

**Alex-Hart BA**  
**Dotimi DA**  
**Opara PI**

## Mothers' recognition of newborn danger signs and health seeking behaviour

DOI:<http://dx.doi.org/10.4314/njp.v41i3.9>

Accepted: 26th November 2013

Alex-Hart BA (✉ )  
 Opara PI  
 Department of Pediatrics & Child Health  
 University of Port Harcourt Teaching Hospital  
 P.MB 6371, Port Harcourt  
 Rivers State, Nigeria  
 Email: balaalexhart@gmail.com

Dotimi DA  
 Department of Community Health,  
 School of Health Technology, Ogbia,  
 Bayelsa State, Nigeria.

**Abstract:** *Background:* Early recognition of neonatal illnesses followed by care-seeking and intervention are key factors in improving neonatal health and survival.

*Objectives:* To assess mothers' ability to recognize newborn danger signs and actions taken by mothers in the event of neonatal illness.

*Methods:* The study was carried out in three health centres in Yenagoa Metropolis from April to May 2011. A 15 itemed Questionnaire based on the WHO/UNICEF IMCI programme handbook was administered to 146 mothers with infants younger than three months. The mothers were asked to identify danger signs of neonatal illness from a list of symptoms, to indicate which of the listed symptoms their babies experienced, to state what actions were taken in response to the symptoms and reasons for not utilizing orthodox healthcare.

*Results:* None of the listed symptoms was recognized by up to half

the mothers as danger signs of neonatal illness, the best being fast breathing by 66 (45.2%) mothers. Eighty two (56.2%) mothers reported that their children experienced some of the neonatal danger signs: the commonest were difficult breathing and convulsions in 8 (9.8%) cases each. Unconsciousness and excessive crying were thought to be caused by evil spirits and consultations sought with faith healers. The major constraint to utilization of health facilities was cost {45(29.8%)}

*Conclusion:* Mothers' recognition of danger signs in the newborn was poor. Self-medication and the use of home remedies delayed timely consultation. The commonest reason for non-utilization of health facilities was lack of money.

**Keywords:** Mothers, Newborns, Danger signs, Recognition, Health seeking.

### Introduction

The neonatal period (the first 28 days of life) is the most critical period for the survival of the child<sup>1</sup>. Every year over 4 million babies die within this period globally; with 98% of the deaths occurring in the developing world<sup>2</sup>. In developing countries, the risk of death in the neonatal period is six times greater than in developed countries; in the least developed countries it is over eight times higher<sup>2</sup>. In Nigeria, 241,000 child deaths occur annually within the neonatal period and these neonatal deaths are responsible for a quarter of the under five mortality rates in the country<sup>1</sup>. Nigeria ranks highest in Africa in terms of number of neonatal deaths and second highest in terms of neonatal deaths worldwide<sup>1</sup>. Of the estimated neonatal deaths which occurred in Nigeria in 2003, 37% were due to severe infections like pneumonia, sepsis, neonatal tetanus and diarrheal diseases; while preterm births and birth asphyxia accounted for another 49%<sup>3</sup>. All these problems account for a large

proportion of the four million annual global neonatal deaths<sup>4</sup>. In developing countries like Nigeria, progress toward achieving Millennium Development Goal 4 (to reduce by two-thirds under-5 mortality from the 1990 baseline) is being hampered by slow progress in reducing neonatal deaths<sup>5</sup>.

Neonatal illnesses exhibit a rapid course of progression and can prove to be fatal if not identified and treated correctly in a timely manner. Timely and adequate care-seeking for illnesses as well as appropriate and timely intervention are therefore key element in improving neonatal health and survival<sup>6,7,8</sup>. An example of such intervention is the integrated management of childhood illness (IMCI) strategy. Besides improving health workers' skills in managing childhood illness, IMCI Strategy also aims to improve families' care seeking behaviour. The health workers are trained to teach the mothers about danger signs and counsel them about the need to seek care promptly and adequately if these signs occur<sup>9</sup>.

