

## Trend of Paediatric Discharges against Medical Advice: A Decade Old Experience at a Tertiary Center in Bayelsa State

Timipah P West<sup>1</sup>, Oliemen Peterside<sup>1</sup>, Onyaye Kunle-Olowu<sup>1</sup>

<sup>1</sup>(Department of Paediatrics and Child Health, Niger Delta University Teaching Hospital, Okolobiri, Bayelsa State, Nigeria)

### Abstract:

**Background:** Discharge Against Medical Advice (DAMA) is one of the dilemmas faced by Paediatricians and most regional studies revealed a lack of finance as the major reason. The objective is to determine the trend of Paediatric DAMA at a tertiary center in southern Nigeria over a ten-year period, the reasons for DAMA and also identify the impact, if any, of the state health insurance scheme and hospital fees waiver on the prevalence of DAMA.

**Materials and methods:** This was a ten-year retrospective analysis of all DAMA at the children emergency ward of the Niger Delta University Teaching Hospital (NDUTH), Socio-demographics, diagnosis, duration of hospital stay, reasons for DAMA, utilization of health insurance and impact of hospital fees waiver were sought. Data were analyzed using descriptive statistics.

**Results:** The prevalence of DAMA was 1.9% and 61.8% of patients were males. The mean age was 3.29 ±3.78 years. The lowest prevalence was in 2009 while the highest was in 2016, at 0.45% and 5.26% respectively. Following the 50% fees waiver in 2015 prevalence was 1.67% subsequently rising in 2016 during the economic recession. 97.4% of DAMA were in the middle and low socioeconomic class. None were beneficiaries of the health insurance scheme. The main reason for DAMA was due to lack of finance and fathers were the main signatories in the DAMA document. Infectious diseases made up the majority of the diagnoses.

**Conclusion:** The major reason for DAMA over the ten-year period was finance, with preventable infectious diseases being the major diagnoses. DAMA declined following the introduction of the fee waiver and state health insurance. None of the patients who were DAMA were beneficiaries of a health insurance scheme.

**Keywords:** Paediatrics, Discharge against medical advice, Trend, Ten years, Health Insurance

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### I. Introduction

Paediatricians in developing countries face a lot of challenges including Discharge against medical advice (DAMA). DAMA occurs when a patient decides to leave the hospital against the opinion of the managing physician.<sup>1</sup> In Paediatrics, due to children's lack of autonomy, healthcare decisions are made by their parents/guardians.<sup>2,3</sup> Several regional studies have identified DAMA prevalence ranging from 1.5% to 4.3%, with these children having higher rates of re-admission, longer hospital stay and poorer outcomes.<sup>4-8</sup> The reasons for DAMA were similar in these studies ranging from financial constraints, falsely perceived improvement amongst others. At the NDUTH, paediatric DAMA prevalence over a two-year period was 7.5%, higher than that of a boundary state.<sup>9,10</sup> Since then, a lot has changed in the NDUTH. In 2015, there was a 50% waiver for all laboratory/radiologic investigations for children, and in 2017, the state government introduced the Bayelsa State Health Insurance Scheme (BHIS). These are notable because Duru et al<sup>9</sup> found that the majority (36.7%) of DAMA in NDUTH was due to financial constraints. The index study was thus conceived to determine the trend of DAMA in NDUTH before and after these developments, over a 10-year period from 2009 – 2018, and their impact on the prevalence of DAMA. This will help in the development of further strategies to help reduce DAMA and its complications.

### II. Material And Methods

This was a ten-year retrospective analysis of all DAMA in children below the age of 18 years at the NDUTH between January 2009 and December 2018. A total of 76 subjects (both males and females) were used in this study.

**Study Design:** Retrospective study

**Study Location:** This study was carried out at the Children emergency ward of the Department of Paediatrics, Niger Delta University Teaching Hospital (NDUTH), a Tertiary hospital in Bayelsa state, Nigeria.

