Review (NDR) form of the Safe Motherhood Needs Assessment (SMNA) package was used to document extracted information.<sup>14</sup> Extracted information from each record include duration of labour, frequency of vaginal examinations recorded as done on four-hourly basis, frequency of blood pressure measurements recorded one-hourly, frequency of fetal heartbeat readings recorded one-hourly, documentation on outcome of delivery and condition of the baby at birth. Names were excluded from extracted information in order to ensure confidentiality of individual parturients and health care providers, which a study of this nature required. The principle of auditing was observed during the process of data extraction such that if a procedure was not recorded, it was assumed that it was not carried out even if health workers claimed otherwise.

## Data analysis

Extracted data were entered and analyzed with Statistical Package for the Social Sciences (SPSS 8) and the format of Safe Motherhood Needs Assessment (SMNA) form was used to generate data spreadsheets. Frequencies of intra-partum monitoring records were calculated and categorized into optimal and sub-optimal care. Optimal intra-partum care is assumed to have been provided if records showed a minimum of recommended frequency required of a procedure within a stated period as applicable to the respective procedure in the SMNA form.

## RESULTS

A record of 1,830 full-term spontaneous vaginal deliveries was obtained in the 12 selected health facilities during the period under review, out of which 349 intra-partum monitoring records were reviewed. Mean age of parturients who had their records reviewed was  $23.4 \pm 3.3$  years (Confidence interval, CI = 95%); range 16 - 52 years. Figure 1 shows the distribution of the parturients by parity.

### Routine intra-partum monitoring practices

Records showed that out of the 349 parturients, SVD occurred less than one hour after admission into a health facility in 105 (30.1%) while it occurred more than one hour after admission in 233 (66.7%). In 11 (3.2%) parturients, this information was not available. Thus, analysis was limited to 338 (96.8%) intra-partum monitoring records. Pregnancy outcome was a live-birth in 329 (97.3%) of the 338 while stillbirth was recorded in nine (3.7%). Baby's condition at birth was documented in 325 (96.2%) childbirths. Table 1 shows intra-partum monitoring records of four-hourly vaginal examinations categorized into optimal and sub-optimal care based on the frequency of the procedure as performed on parturients within a time period stipulated in the SMNA form. Two hundred and forty three (71.9%) parturients received optimal care with respect to vaginal examination while the care in this regard was sub-optimal in 95 (28.1%). Optimal care with respect to vaginal examination diminished with increasing number of hours of labour as those who had four or less number of hours of labour significantly received more optimal care among them than those who had five or more hours of labour ( $\chi^2 = 68.86$ ;  $p < 0.001$ ). With respect to fetal heart monitoring and blood pressure measurement, optimal care was received in only 73 (21.6%) and 52 (15.4%) of parturients respectively (Tables 2 and 3). Optimal care in both procedures also diminished significantly with increasing number of hours of labour.

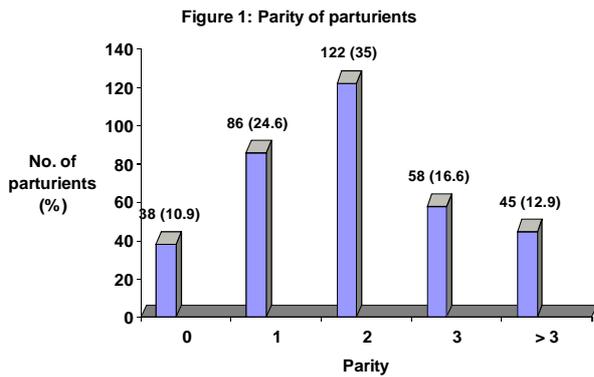


Table 1: **Four-Hourly Vaginal Examination during Normal Childbirths.**

Number of hours of labour	Four-hourly vaginal examinations		Total	p- value
	Optimal care	Sub-optimal care		
	No. (%)	No. (%)		$\chi^2 = 68.86;$ $p < 0.001$ $df = 3$
= 4	182 (86.2)	29 (13.8)	211	
5-8	40 (59.7)	27 (40.3)	67	
9-12	15 (41.7)	21 (58.3)	36	
> 12	6 (25)	18 (75)	24	
<b>Total</b>	<b>243 (71.9)</b>	<b>95 (28.1)</b>	<b>338</b>	

Table 2: **One-Hourly Fetal Heart Monitoring during Normal Childbirths.**

Number of hours of labour	One-hourly fetal heart monitoring		Total	p- value
	Optimal care	Sub-optimal care		
	No. (%)	No. (%)		$\chi^2 = 52.6;$ $p < 0.001$ $df = 3$
= 1	47 (44.8)	58 (56.2)	105	
2-3	14 (18.4)	62 (81.6)	76	
4-5	6 (12.0)	44 (88.0)	50	
> 6	6 (5.6)	101 (94.4)	107	
<b>Total</b>	<b>73 (21.6)</b>	<b>265 (78.4)</b>	<b>338</b>	