Despite the availability of these lifesaving interventions in the health facilities, inadequate care-seeking is still being reported for neonates<sup>10-12</sup> with more than half of the neonatal deaths in Nigeria occurring at home<sup>11</sup>. Timely and appropriate care-seeking for neonatal illnesses will depend partly on mothers' recognition and perception of danger signs in the neonates<sup>12</sup>. The current study therefore aims to assess mothers' ability to recognize danger signs in newborns and their health seeking behaviours.

## Subjects and Methods

This was a descriptive cross-sectional study carried out in Yenagoa Metropolis in Bayelsa State. Yenagoa Metropolis is the headquarters of Yenagoa Local Government Area and is also the seat of power of Bayelsa State Government. Bayelsa State is located in the oil and gas rich Niger Delta Region in Southern Nigeria<sup>13</sup>. The state has a riverine and estuarine setting. A lot of her communities are almost (and in some cases) completely surrounded by water, hence making these communities inaccessible by road. Despite the extensive petroleum and gas activities in the state, majority of Bayelsans live in poverty and are mainly rural dwellers. Due to the difficult terrain of the State, coupled with decades of neglect by the central and state governments and the petroleum prospecting companies, there is lack of adequate transportation, health, education or other infrastructure<sup>13</sup>. All the functional health facilities in the state are concentrated in Yenagoa Metropolis. Yenagoa Metropolis has a general hospital, one Federal Medical Centre, three health centres and several private hospitals. The health centres conduct weekly immunization and antenatal clinics. The health centres are run by nurses, midwives and Community Health Workers with no input from doctors. Consequently they have low patronage as majority of the people go to the bigger health facilities with doctors.

The study was conducted in the three health centres in Yenagoa Metropolis from April to May 2011. Only women who had babies less than three months old, who brought their babies for immunization within the study period were recruited. A 15-item interviewer administered questionnaire was used. Problems listed in the questionnaire were the potentially severe conditions mentioned in the WHO/UNICEF Integrated Management of Childhood Illnesses (IMCI) programme handbook<sup>14</sup>. The mothers were asked to identify from a list, what they considered danger signs of neonatal illness, to indicate which of the listed symptoms their babies experienced and to state what actions were taken in response to the symptoms. Similar lists of problems have been used in other community studies<sup>8</sup>. An open ended question was used to find out their reasons for not utilizing orthodox healthcare. Questions were asked in English language, but sometimes interpreted in the native languages when the mother did not understand English language. Home remedies were taken to be concoctions

and orthodox medications administered to the neonates at home by their caregivers without appropriate prescriptions. Faith healers were herbalist and religious leaders who engage in healing of ailments, traditional birth attendants were unorthodox pregnancy and childbirth care providers, while qualified care providers were doctors in both private and government owned health facilities.

Data obtained included identified danger signs, illnesses suffered by the babies during the neonatal period, actions taken by the mothers and reasons for non-utilization of health facilities. Socio-demographic information was also collected. The data collected were analyzed using SPSS version 17 software. Simple descriptive statistics in the form of percentages were employed. The Ethics Committee of University of Port Harcourt Teaching Hospital and the Bayelsa State Ministry of Health gave ethical approval.

## Results

A total of 146 mothers participated in the study, with a mean age of 29.09±6.1 years. More than one quarter {41 (28.1%)} of the mothers were between the ages of 30-34 years: 49 (33.6%) had secondary education and 58 (39.7%) were unemployed. Most of the fathers {74 (50.7%)} had tertiary education and majority {75 (51.4%)} were civil servants (Table 1).

**Table 1:** Bio-demographic data of parents

Mothers Age in years	Frequency	Percentage
15-19	5	3.5
20-24	31	21.2
25-29	39	26.7
30-34	41	28.1
35-39	20	13.7
≥40	10	6.8
<i>Mothers' education</i>		
Tertiary	42	28.8
Secondary	49	33.6
Primary	27	18.5
No education	28	19.1
<i>Mothers' occupation</i>		
Professionals	6	4.1
Civil servants	43	29.5
Skilled	5	3.4
Unskilled	34	23.3
Unemployed	58	39.7
<i>Fathers' education</i>		
Tertiary	74	50.7
Secondary	50	34.2
Primary	16	11.0
No education	6	4.1
<i>Fathers' occupation</i>		
Professionals	15	10.3
Civil Servants	75	51.4
Skilled	24	16.4
Unskilled	25	17.1
Unemployed	7	4.8