**Study Duration:** January 2009 to December 2018.

**Sample size:** 76 patients.

**Subjects & selection method:** The total number of children seen at the Children emergency ward of the NDUTH between January 2009 and December 2018 was retrieved from the records of the department of Paediatrics. All children who DAMA were identified and their folder numbers retrieved from the medical records department of the NDUTH. Their case notes were subsequently retrieved. Information were retrieved and analyzed with respect to the age of the child at admission, sex, working diagnosis, duration of hospital stay before DAMA and the reasons for DAMA, the parents' social class using the Oyedeji<sup>11</sup> social classification system and their utilization of Health insurance.

**Statistical analysis**

The data were analyzed using the SPSS version 20 and results were presented in form of frequency tables and percentages.

**III. Result**

From January 2009 to December 2018 (10 years), 3994 children were admitted into CHEW. Seventy-six (1.9%) of the total admissions were DAMA. Of those that were DAMA, 20 (26%) had a previous history of hospital admission. There were 47 (61.8%) males and 29 (38.2%) females, with a male to female ratio of 1.6:1. Their mean age was 3.29 ±3.78 years.

Table no 1 shows prevalence of DAMA in 2009 was the lowest at 0.45% and rose to 3.76% in 2012. In 2014 and 2015 it was 1.64% and 1.67% respectively. Following the 50% waiver for laboratory/radiologic investigations for all children introduced in 2015 when DAMA prevalence was 1.6%. Thereafter in 2016 DAMA rose to its highest at 5.26% but declined to 1.11% in 2018.

**Table no I: DAMA trend by year**

Year	Total admissions	Total DAMA	% DAMA
2009	443	2	0.45
2010	496	4	0.81
2011	527	4	0.76
2012	346	13	3.76
2013	268	10	3.73
2014	428	7	1.64
2015	478	8	1.67
2016	266	14	5.26
2017	380	10	2.63
2018	362	4	1.11
Total	3994	76	1.90

Table no 2 shows the mean duration of hospital stay was 7.08 ±3.36 days. Most DAMA, 38 (50%), occurred from day one to six of admission followed by 23 (30.3%) which occurred in the second week of admission. The least DAMA, 4(5.3%) occurred within a duration of admission of 2 - <3 weeks.

The children whose parents were in the low and middle socioeconomic classes had equal representation of 37 (47.7%) each, while only 2(2.6%) were in the upper socioeconomic class. None of the children who DAMA were beneficiaries of the Bayelsa State Health Insurance Scheme (BHIS) or any other health insurance scheme.

**Table no 2: DAMA according to duration of hospital admission, parents' socioeconomic class and Health Insurance**

Duration	Number	%
<1 day	6	7.9
1day - <1 week	38	50
1 - <2 weeks	23	30.3
2 - <3 weeks	4	5.3
≥ 3 weeks	5	6.6
Total	76	100
Social class	Number	%
Upper	2	2.6
Middle	37	48.7
Lower	37	48.7
Total	76	100
Health insurance	Number	%
Yes	0	0
No	76	100

Table no 3 shows DAMA by no of siblings and mother's level of education. Fourteen (18.4%) of the children who were DAMA had no siblings while 12 (15.8%) and 11 (14.5%) had two siblings and four siblings respectively. Ten (13.2%) of them had more than five siblings while in 2 (2.6%) the information was unavailable.

Majority [36(47.4%)] of mothers had secondary level of education, followed by 30 (39.5%) with primary and 5 (6.8%) with tertiary level of education respectively. Information was unavailable for 7 (9.6%) patients.

