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# Managing Newborn Unit Without Nurses: A Tragedy Of Our Time

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## Abstract

A retrospective analysis of records of neonates admitted into Wesley Guild Hospital, Ilesa during a four month period of industrial dispute affecting all hospital workers except the doctors in the teaching hospitals and research institutions in Nigeria was carried out. The main objective was to determine effect of absence of nurses on outcome and the possible value and risks in using the mothers as the main nursing care providers.

Only very ill newborns were admitted. Mothers were trained and used as "natural nurses" for their babies care. Neonatal mortality rate (NMR) was 250/1000, almost twice the NMR for the unit. The main reasons and respective case fatality rates were: birth asphyxia (60.0%), tetanus (57.1%), low birth weight (28%). Main causes of death were similar to what were previously documented in the unit.

Majority of the deaths were preventable. Though the mortality rate was much higher than what was previously recorded in the unit, the effort saved many babies who would have died if they had not been admitted. Better management of industrial dispute would forestall this avoidable tragedy with increase in NMR.

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## INTRODUCTION

Industrial dispute between the health workers and the authorities/government is a frequent occurrence in Nigeria, like many other developing countries. It is often rare to have a strike-free year in most of government hospitals. This is usually as a result of instability in government policy on remunerations, high level of inflation, instability in nations currency, instability in price of fuel, poor social services like

regular electricity supply, potable water, communication system, means of transportation, high cost of food and shelter which make the workers always to demand for more wages even far above the productivity levels.

The neonatal care unit [NCU] at the Wesley Guild Hospital, (WGH) Ilesa, a unit of Obafemi Awolowo University Teaching Hospitals Complex [OAUTHC] provides special

care services for newborn babies in 3 states [Osun, Ondo, Ekiti] of the South-West region of Nigeria. It is the main place where incubator care, phototherapy, and exchange blood transfusion are available. Therefore, closing down the neonatal unit during major and prolonged strike involving senior staff association members of teaching hospital and research institutions including the nurses, the laboratory staff, record officers and junior staff brings a lot of disastrous situation for numerous ill neonates.

The NCU at WGH has a unique advantage in terms of structure.<sup>1,2,3</sup> The mothers are admitted into the unit beside their babies to participate in nursing, rooming-in and close observations. It was the availability of these “natural nurses” that made admissions of these babies feasible during a major strike that involved all cadres of health workers except the doctors. The perceived relatively high level of literacy among the mothers whom with little training and explanations, could oversee their babies' served as impetus for the arrangement.

This review covers the neonates admitted during the four months of industrial disputes resulting in strike by our nurses [NANNM], senior staff association [SSA] and junior staffs [NASU] members between 6th November 2001 and 12th March 2002. The study was done to determine the value and risks in using the mothers as the main nursing care providers. We compared the mortality with what was obtained in the previous studies from the unit to determine effect of absence of nurses on outcome in the unit. This information will be of value to other units in Nigeria and other developing countries.

**MATERIALS AND METHODS**

All admissions were clerked into 2A exercise book which the parent bought and these were numbered serially. All ill babies who needed admission were admitted with their mothers or surrogate mothers where the mother was unavoidably indisposed as a result of anaesthesia at a referral hospital or for other reasons, or if mother had died. Babies were admitted either into cots or incubators whichever was applicable. Resuscitations, putting up of intravenous fluids, administration of parenteral drugs, passing of nasogastric (NG) tubes were carried out by the doctors. There were five consultants, eight resident doctors (made up of six senior registrars and two registrars) who were taking rotations in the unit to supervise what the mothers were doing. Mothers were taught how to observe and monitor the incubator temperatures, wrapping up their babies during power failures

or keeping the babies warm in cot, administration of oral drugs and two-hourly nasogastric feeding after the doctors have passed the NG tubes. “Experienced” mothers who were longer in admission were also encouraged to teach, supervise and assist other mothers most especially the illiterate ones. The records of all the babies admitted were later collated and reviewed after the strike was over. The data obtained included: date and age at admission, name of baby, and place of birth, mode of delivery, gestational age, educational level of mother/surrogate mother, diagnosis, treatment offered and outcome.

The data obtained was compared with previous data from the unit. This was statistically analyzed by chi-square test. Value of 0.05 or less was taken as statistically significant.

**RESULTS**

Ninety-two [92] babies were admitted into the NCU during the strike period. They consisted of 59 (64.1%) males and 33 (35.9%) females giving a male: female ratio 1.79: 1. The overall mean and standard deviation (SD) of age at admission was 4.06 and 6.05 days. Though the mean admission age of the males was higher than that of the females, the difference was not statistically significant (4.53±6.94 days versus 3.20±3.95 days respectively; t=1.02, p>0.3). Table I shows the admission weight among the males and the females. The overall mean and standard deviation (SD) of the weight of the 92 babies at admission was 2.344 and 0.783kg respectively with the males weighing significantly more than the females (2.539±0.775 versus 1.996± 0.679kg respectively; t=3.37 p<0.002). Fifty (54.3%) babies were less than 2.5kg. Significant higher proportions of the female were less than 2.5kg ( =7.0, p <0.01).