Table 3: **One-Hourly Blood Pressure Measurement during Normal Childbirths.**

Number of hours of labour	One-hourly blood pressure monitoring		Total	p- value
	Optimal care	Sub-optimal care		
	No. (%)	No. (%)		$\chi^2 = 52.6;$ $p < 0.001$ $df = 3$
= 1	40 (38.1)	65 (61.9)	105	
2-3	8 (10.5)	68 (89.5)	76	
4-5	2 (4.0)	48 (96.0)	50	
> 6	2 (1.9)	105 (99.1)	107	
<b>Total</b>	<b>52 (15.4)</b>	<b>286 (84.6)</b>	<b>338</b>	

## DISCUSSION

As part of good clinical practice, health systems generally require a periodic review of tasks or procedures involved in patients' management; such reviews usually draw on lessons derived from the management and suggest how the procedures can be improved for the benefit of future patients. Clinical auditing of intra-partum care is undoubtedly crucial to achieving the goals of the Safe Motherhood Initiative. In developing countries, intra-partum monitoring is largely done through intermittent observations of cervical dilatation, fetal heart and blood pressure charted against time in a graphic form and used to make informed decisions concerning parturients. The findings of this study revealed deficiencies in intra-partum monitoring of these parameters among birth attendants. Though, majority of the parturients had vaginal examinations carried out as frequently as required in compliance with standard criteria, the level of optimal care in this regard persistently diminished as labour progressed for more than four hours. Intermittent vaginal examinations help to monitor and plot cervical dilatation against time such that when dilatation reaches or crosses the alert line, prompt and correct interpretation is required to instituting an appropriate recommended standard of care<sup>15,16</sup>

Intra-partum care was generally sub-optimal with respect to one-hourly fetal heart monitoring and blood pressure measurement. These findings have far-reaching implications. Intermittent auscultation of fetal heart and blood pressure measurement for parturients aim at detecting fetal distress and pre-eclampsia respectively as early as possible and the former has been demonstrated to have comparable outcomes with electronic monitoring.<sup>17</sup> However, their usefulness for this purpose is possible only when the readings of both parameters have been consistently documented as required that they could provide meaningful interpretation, which could then influence decision making expected to improve pregnancy outcome. The above findings cast doubt on the adequacy of knowledge of birth attendants on the importance of the monitoring tool as well as their skills in putting it into effective use at the secondary health care level in the study area. This is in agreement with the findings among health workers in peripheral health facilities in southwest Nigeria, which reported poor utilization and integration of partograph in labour management practices.<sup>18</sup> Clinical audit is a quality improvement process that seeks to improve patient care and outcomes by the systematic review of care against explicit criteria and the implementation of change. Furthermore, it has considerable potential to influence the quality of patient care.<sup>19</sup> *Clinical records, as used in this study, are usually the source documents for most studies of*

the medical care process. But there are several limitations to the use of clinical records in assessing quality of care. Firstly, general inadequacies of recording in clinical practice have been reported<sup>20,21</sup> and hence patient records may not be too useful to serve as a basis for evaluation. Secondly, assuming the record to be available and reasonably adequate, its veracity and completeness are two other contending issues worthy of consideration. Furthermore, much discussion has centered on the question of whether, in assessing the quality of care based on what appears in the record, one is rating the record or the care provided. It is however recognized that recording is itself a separate and legitimate dimension of the quality of practice, as well as the medium of information for the evaluation of most other dimensions.<sup>22</sup> Nevertheless, clinical records can be generally improved if complemented with an alternative source of information about the process of care such as the direct observation of practice<sup>20,21</sup> or interviews with the attending health workers and thereby making appropriate amendments.<sup>23,24</sup>

## CONCLUSION

In spite of the above limitations regarding the use of clinical records, the findings in this study shed light on the quality of both the record and care provided. The principle of '*no documentation, no procedure done*' in clinical auditing, which was applied strictly no doubt accounted partly for the general sub-optimal care reported in relation to intra-partum monitoring. This situation strongly suggests a need for improved record keeping practices as part of the change expected in the health system. Furthermore, lack of adequate records of intra-partum monitoring hinders evidence-based clinical practice and consequently influences birth outcomes. There is therefore also a need to address the importance of application of intra-partum monitoring in decision making concerning parturients, which is possible only when records are available and adequate. This is one of the areas of focus of WHO training on Life Saving Skills (LSS),<sup>25</sup> which is periodically organized for primary and secondary health care workers with the aim of enhancing their core midwifery skills and abilities, and consequently reducing maternal mortality in under-resourced settings. Further studies on intra-partum monitoring, which would incorporate direct observation of practice or interviews with birth attendants, are suggested to complement clinical records.

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