**Table no 3: DAMA by no of siblings and mother's level of education**

No of siblings	Number	%
0	14	18.4
1	10	13.2
2	12	15.8
3	10	13.2
4	11	14.5
5	7	9.2
>5	10	13.2
Missing information	2	2.6
Total	76	100
Mothers' Level of education	Number	%
Primary	30	39.5
Secondary	36	47.4
Tertiary	2	2.6
Missing information	8	10.5
Total	76	100

Table no 4 shows diagnosis in those that DAMA. Pneumonia, sepsis, severe malaria and diarrhoea made up 69.7% of diagnosis in patients who DAMA (21.1%, 18.4%, 15.8% and 14.5% respectively). Only 5.3% of cases had a diagnosis of HIV/AIDS, 23.7%, had more than one diagnosis.

**Table no 4: Diagnosis in those that DAMA**

Diagnosis*	Number of patients	%
Pneumonia	16	21.1
Sepsis	14	18.4
Severe malaria	12	15.8
Diarrhoea	11	14.5
Meningitis	7	9.2
Sickle cell crisis	4	5.3
Tuberculosis	6	7.9
Congenital anomalies†	5	6.5
Malnutrition	5	6.5
HIV/AIDS	4	5.3
Others‡	18	23.7

\*Some of the patients had more than one diagnosis

† Include congenital heart diseases, congenital hydrocephalus

#Others include Chronic kidney disease, malignancies, trauma including road traffic accidents.

Table no 5 shows reasons for DAMA. Majority of cases, 51 (67.1%), were DAMA due to lack of finance. Lack of improvement in child's condition and dealing with family issues each made up 7.9% of reasons for DAMA. Five (6.6%) patients DAMA due to perceived improvement in the child's condition while 4 (5.3%) left to seek spiritual solution to the illness. Two (2.6%) DAMA due to long hospital stay.

**Table no 5: Reason for DAMA**

Reason*	Number of patients	%
Lack of finance	51	67.1
No improvement in child's condition	6	7.9
Family issues#	6	7.9
Perceived improvement	5	6.6
To seek spiritual solution	4	5.3
Long hospital stay	2	2.6
Others	4	5.3

\*2 parents gave 2 reasons

# Family issues include no one to care for siblings at home, marital disharmony, disagreement among parents concerning child's care, parent's need to return back to work, refusal of blood transfusion based on parents' religious beliefs.

Table number 6 shows signatories to the DAMA document. The father was the main signatory to the discharge document in 48 (63.2%) cases while the mother signed in 21(27.6%) of cases. The remaining 7(9.2%) were by other relatives. Majority, 63(82.9%) lived with both parents. Three (3.9%) lived with their mother while non lived with their father. Nine (11.8%) lived with other relatives or guardians.

**Table no 6:** Signatories to the DAMA document and DAMA by whom child lives with

Signatory	Number of patients	%
Father	48	63.2
Mother	21	27.6
Others	7	9.2
Total	76	100
Whom child lives with	Number of patients	%
Both parents	63	82.9
Mother	3	3.9
Father	0	0
Other relative	6	7.9
Others	3	3.9
Not stated	1	1.3
Total	76	100

#### IV. Discussion

The DAMA prevalence was 1.9% in the CHEW of the NDUTH over the ten-year period. Hatim<sup>12</sup> in Saudi Arabia had similar findings of 1.6% over a ten-year period. Also, Ikefuna<sup>et al</sup><sup>6</sup> and Ibekweet <sup>al</sup><sup>7</sup>, both in Southeastern Nigeria, found similar prevalence rates among children. However, Ibezeako<sup>et al</sup><sup>13</sup> and Oyedeji<sup>11</sup> had much lower prevalence of 0.1% over five years and 0.96% over seven years respectively. This might be because theirs was carried out decades ago with much lower healthcare costs.<sup>6</sup>

The lowest prevalence in this present study was in 2009 while the highest was in 2016, at 0.45% and 5.26% respectively. With the introduction of a 50% fees waiver for children by the hospital in 2015, DAMA prevalence was 1.67%. However, in 2016 the highest prevalence of 5.26% was found as Civil Servants in the state were owed salary for six months.<sup>14</sup> Similarly, Gloyd<sup>et al</sup><sup>15</sup> reported a DAMA prevalence that quadrupled over 11 years in a paediatric ward in Cote d'Ivoire and Spooner <sup>et al</sup><sup>16</sup> found a 1.9% average annual increase over a decade in the United States. However, Gloyd<sup>et al</sup><sup>15</sup> reported a subsequent decline following the provision of essential drugs to patients at cost price. A possible contribution to this huge rise in this index study might be due to Nigeria's economic recession of 2016 and subsequent upward review of the costs of hospital services.<sup>17</sup> These factors might account for the negligible impact of the 50% fees waiver.

