



ORIGINAL ARTICLE

## Out-of-Pocket Payment for Healthcare and Implications for Households: Situational Analysis in Yenagoa, Bayelsa State

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### Keywords

Out-of-pocket;  
Healthcare financing;  
Catastrophic Health Expenditure;  
Households;  
Yenagoa;  
Nigeria.

### ABSTRACT

**Background:** Healthcare financing remains a critical issue in the on-going discourse on universal health coverage (UHC). This community-based study sought to examine the payment for healthcare and its relationship to indicators of catastrophic health expenditure (CHE) among households (HH) in Yenagoa.

**Methods:** Data was obtained from a cross-sectional survey of households in two randomly selected communities in Yenagoa. A pretested, structured, interviewer-administered questionnaire was used to obtain information on HH income, general expenditures and financing for healthcare. HH spending more than 10% total income and 40% non-food expenditure were deemed to have suffered CHE and both CHE thresholds were calculated for the sampled population and compared between payment modes.

**Results:** Responses were received from 525 HHs with median HH monthly income, total and healthcare expenditures of ₦115,000, ₦112,170 and ₦9,250, respectively. Out-of-pocket (OOP) was the most prevalent (95.6%) mode of payment for healthcare. The incidence of CHE was 32.8% with reference to total income and 12.8% using non-food expenditure threshold. The Catastrophic Overshoots were 7% and -19.9% while Mean Positive Overshoots were 21% and 12% with respect to both thresholds for the entire study population. The incidence of CHE was significantly higher in HHs with OOP than insured HHs.

**Conclusion:** OOP was the main payment option for healthcare and exposes significantly higher proportion of HHs to CHE. Findings support the need to expand the coverage of the social insurance scheme to reduce exposure to financial risks by HHs and achieve UHC in Yenagoa.

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### INTRODUCTION

Health financing represents the flow of funds to healthcare providers in exchange for healthcare services.<sup>1</sup> The performance of the health financing model of any health system determines if people get the needed healthcare and the level of financial protection they enjoy while receiving care.<sup>1</sup>

A good healthcare financing strategy must be able to mobilize resources for healthcare; achieve equity and efficiency in the use of healthcare spending; ensure that healthcare is affordable and of high quality and ensure that essential healthcare services are adequately provided.<sup>1, 2</sup> Different health systems strive to achieve efficient and

effective financing using either single or a combination of financing options. However, some health systems in developing countries do not have well-structured frameworks for financing health care and assuring universal coverage for health services. Such poorly structured and ineffectively administered systems leave the populace with no other choice than out-of-pocket payment (OOP) for health services at the point of access to these services.

According to the World Health Organization, high incidence of OOP practice leaves the sick and poor with great financial risk as there are no solidarity from the healthy and the non-poor.<sup>3</sup> The sick in such situations have to make difficult decisions on whether to receive care and to what extent, based on their ability to make payment before care is provided. Households (HH) are thus, frequently faced with the dilemma of whether to pay for health services or pay for other essential needs such as the children's education.<sup>4</sup> Universal health coverage (UHC) is achieved when the populace can access healthcare however and whenever needed without economic constraints. The goal of UHC becomes hard to achieve when patients face financial burden or are deterred from continuing use of health services because of their inability to pay for such care at the point of access. The incentive to promptly seek healthcare is low or totally absent where OOP is the dominant mode of payment as this could expose HHs to financial catastrophe and impoverishment.<sup>5</sup>

Catastrophic health expenditure (CHE) can be defined in relation to a healthcare budget share that exceeds a pre-defined threshold; usually 10% of household income<sup>6</sup> or 40% of household non-food expenditure.<sup>7, 8</sup> HH whose budgets are disrupted when payment for healthcare exceeds these thresholds, could resort to cutting spending on other necessities, sell assets or incur debt to pay for healthcare services.<sup>8</sup> The financial burden bore by HHs that pay for healthcare through OOP mechanism can be determined by the extent this practice exposes the HHs to CHE. Furthermore, the extent of CHE is measured by the Catastrophic Headcount (HC), Catastrophic Payment Overshoot (O) and the Mean Positive Overshoot (MPO).<sup>8-11</sup>