Table 2 shows the danger signs recognized by the mothers. The most common danger signs recognized by the mothers were fast breathing and convulsion. The least recognized danger sign was movement only when stimulated {29(19.9%)}. There was less than 50% rate of recognition for each of the danger signs. Between one fifth and one quarter of mothers identified milder conditions like skin rashes, redness of the eyes and skin blisters as danger signs.

Eighty two (56.2%) mothers reported that their babies had some of the danger signs during the neonatal period. The two most common potentially severe problems experienced by the neonates were convulsion and difficult breathing each in 8 (9.8%) babies. The three most common mild problems experienced by the neonates were high body temperature, skin rashes and skin blisters in 43(52.4%), 16(19.5%) and 11(13.4%) babies respectively.

**Table 2:** Danger signs recognized by 146 mothers

Danger sign	Frequency	Percentage (%)
Fast breathing	66	45.2
Convulsion	57	39.0
Umbilical bleeding	49	33.6
Difficulty in breathing	49	33.6
Pus around the umbilicus	45	30.8
Unconsciousness	40	27.4
Skin rashes	39	26.7
High body temperature	36	24.7
Extreme weakness	35	24.0
Diarrhea	34	23.3
Excessive crying	33	22.6
Yellow skin/eyes	32	21.9
Very small baby	32	21.9
Redness of the eyes	32	21.9
Purulent eye discharge	32	21.9
Low body temperature	32	21.9
Inadequate/poor sucking	32	21.9
Umbilical discharge	31	21.2
Skin blisters	31	21.2
Abdominal distension	31	21.2
Swollen eyes	29	19.9
Movement only when stimulated	29	19.9

For most of the problems experienced by the neonates, mothers either applied home remedies or consulted with faith healers or qualified health care providers. There was also multiple care seeking as shown in Table 3.

Table 4 shows what the mothers' perceived as the causes of their children's problems. Seventy five percent of those whose children had convulsion and 100% of those whose children were unconscious or had excessive crying attributed the conditions to evil spirits. Yellowness

of the eyes and skin (neonatal jaundice) was said to be caused by malaria. Table 5 shows the reasons for non-utilization of health facilities. The major obstacle to utilization of health facilities was cost of treatment {45 (30.8%)}. Others were delay in receiving treatment in health facilities {36(24.7%) } and long distance to health facilities {25(17.1%)}.

**Table 3:** Problems experienced by the neonates from 82 mothers and actions taken

Potentially severe conditions	Frequency of symptoms	Home Remedy	TBA's	Took resort Faith healers	To: Qualified Providers
Convulsion	8	8(100)	0(0.0)	6(75.0)	7(87.5)
Difficult breathing	8	4(50)	1(12.5)	2(25.0)	7(87.5)
Fast breathing	6	0(0.0)	1(16.7)	3(50.0)	6(100.0)
Excessive crying	5	0(0.0)	0(0.0)	5 (100.0)	0(0.0)
Pus around umbilicus	4	4(100.0)	0(0.0)	0(0.0)	3(75.0)
Yellowness of the eyes/skin	3	3(100.0)	0(0.0)	0(0.0)	1(33.3)
Extreme weakness	3	2(66.7)	1(33.3)	0(0.0)	3(100.0)
Unconsciousness	3	0(0.0)	0(0.0)	3(100.0)	3(100.0)
Very small baby	3	2(66.7)	0(0.0)	0(0.0)	3(100.0)
Low body temperature	1	1(100.0)	0(0.0)	0(0.0)	1(0.0)
<i>Mild illnesses</i>					
High body temperature	43	25(58.1)	7(16.3)	6(14.0)	32(74.4)
Skin rashes	16	16 (100.0)	0(0.0)	2(12.5)	4(25.0)
Skin blisters	11	8(72.7)	1(9.0)	5(45.5)	3(27.3)
Redness of the eyes	9	9(100.0)	2(22.2)	0(0.0)	3(33.3)
Bleeding around umbilicus	5	4(80.0)	1(20.0)	0(0.0)	3(60.0)
Diarrhoea	5	4(80.0)	0(0.0)	1(20.0)	3(60.0)
Swollen eyes	3	3(100.0)	0(0.0)	0(0.0)	1(33.3)
Purulent eye discharge	2	2(100.0)	0(0.0)	0(0.0)	0(0.0)