**Figure 1**

Table 1: Admission Weight and Sex of Babies

Admission Weight[Kg]	Male [%age] N=92	Female [%age] N=92	Total [%age] N=92
<1.00	2 [2.2]	1 [1.1]	3 [3.3]
1.00-1.49	4 [4.3]	10 [10.9]	14 [15.2]
1.50-2.49	20 [21.7]	13 [14.1]	33 [35.9]
≥2.50	33 [35.9]	9 [9.9]	42 [45.7]
Total	59 [64.1]	33 [35.9]	92 [100]

Table II shows the place and the mode of delivery of the babies. Only four (4.3%) and three (3.3%) of the 92 babies were delivered at WGH and Ife State Hospital (ISH) units of the Teaching Hospital respectively. Eighty-five (85) i.e. 92.4% were out-born. Twenty (60.6%) of the 33 babies deliveries at the private hospitals were delivered by caesarian section. Ten (10.9%) of the babies were delivered

unsupervised either at home, or on the road or on the farmland.

**Figure 2**

Table 2: Place and Mode of Delivery

Place of Delivery	Spontaneous Vertex [%]	Caesarian Section [%]	Total [%]
WGH/Teaching Hospital	4 [4.3]	3 [3.3]	7 [7.6]
Govt. Hosp /Health Centres	12 [13.4]	-	12 [13.4]
Private Hospitals	13 [14.1]	20 [21.7]	33 [35.9]
Maternity Centres	14 [15.2]	-	14 [15.2]
Mission Houses	16 [17.4]	-	16 [17.4]
Home	7 [7.6]	-	7 [7.6]
Others*	3 [3.3]	-	3 [3.3]
Total [%age]	69 [75]	23 [25.0]	92 [100.0]

Eighty-seven (94.6%) mothers had at least primary school education while five (5.4%) of the mother/surrogate mothers were illiterate.

Main reasons for admission include birth asphyxia in 25 (27.2%), suspected septicaemia in 30 (32.6%), prematurity and low birth weight in 24 (26.1%), severe jaundice 11 (12.0%), tetanus seven (7.6%), preterm and extremely low birth weight three (3.3%). A total of 17 babies were of very low birthweight while a total of 50 were of LBW.

Table III shows the detail of the mortality. Twenty-three (25.0%) of the babies died giving a neonatal mortality rate (NMR) of 250/1000 during the period. Thirteen (56.5%) of the deaths occurred within twenty-four hour of the admission. Higher proportion of the males compared with females died, though this was not statistically significant. For example, 15 (25.4%) of the 59 males admitted died compare to 8 (24.2%) of the 33 female sex ( $\chi^2=0.0$ ,  $p=1.0$ ). The main identified causes of death include were birth asphyxia in 15 (65.2%), tetanus four (17.4%), preterm, extremely birth weight with possibly RDS two (8.7%), severe jaundice and kernicterus two (8.7%). Case fatality rate were: severe birth asphyxia (60.0%), tetanus (57.1%), ELBW (66.7%).

**Figure 3**

Table 3: Details of the Mortality

Serial No	Age	Sex	Admission weight (kg)	Admission diagnosis	Duration of admission before death
1.	5 hours	M	1.65	Preterm, severe asphyxia	72hours
2.	56hours	M	1.4	Preterm, septicaemia	<2hours
3.	2 hors	F	1.1	Preterm, severe asphyxia, ?RDS	6 hours
4.	7 days	F	2.1	LBW, Neonatal Tetanus	5 days
5.	6 hours	M	1.9	Preterm, severe asphyxia	4 days
6.	47 hours	M	3.4	Severe asphyxia, seizures	6 days
7.	5 hours	M	2.8	Multiple congenital anomaly, CHD,	72 hours
8.	3 hours	M	3.15	Severe asphyxia, seizure, DIC	5 hours
9.	27 hours	F	2.2	Severe asphyxia	3 hours
10.	10 hours	M	2.7	Severe asphyxia	2 hours
11.	5 days	F	1.9	LBW, neonatal tetanus	56 hours
12.	15 hours	M	3.4	Severe asphyxia	4 hours
13.	6 days	M	2.1	Severe jaundice, kernicterus	3 days
14.	10 hours	M	3.4	Severe asphyxia	7 hours
15.	7 hours	F	1.05	Preterm, asphyxia, ?RDS	3 days
16.	21 hours	M	2.75	MAS, Severe respiratory distress, asphyxia	13 hours
17.	1 hour	F	1.25	Preterm, Severe asphyxia	4 days
18.	2 hours	M	2.25	Severe asphyxia	2 hours
19.	5 days	M	3.25	Neonatal tetanus	28 hours
20.	7 days	F	1.85	LBW, Tetanus	18 hours
21.	2 hours	M	0.6	Preterm, ELBW, ?RDS	30minutes
22.	2 hours	F	0.5	Preterm, ELBW, ?RDS	30 minutes
23.	58 hours	M	3.3	Severe jaundice, kernicterus	7 hours