The financing of healthcare remains an under researched subject in Nigeria. Previous facility-based studies<sup>12, 13</sup> in Port Harcourt reported that over 95% of those seeking healthcare for long-term conditions and childhood emergency used the OOP payment mechanism. These studies also reported incidence of CHE up to 72.8% for these HHs.<sup>12, 13</sup> Findings from other community-based studies in south-east Nigeria which estimated CHE with reference to 40% of non-food expenditure, reported the occurrence of CHE in HHs following OOP payment as high as 15%.<sup>1, 14</sup> Other studies in Kenya<sup>10</sup> and Ghana<sup>9</sup> reported 28.3% and 23.2% of households, respectively at risk of CHE using the threshold of 10% of HHs' income.

CHE is an important index for assessing the 'fairness' in financial contribution to healthcare. However, there is no data on the mechanism for payment for healthcare and its effects on HHs in Yenagoa. This study determined the proportion of HHs' resources spent on healthcare, the mode of payment for healthcare and the incidence, severity and intensity of CHE in Yenagoa, Bayelsa State. The findings from this study would assist policy makers and decision-makers to effectively upscale the Bayelsa Health Insurance Scheme (BHIS) which was conceived as a sustainable alternative for health system financing in the state.

## **METHODOLOGY**

### ***Study setting***

The study was conducted in Yenagoa, one of the traditional homes of the Ijaw people, located on the banks of Epie and Ekole Creeks, major tributaries of the Nun River.<sup>15</sup> It is the capital of Bayelsa State, Nigeria made up of 21 communities. Health care provision in Nigeria is a concurrent responsibility of the federal, state and local governments.<sup>1, 5</sup> The three tiers of government have substantial autonomy and exercise considerable authority in the allocation of resources for primary, secondary and tertiary public health services respectively.<sup>16</sup> The sources of health financing include general tax revenue, donor funding, out-of-pocket payments (OOP), social and community based health insurance.<sup>1, 5, 16</sup> While general government expenditure on health (GGHE) accounts for less than 25% of total

expenditure on health (THE), private health expenditure which is 90% financed by OOP accounts for about 75% of the nation's total expenditure on health.<sup>17, 18</sup> The government of Bayelsa State recently commenced operation of the BHIS which is backed by a law enacted by the State House of Assembly in 2013. BHIS is presently enrolling employees in government service and has commenced deduction of two percent of all employees' consolidated salary for the part funding of the scheme.<sup>19</sup>

### ***Study design***

The study is a descriptive community-based survey of households in Yenagoa.

### ***Sampling***

A multistage sampling technique was employed in selecting 525 households for this survey. In stage 1, two of the 21 communities in Yenagoa (Figure 1) were selected by simple random sampling (balloting). The three geographical divisions of these communities were identified with technical support from Bayelsa Geographical Information System (BGIS). One geographical division from each community was selected by simple random sampling (stage 2). The roads in the selected divisions formed the clusters from which houses were selected (stage 3) by systematic sampling techniques using the new BGIS house numbers. Finally, balloting was used to select one HH in houses with more than one HHs. The informants were heads of these HHs except where the heads were not available during the visits of the research team, then the spouses who had

information about the HH's finance were interviewed.

Sample size was calculated in terms of the number of households, using the formula for estimating the sample size in household surveys given by the Department of Economic and Social Affairs, Statistics Division, United Nations<sup>20</sup> as stated below:

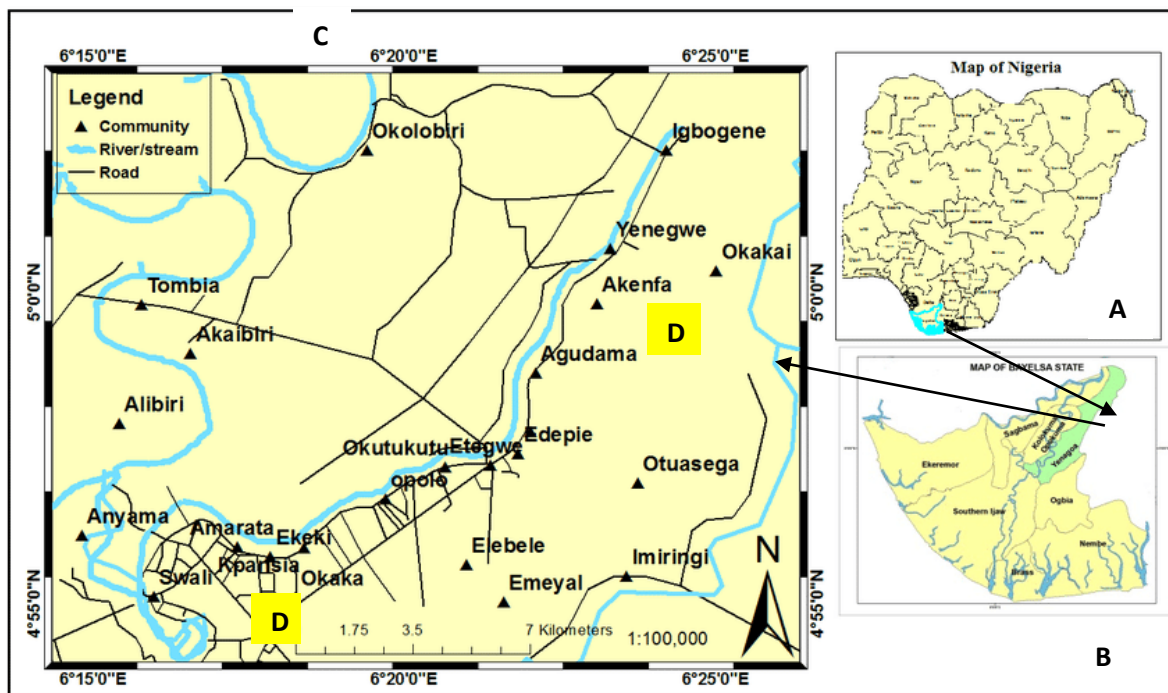
$$n_h = \frac{(Z^2)(r)(1-r)(f)(k)}{(p)(n)(e^2)}$$

where  $n_h$  is the sample size in terms of number of households to be surveyed in this study;  $Z$  is the standard normal deviate that represents the 95% confidence level (1.96);  $r$  is an estimate of the key indicator and for a robust analysis, this was assumed to be 50% of HHs with CHE in this survey;  $f$  is the sample design effect, Deff, assumed to be 2.0 because of the multistage sampling used in this study;  $k$  is a multiplier applied to

account for the anticipated rate of non-response (10%);  $p$  is the proportion of the total population accounted for by the target population (the target population is household heads, assuming an average age of 45 years and multiplying this average age by 0.03,  $p$  was given as 1.35);  $n$  is the average household size (6 persons per household as averagely reported for developing countries);  $e$  is the error margin (10%).

### Data collection

Data was collected by trained research assistants over a period of 5 weeks commencing from 10<sup>th</sup> July, 2017 using an extensive questionnaire developed in reference to existing tools used in similar studies.<sup>18, 22-27</sup>



**Figure 1: Map of Nigeria showing Bayelsa State (A), Bayelsa state showing Yenagoa (B) and Yenagoa (C) showing sample communities (D).<sup>21</sup>**

The questionnaire investigated household income, total consumption expenditure, healthcare expenditure, all and the main modes of payment for healthcare employed by HHs and the source of funds for OOP payment.

Household income included all earnings, welfare package or financial benefit accruing to the household from all members of the household not just the income of household head. Household total consumption expenditure included amount spent on health, food, rents, transportation, school fees, cable television and mobile phone subscription bills, fuel for generator, clothing, religious contributions and expenses at social events.

Healthcare expenditure included expenditures on insurance premium, drugs, consultation fees, hospital bed charges, transport charges to the treatment facilities and daily living cost, including food and lodging for the purpose of caring for the ailing household member. Healthcare expenditure also included expenditure made on self-medication and services sort from alternative/traditional medical practitioners. The non-food expenditure was the discretionary consumption obtained after deduction of actual or estimated food share from the monthly HH income.