DAMA rate progressively declined from 5.26% in 2016 to 1.11% in 2018, when BHIS was introduced. Enrollees include Civil Servants and private sector beneficiaries. However, among those that were DAMA, none were beneficiaries of any health insurance scheme. Similarly, Nduet <sup>al</sup><sup>18</sup> in Eastern Nigeria reported that only 1.8% of DAMA cases had health insurance. Taghizadiehet <sup>al</sup><sup>19</sup> in Iran found a decline in DAMA rates from 5.49% before, to 3.9% after introduction of a Healthcare Transformation Plan. Although the National Health Insurance Scheme (NHIS) is nonfunctional at the NDUTH, its enrollment was less than 5% of Nigeria's population in 2019 unlike 35% coverage in Ghana, 91.5% insurance coverage in the United States and free healthcare in Oman.<sup>20-23</sup> 97.4% of DAMA cases in the present study were in the middle and low socioeconomic class, similar to other regional studies.<sup>9,18,24</sup> Dienyeet <sup>al</sup><sup>25</sup> in southern Nigeria reported that majority of surgical patients paid their bills from personal savings and most were unaware of, but willing to enroll in, the NHIS. Enrolment in BHIS and the NHIS can be improved by education of the populace about health insurance and ensuring beneficiaries' input in scheme design and management.<sup>26</sup>

Infectious diseases made up the majority of the diagnoses in those that DAMA, with pneumonia being the commonest, and this finding was consistent over the years. This is similar to reports by Okoromah and Egri-Okwaji<sup>8</sup>, Duruet <sup>al</sup><sup>9</sup> and Nduet <sup>al</sup><sup>18</sup>. This is not surprising as infectious diseases constitute a major cause of childhood morbidity in Nigeria.<sup>27</sup> Efforts at disease prevention including early detection and appropriate treatments starting at the primary health care levels should be emphasized.

The main reason for DAMA over the ten-year period was a lack of finance, similar to findings in other studies.<sup>7-9,18</sup> This is unlike the reasons in most developed nations.<sup>19,28</sup> This is not surprising as mitigating factors including health insurance is lacking, with most families in the low- and middle-income group. Maternal

education among those that DAMA was mostly primary and secondary education and they had siblings at home. This possibly reveals that female education without the capacity to afford quality healthcare will not have the desired impact in the prevention of DAMA.

Half of all DAMA cases in the study period occurred between days one to six of admission. This may be because most childhood illnesses, if well managed, do not last longer than a week.<sup>29</sup> This was similar to findings by Nduet *al*<sup>9</sup> and Aliyu *et al*.<sup>30</sup> The father was the signatory to the discharge document in majority of the DAMA in this present study, as seen in other studies.<sup>9,18,24</sup> This is not surprising as most African societies are patriarchal. Less than a tenth (9.2%) of those who DAMA in this present study were readmitted, though for a different illness, similar to Onyiriuka<sup>24</sup> in Benin. However, Onyiriuka<sup>24</sup> reported a readmission for the same illness within 24 to 48 hours. Possibly those who did not return in this index study may have recovered, presented to other health facilities for further care or died.

## V. Conclusion

The major factor in DAMA cases over the ten years of this study was finance, with preventable infectious diseases being the major diagnosis. The finding that none of these patients who were DAMA were beneficiaries of a health insurance scheme further reiterates the need for a drive towards universal health insurance coverage.

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