Note: Figures in bracket are percentages of symptoms' frequency. Some mothers took more than one type of action. TBA=Traditional Birth Attendants.

**Table 5:** Reasons for non-utilization of health facilities by 146 respondents

Reasons	Frequency (%)
Cost	45 (30.8)
Delay in receiving treatment	36 (24.7)
Long distance to health facilities	25 (17.1)
Health workers are hostile	20 (13.7)
Herbs are more effective	15 (10.3)
Some illnesses are caused by evil spirits	10 (6.8)

Note: Some mothers gave more than one reason.

**Table 4: Mothers' perceptions of the causes of the problems experienced by the neonates**

Problems	Perceived causes (%)
Convulsion (n=8)	Evil spirits 6 (75 ) Fever 3 (37.5)
Difficult breathing (n=8)	Exposure to cold 8 (100)
Fast breathing (n=6)	No idea 4 (66.7) Sickness 3 (50)
Excessive crying (n=5)	Evil spirits 5 (100)
Pus around the umbilicus (n=4)	Bad air 3 (75) Infection 1(25)
Yellowness of the eyes/skin (n=3)	Malaria 2 (66.7) Jaundice 1(33.3)
Extreme weakness (n=3)	Poor feeding 3 (100) Sickness 2(66.7)
Unconsciousness (n=3)	Evil spirits 3(100) Sickness 1(33.3)
Low body temperature (n=1)	Cold weather (100)
Skin rashes (n=16)	Heat rashes 14 (87.5) Measles 4 (25)
Skin blisters (n=11)	Heat 6 (54.5) Mother ate too much rice during pregnancy 5 (45.5)
Redness of the eyes (n=9)	Apollo 9 (100)
Bleeding around the umbilicus(n=5)	Umbilical stump not well tied 5 (100)
Diarrhoea	Spoilt breast milk 4(80) Child drank bad water 1 (20)
High body temperature (n=43)	Malaria 38 (88.4) No idea 5 (11.6) Germs 8 (18.6)
Very small baby (n=3)	Prematurity 2(66.7) Nature 3 (100)
Swollen eyes (n=3)	Apollo 2 (66.7) Excessive crying 1 (33.3)
Purulent eye discharge (n=2)	Apollo 1 (50) Infection 1(50) Breast milk entered the eyes 1 (50)

Note: Mothers offered more than one perceived cause. Apollo=Epidemic viral conjunctivitis.

## Discussion

Our study has demonstrated that there was poor knowledge of newborn danger signs amongst mothers in Yenagoa Metropolis as there was less than 50% rate of recognition of each of the danger signs. This is similar to the report of Baqui et al<sup>15</sup> who found poor awareness of danger signs amongst caregivers in Bangladesh. It however differs from the high level of awareness of newborn danger signs by caregivers in India reported by Awasthi et al<sup>9</sup> and Dongre et al<sup>16</sup> respectively. It is possible that lack of exposure to community intervention projects aimed at reducing neonatal mortality was responsible for poor knowledge of mothers in Yenagoa.