The study explored healthcare payment in relation to chronic illness, hospitalization and childbirth and preventive services like antenatal care and immunization for the 12-month period before July 2017 and minor illnesses for the 4-week period before July

2017. Chronic illness was defined as a condition that has lasted for more than 6 weeks, which needs to be managed on a long-term basis and often require periodic visits to a healthcare practitioner.<sup>28</sup> Minor illnesses were health conditions of short duration, less than 6 weeks, in which affected household members were treated as outpatient. Hospitalisation was taken as inpatient medical services received by any member of the HH in formal health facilities or from the alternative/traditional health practitioners.<sup>23</sup>

The study instrument was pretested amongst 30 households in Yenegwe, a small community on the outskirts of Yenagoa and results from the pre-test were used to improve aspects of the questionnaire.

### **Data analysis**

The analyses conducted in this study were done to show the earnings and expenditures of the HHs. Computation of proportion of health payment to income and non-food expenditure was done. CHE was determined based on 10% of income and 40% of non-food expenditure as thresholds. The incidence of CHE was given by percentage of household spending beyond these thresholds over the period. The catastrophic overshoot and MPO were calculated to estimate the severity and intensity of CHE among the study population. These indicators of CHE were operationalized as follows:

The Catastrophic headcount referred to the incidence of CHE in a population. It represents the percentage of households

that made healthcare expenditure during this period above the 10% of income and 40% of non-food thresholds in the population.<sup>8-10</sup>

The catastrophic overshoot (O) showed the severity of the catastrophe and refers to the average degree by which OOP payments as a proportion of total expenditure, exceeds the catastrophic payment thresholds within this period.<sup>9-11</sup>

The MPO represented the intensity of CHE and was calculated by averaging the catastrophic overshoot over all households that exceed the catastrophic threshold within this period. The MPO measured the extent to which households with catastrophic expenditure exceeded the catastrophic thresholds.<sup>11, 25</sup>

HHs in this study were stratified into quintiles based on the HH income from all sources. This partitioning meant that each group from (lowest, second, middle, fourth and highest) comprises 20% of the larger study group. In classifying households as insured, the main payment mechanism employed by the households was used. All households whose healthcare payment were pre-arranged (reimbursement, social and private insurance, free medical care) were considered insured. The independent t-test was used to compare the income and various expenditure between insured and uninsured HHs while chi-square analyses were done to determine if a statistically significant difference exist between insured and uninsured HHs. A p-value < 0.05 was accepted as significant and all cost

estimates were in Naira (conversion: 1 USD = 360 Naira). Data analysis was done with the IBM SPSS 22.0 version.<sup>29</sup>

### ***Ethics and permission***

Ethical approval was obtained from the University of Port Harcourt Research Ethics Committee (UPH/CEREMAD/REC/04). Data was obtained from respondents after the study objectives were clearly explained and a written consent obtained from them.

## **RESULTS**

### ***Profile of households***

The survey studied 2,528 persons in 525 households with a median household size and dependents of 5 (range: 1 – 16) and 3 (range: 0 – 14), respectively. The mean age of HH head was 43.4 ± 11.7 years and most household heads were men (77%), married (71%), and 61.8% had post-secondary education (Table 1). Less than a fifth of surveyed households had at least a member with chronic illness, hospitalized member(s) and childbirth while slightly above half reported member(s) with recent minor illnesses in the one-year period under review. More of the HH heads were employed (91.8%) and more HHs had more than 1 income earners (60%) contributing to the total household income (Table 1).

### ***Household Income, total consumption expenditure and healthcare spending***

From Table 2, median household monthly income from all sources was ₦115,000 while the median monthly total consumption expenditure was ₦112,170 and the median monthly expenditure on food, non-food and

healthcare were ₦47,000, ₦52,870 and ₦9,250, respectively.

Table 3 reveals most households (63%) earn their income from salaries but a few subsist through welfare (2.7%). The most frequently used mode of payment for healthcare was the out-of-pocket method employed by 502 households (95.6%). Other payment options included social and private insurance, reimbursement, group and individual support and very few household (1.5%) were beneficiaries of free medical services. Pre-arranged payment plan as the main payment mechanism was used in only 48 households (9.2%).