**DISCUSSION**

Admission of ninety-two babies into the newborn unit of the hospital over four months period was low compare with the periods without strike. At these ‘normal’ periods the average admissions per month were about seventy babies.<sup>3,4</sup> The reason for this could not be readily explained; the maternity unit of the hospital was closed down because the nursing staff including the midwives, peri-operative nurses, anaesthetic nurses and the orderlies were all on strike. Only booked members of staff in emergencies were attended to. This partly explains why only seven (7.6%) of the admissions were inborn compared to rate between 31.0 and 56.2% in the previous report.<sup>4</sup> In the present study, more males were admitted. The male: female ratio of 1.79: 1, though was higher than 1.38:1 in the previous study,<sup>4</sup> in the unit, the difference was not statistically significant ( $\chi^2=1.4$ ;  $p>0.5$ ). This means that either males than females were being born or more males were being hospitalized than females.

Septicaemia, severe birth asphyxia, severe neonatal jaundice and tetanus were the main reasons for admission. This may also be understandable when considering the place of birth of these babies. Most of theses babies were born in unhygienic environments or at maternity homes manned by poorly trained auxiliary nurses, ill-equipped for neonatal

resuscitations and care. Neonatal septicaemia is associated with high mortality in most developing tropical countries including Nigeria.<sup>5,6,7</sup> Also, seven of the babies were brought with severe neonatal jaundice and having florid features of bilirubin encephalopathy. One of the seven babies died from uncontrollable seizures and another died less than an hour of presentation before anything could be done for him. Even in those who were successfully exchanged and discharged, the prognosis was still very guarded. The outcome in the present study was worse than our in our previous experience.<sup>4</sup> In the present report the patients came late because of the strike and only came to 'try their luck'. This is a preventable condition with effective treatment for neonatal jaundice with exchanged blood transfusion and phototherapy.<sup>4</sup> Patients can only benefit from these treatments if they are brought early enough in course of their illness. Eighty-seven (94.6%) of the 92 mothers or surrogate mothers had at least primary education, and 40 (43.5%) entered into secondary school. This high level of female literacy in this part of the country might have contributed in a way to successful the management of some the patients at the critical period.

The overall NMR of 250/1000 live births in the present study was much higher than the 165/1000 and 130/1000 reported by Oyedeji et al<sub>2</sub> and Owa et al<sub>3</sub> in 1983 and 1990 respectively but similar to 234/1000 reported by Twaites et al in 1973.<sup>1</sup> The higher mortality rate reported may not be unconnected to the late presentation and the very severe illness of many of the patients. The paralysis of government owned hospitals probably made only the very critically ill babies to be brought to the hospital as a last resort only when information filtered to them that unit was attending to ill babies. The unavailability of expert nursing care might also have contributed to the poor outcome in these critically ill neonates. The adverse effect of these tragedies, created by frequent industrial disputes affecting the health sector, on NMR and infant mortality rate (IMR) in this part of the world is generally anticipated but has not been previously reported.

The leading causes of NMR in the present study were birth asphyxia, neonatal tetanus, Preterm and extremely low birth weight babies [ $<1000\text{g}$ ] and severe neonatal jaundice. Some babies had multiple pathology and diagnoses. This was similar to data from other centres.<sup>4,8,9,10,11</sup> Neonatal sepsis [NNS] may have provoked moderately to severely jaundiced neonate into developing kernicterus early. Hypothermia, neonatal septicaemia and hypoglycaemia are often

associated problems in many of these babies.

Case fatality rate for neonatal tetanus in present study was 57.1% while it was 66.7% for extremely low birth weight [ELBW] babies. Major causes of death like birth asphyxia, neonatal tetanus, preterm, low birth weight and severe neonatal jaundice with kernicterus are either preventable and or treatable conditions. The case fatality rate of 57.1% in NNT in present study is very high and much higher than 32.4% in our unit as at last review (unpublished data).

It is possible that the mortality in the present study could have been lower if trained and highly experienced nurses had been on duty and laboratory services were readily available. A lot of delay in babies care could have been averted. For example, blood brought from private laboratories outside the hospital was the only source of blood during the period. The magnitude of possible effects of this on the management of patients may not be immediately known but can be imagined.

Even though the use of mothers who do not understand the basis for most procedures cannot be the appropriate technology for the care of newborn in most settings, in our environment they could be trained to supplement the available services. Newborn units should therefore be constructed to be mother friendly. Maternal education is always a plus to babies' survival therefore; female education should be rigorously pursued.

Newborn babies and their mothers are the most vulnerable during of strike in the health sector. Delivery of pregnant mothers can not be postponed when it is time irrespective of social conflicts on ground. Some of these babies delivered will need extra care. Ensuring continuous service for newborn care is therefore necessary to save the lives of these critically ill babies. Dialogue, sacrifice and compromise will surely be a better approach to industrial dispute management rather than strikes if we are to make our world a truly humane world.

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