The two most commonly recognized danger signs were fast breathing (45.2%) and convulsion (39%). This is probably because these two are alarming signs and are difficult to miss. This finding is similar to that reported by Juma in Dares Salaam<sup>17</sup> though in that study convulsion was recognized by a higher proportion (92.5%) of mothers. In the present study, other signs which signify serious neonatal illnesses such as yellowness of the skin

and eyes, abdominal distention, movement only when stimulated, poor sucking and very small size were all poorly recognized. Instead, a greater percentage of the mothers identified relatively milder conditions like skin rashes and skin blisters as danger signs. Since recognition of signs and symptoms of neonatal illnesses is an important factor associated with timely and appropriate care seeking in developing countries<sup>11,18</sup>, it can therefore be assumed that poor recognition of these danger signs will lead to delay in seeking appropriate health care and thus poorer treatment outcome. This inability to recognize danger signs in the neonates by mothers will also impact negatively in the Integrated Management of Childhood Illnesses (IMCI) Program in Bayelsa State<sup>11</sup>. This is because the program is based on early identification of newborn danger Signs by caregivers, with prompt and appropriate referral aiming at reduction in neonatal mortality.

More than half (56.2%) of the mothers in our study said their children had at least one illness during the neonatal period that would have required medical care. This is similar to the 51.2% and 56.8% reported in two separate studies in India<sup>10,18</sup> but higher than 37.5%<sup>16</sup> also from India. This disparity could be explained by demographic differences and levels of exposure of the respondents to information.

Our study agrees with previous studies which reported multiple care seeking, sequential care seeking as well as symptom specific care seeking pattern for neonates.<sup>18,19</sup> Most mothers began by applying home remedies or consulting with faith healers or doing both and only sought care from qualified providers when symptoms persisted or worsened. Several studies have reported that this delay in seeking appropriate care and not seeking any care at all, contribute significantly to the large number of child deaths in developing countries<sup>20,21,22</sup>.

Evidence also suggests that perceptions about illness causation often determine when and from whom care is sought<sup>12</sup>. In our study, unconsciousness and excessive crying were perceived to be caused by evil spirits. The children with these conditions were taken to faith healers and health facilities. On the other hand, our study also showed a high rate of application of home remedies for most neonatal illnesses irrespective of their perceived causes. For instance, conditions like convulsions and redness of the eyes were treated with home remedies and medications from qualified health care providers.

In our study, neonatal jaundice was believed to be caused by malaria and children with this condition received home treatment and only 33.3% of them were seen by qualified health care providers. To a certain extent therefore, affected babies were exposed to the risk of bilirubin encephalopathy. For a condition like fast breathing, majority of the mothers did not know its cause and therefore sought help from faith healers and qualified health care providers.

Several reasons were given for non-utilization of health facilities for neonatal illnesses. The commonest reason was the high cost of treatment from qualified health care

providers. This is not surprising because majority of the parents and especially the mothers were either unemployed (39.7%) or were under paid civil servants. Other reasons were delay in receiving treatment from health facilities, far distance to the health facilities and unfriendly attitude of the health workers. These reasons have also been cited in a previous study<sup>23</sup>.

## Conclusions

Mothers' recognition of danger signs in the newborn was poor in Yenegoa Metropolis. Care seeking from multiple providers and the use of home remedies delayed appropriate and timely medical care seeking for neonatal illnesses. The commonest reason for non-

utilization of health facilities was lack of money. There is need to intensify the practice of Integrated Management of Childhood Illnesses in Bayelsa State to improve families care seeking behaviours.

## Limitations of the study

Information obtained is based on the mothers' ability to recall past illnesses suffered by their babies during the neonatal period.

## Authors' contribution

All three authors participated in the study design, collection and analysis of data and writing of the manuscript.