The direct OOP payment was funded principally from household saving in about half of the study population, however, about 23 (4.4%) and 13 (2.5%) households funded

their OOP payment using proceeds from sale of household assets or through cooperative loans, respectively (Table 3). Almost half (46.6%) of the study population responded that healthcare spending affected other household expenses absolutely.

A comparison of mean household income and expenditures among OOP households and insured households was done in Table 4. While insured households significantly earned more and spent more on food and non-food, OOP households who averagely earned less, spent more than their insured counterpart on healthcare ( $t=3.91$ ;  $p<0.001$ ). Table 4 further showed that the OOP households spent significantly more in all categories of healthcare expenditure included in this survey.

**Table 1: Characteristics of Households in the Study**

HH Variable	Category	Frequency (n=525)	Percent
Sex of head of HH	Male	404	77.0
	Female	121	23.0
Marital status of head of HH	Currently single	155	29.5
	Currently married	370	70.5
Education status of head of HH	None	9	1.7
	Primary	36	6.9
	Secondary	158	30.1
	Tertiary	322	61.3
Employment status of head of HH	Not working	43	8.2
	Self-employed	196	37.3
	Employed in public/private	286	54.5
Income quintile	Lowest	118	22.5
	Second	94	17.9
	Middle	105	20.0
	Fourth	103	19.6
	Highest	105	20.0
HH Income earners	1	210	40.0
	2	273	52.0
	>2	42	8.0
Health events in HH*	Member(s) with chronic illness	85	16.2
	Member(s) with recent minor illness	268	51.0
	Member(s) recently hospitalized	68	13.0
	Childbirth in last 1 year	87	16.6
	No health expense in last 1 year	116	22.1

\* More than one option allowed

**Table 2: Monthly income and expenditure of households**

Variable	Median (₦)	Range
<b>Household mean monthly income</b>		
Primary income	110,000	10,000-750,000
Collective income - all sources	115,000	10,000-1,010,000
<b>Household mean monthly expenditure</b>		
Total consumption expenditure	112,170	12,000-771,925
Food expenditure	47,000	7,000-195,300
Non-food expenditure	52,870	3,450-550,000
Total Healthcare expenditure	9,250	200-683,330
<b>Mean healthcare expenditure breakdown</b>		
Long term medical condition	4,655	400-200,000
Minor illness	4,300	200-35,000
Childbirth	5,320	580-46,000
Hospitalization	9,500	1125-333,330
Others*	4,000	200-86,000

\*Others – include dental services like S&P, procurement or changing glasses, use of supplements, etc.

### **Catastrophic Health Expenditure**

Table 5 shows the percentage of households classified as facing financial catastrophe was 32.8% and 12.8% with reference to 10% household income and 40% of non-food expenditure thresholds respectively. Determining the severity of CHE using the catastrophic overshoot showed that HHs spent 7% higher than the threshold of 10% of total income.

Also, the intensity of CHE measured by MPO was 21.3% and 12.0% for 10% income and 40% non-food expenditure thresholds respectively. While 35.4% of households that pay for healthcare using the OOP experienced CHE, only 6.3% of households paying with insurance made catastrophic spending. Using the 40% non-food expenditure threshold however, no household in the insured category experienced financial catastrophe. Hence as shown in Table 5 CHE was significantly associated with OOP households in relation to both the 10% income threshold ( $\chi^2 = 16.68$ ;  $p < 0.001$ ) and the 40% non-food expenditure threshold ( $\chi^2 = 7.73$ ;  $p = 0.002$ ).

The occurrence of CHE in different study population subgroups is shown in Table 6. Based on the 10% income threshold for CHE, almost half of the households in the lowest level of income experienced CHE, while less than a quarter of households experience catastrophic spending in the fourth and highest income quintile. The estimates using the 40% non-food expenditure threshold shows similar patterns but lower proportions. Both acute and chronic health events in the households frequently result in CHE.

### **DISCUSSION**

This study was designed to determine the mean proportion of household resources spent on healthcare; the mode of payment for healthcare; as well as the incidence, severity and intensity of CHE among households in Yenagoa. The findings showed the median HH size being 5, median income and healthcare expenditure of ₦115,000 and ₦9,250 respectively. Over 95% of HHs used the OOP payment option and the overall occurrences of CHE were 12.8% to 32.8% with reference to the 40%



non-food and 10% income thresholds 35.9%, respectively) among those using the respectively, these were higher (13.9% and OOP payment option.

**Table 3: Income sources, payment mechanisms and perspective on cost of healthcare**

Characteristics	Frequency (n = 525)	Percent
<b>Source of income*</b>		
Salary	332	63.4
Business	311	59.2
Investment	31	5.9
Welfare	14	2.7
Others	12	2.3
<b>All payment methods used by household*</b>		
Out-of-pocket payment	502	95.6
Reimbursement	18	3.4
Social insurance	24	4.5
Private insurance	15	2.9
Group/individual support	105	20.0
No payment (Free care)	8	1.5
<b>Main Payment method used by Household</b>		
Out-of-pocket payment	477	90.8
Reimbursement	7	1.4
Social insurance	18	3.4
Private insurance	15	2.9
No payment (Free care)	8	1.5
<b>Source of funds for OOP payment*</b>		
Salary	192	36.6
Savings	282	53.7
Business proceeds	178	33.9
Sale of assets	23	4.4
Cooperative loans	13	2.5
Others**	33	6.3
<b>Healthcare cost affecting other expenditure</b>		
Yes, absolutely	245	46.6
Yes, partially	151	28.8
No, not at all	129	24.6

\*More than one option allowed; \*\*Others – gifts from relatives, religious organizations and philanthropist.

**Table 4: Income, total consumption and healthcare expenditure among HHs using OOP and health insurance**

Variable	Number of HHs	OOP payment HHs (n = 477)	Insured HHs (n = 48)	Statistical test of significance	p-value
<b>HH monthly income (₺)</b>					
Primary	525	144,488.84	214,437.50	t = -3.33	0.001
All sources	525	152,130.34	240,270.83	t = -3.98	< 0.001
<b>HH monthly expenditure (₺)</b>					
Food expenditure	525	59,899.68	70,687.50	t = -1.56	0.122
Non-food expenditure	525	89,370.28	119,072.67	t = -1.57	0.024
Health expenditure	525	20,474.54	9,208.86	t = 3.91	<0.001
<b>HH expenditure on different health conditions (₺)</b>					
Long-term conditions	85	4,820.17	1,119.05	t = 2.96	0.004
Minor illnesses	268	9,363.78	5,092.97	t = 2.16	0.033
Hospitalization	68	7,410.33	884.57	t = 3.01	0.003
Childbirth	85	3,370.56	933.28	t = 4.02	<0.001
Other health expenses	116	3,138.36	2,277.78	t = 0.88	0.383

**Table 5: Association between occurrence of CHE in HHs and the main payment mode**

Variable	Total (n = 525)	OOP payment HHs (n = 477)	Insured HHs (n = 48)	Fisher's exact test of significance	p-value
<b>Effects of health expenditure on HHs</b>					
<b>10% Income CHE threshold</b>					
CHE Households	172 (32.8)	169 (35.4)	3 (6.3)	16.68	<0.001
Non-CHE Households	353 (67.2)	308 (64.6)	45 (93.8)		
<b>40% Non-food expenditure CHE</b>					
CHE Households	67 (12.8)	67 (14.0)	0 (0.0)	7.73	0.002
Non-CHE Households	458 (87.2)	410 (86.0)	48 (100.0)		
<b>CHE defined by threshold of</b>					
<b>Catastrophic payment measure</b>	<b>10% of total income</b>		<b>40% Non-food expenditure</b>		
	<b>Incidence (%)</b>		<b>Incidence (%)</b>		<b>(95% CI)</b>
Catastrophic Headcount (H)	32.8		29.0, 37.0		12.8, 16.0
Catastrophic Overshoot (O)	7		3.9, 11.1		-19.9, -18.2
Mean Positive Overshoot (MPO)	21.3		16.7, 29.5		8.0, 14.4