**Conflict of interest:** None

**Funding:** None

## References

1. Federal Ministry of Health. Saving newborn lives in Nigeria: Newborn Health in the context of the Integrated Maternal, Newborn and Child Health Strategy. Revised 2<sup>nd</sup> edition, Federal Ministry of Health, Abuja, Nigeria 2011.
2. WHO. Neonatal and Perinatal Mortality Covering, Regional and Global Estimates. WHO, Geneva 2006.
3. Nigeria Demographic and Health Survey 2003. Maryland, USA: National Population Commission/ORC Macro 2004: 144–50.
4. Lawn JE, Cousens S, Zupan J. 4 million neonatal deaths: When? Where? Why? *Lancet* 2005; 365 (9462): 891-900.
5. UNICEF. Count down to 2015 maternal, newborn and child survival. Tracking progress in maternal, newborn and child survival. The 2008 report, v2. UNICEF, New York 2008.
6. Amarasiri de Silva MW, Wijekoon A, Hornik R, Martines J. Care seeking in Sri Lanka: one possible explanation for low childhood mortality. *Soc Sci Med* 2001; 53:1363–1372.
7. D'Souza RM. Role of health-seeking behavior in child mortality in the slums of Karachi, Pakistan. *J Biosoc Sci* 2003; 35:131–144
8. Jones G, Steketee RW, Black RE, Bhutta ZA, Morris SS, Bellagio Child Survival study group. How many child deaths can we prevent this year? *Lancet* 2003; 362: 65-71
9. Awasthi S, Verma T, Agarwal M. Danger signs of neonatal illnesses: Perceptions of caregivers and health workers in North India. *Bull WHO* 2006; 84: 1-8.
10. Srivastava NM, Awasthi S, Mishra R. Neonatal morbidity and care-seeking behavior in Urban Lucknow. *Indian Pediatr* 2008; 45: 229-232.
11. Federal Ministry of Health. Integrated Maternal, Newborn and Child Health Strategy. Federal Ministry of Health, Abuja, Nigeria 2007.
12. Hill Z, Kendall C, Arthur P, Kirkwood B, Adjei E. Recognizing childhood illnesses and their traditional explanations: exploring options for care-seeking interventions in the context of the IMCI strategy in rural Ghana. *Trop Med Int Health* 2003; 8: 668–676.
13. Bayelsa State. Available at <http://en.wikipedia.org/Bayelsa-state>. Accessed 10<sup>th</sup> May 2013.
14. WHO/UNICEF. Model IMCI handbook: Integrated Management of Childhood Illnesses. WHO/UNICEF, Geneva 2005 .
15. Baqui AH, Arifeen EI S, Darmstadt GL, Black ER, Santoshan M. Final report: formative research on newborn care practices in the home and pre-testing of alternative behaviors in Sylhet District, Bangladesh. Johns Hopkins Bloomberg School of Public Health; 2003. Available at: [[http://www/webdrive.jhsph.edu/pwinch/SYL\\_Formative\\_report\\_3oct29.pdf](http://www/webdrive.jhsph.edu/pwinch/SYL_Formative_report_3oct29.pdf)]
16. Dongre AR, Deshmukh PR, Garg BS. Perceptions and health care seeking about newborn danger signs among mothers in rural Wadha. *Indian J Pediatr* 2008; 75 (4) : 325-329.
17. Juma A. Knowledge, attitude and practices of mothers on symptoms and signs of Integrated Management of Childhood illness (IMCI) strategy at Buguruni reproductive and child health clinics in Dar es Salaam. Official publication of the Tanzania Medical Students' Association. MDS 2007/08.
18. Awasthi S, Srivastava NM, Pant S. Symptom-specific care-seeking behavior for sick neonates among urban poor in Lucknow, Northern India. *J Perinatol* 2008; 28 (suppl 2): 569-575.
19. Mohan P, Iyengar SD, Agarwal K, Martines JC, Sen K. Care-seeking practices in rural Rajasthan: barriers and facilitating factors. *J Perinatol* 2008; 28 (suppl 2) : 531-537.
20. Sustriana B, Reingold A, Kresno S, Harrison G, Utomo B. Care seeking for fatal illnesses in young children in Indramanyu, West Java, Indonesia. *Lancet* 1993; 342.
21. Amarasiri de Silva MW, Wijekoon A, Hornk R, Martines J. Care seeking in Siri Lanka: One possible explanation for low childhood mortality. *Soc Sci Med* 2001; 53: 1363-72
22. Bazzamo AN, Kirkwood BR, Tawiah-agyemang C, Agyei SO, Adonyo PB. Beyond symptom recognition: care-seeking for all newborns in rural Ghana. *Trop Med Int Health* 2008; 13 (1): 123-128.
23. Jaja T, Opara PI, Otaigbe BE. Health seeking behaviours for childhood illnesses in Port Harcourt, Southern Nigeria. *The Niger Hlth J* 2011; 10:43-47.