**Table 6: Incidence of CHE among HH categories**

Characteristics	Catastrophic Health Expenditure	
	10% total income n (%)	40% Non-food expenditure n (%)
<b>Educational status of HH Heads</b>		
No formal education (n=9)	5 (55.6)	4 (44.4)
Primary education (n=36)	13 (36.1)	7 (19.4)
Secondary education (n=158)	58 (36.7)	24 (15.2)
Tertiary education (n = 322)	95 (29.5)	32 (9.9)
<b>Income level</b>		
Lowest (n = 118)	55 (46.6)	24 (20.3)
Second (n = 93)	38 (40.8)	14 (15.0)
Middle (n = 105)	32 (30.5)	15 (14.3)
Fourth (n = 103)	23 (22.3)	7 (6.8)
Highest (n = 105)	24 (22.9)	7 (6.7)
<b>HH with under 5 children</b>		
Yes (n = 244)	94 (38.8)	34 (14.0)
No (n = 281)	79 (28.2)	33 (11.8)
<b>HH with elderly (&gt;65years)</b>		
Yes (n = 93)	36 (39.1)	16 (17.4)
No (n = 432)	136 (31.6)	50 (11.6)
<b>HH with hospitalized member</b>		
Yes (n = 68)	37 (54.4)	19 (27.9)
No (n = 457)	136 (29.8)	48 (10.5)
<b>HH with childbirth in the last one year</b>		
Yes (n = 87)	47 (54.0)	16 (18.4)
No (n = 438)	126 (28.8)	51 (11.6)
<b>HH with chronically ill member(s)</b>		
Yes (n = 85)	54 (63.5)	29 (34.1)
No (n = 440)	119 (27.0)	38 (8.6)
<b>HH with member(s) reporting minor illnesses</b>		
Yes (n = 268)	120 (44.8)	48 (17.9)
No (n = 257)	53 (20.6)	19 (7.4)
<b>HH main mode of payment for healthcare</b>		
OOP (n = 477)	169 (35.4)	67 (14.0)
Insured HHs (n = 48)	3 (6.3)	0 (0.0)

Income distribution varied widely among HH but the median monthly income from all sources of ₦115,000 was comparable to income of ₦100,800 and ₦118,000 respectively reported from previous studies in Port Harcourt.<sup>12, 13</sup> However, these earlier studies reported slightly higher household expenditure on subsistence (₦63,500 to ₦83,500) compared to this study. While all these studies were conducted in the same oil-rich geopolitical zone in Nigeria, inflationary trends,<sup>30</sup> research strategy and the different approaches used in computing household income and expenditure could also be responsible for the observed differences. The latter provides an imperative for improvement and standardization of the methodological rigour for research in health financing in resource-constrained settings.

About 20% of households reported zero healthcare expenditure over the one-year recall period. This proportion was lower than the 38.5% reported in a previous study in Kenya.<sup>10</sup> The above finding may be indicative of a low demand for health services by these households even where there are needs for such services. Apart from access to free preventative services like immunization and health information, some households may only decide to seek and pay for healthcare when they suffer severe health conditions. Three groups of households could have accounted for the one-fifth of households that reported zero expenditure on healthcare in this study. These include the beneficiaries of free care or those who experienced no episode of

illness and therefore did not have any need to make payment for healthcare. The last group are those that had reasons to seek healthcare but could not because of their inability to pay for such care. There are strong indications that this last group were in the majority because about half (46.6%) of the households in this survey exchanged essential household needs in order to be able to purchase healthcare.

Direct OOP was the dominant mode of payment for healthcare and this might have contributed to the high proportion of households facing CHE in this study. However, among the households who experience CHE, average of 31.3% of household income and 52.0% of non-food expenditure is diverted to seeking healthcare. These overshoot estimates are far higher than previous reports of 0.08-1.01%<sup>31</sup> and 3.75-5.73%<sup>32</sup> for 10% income and 40% nonfood thresholds respectively in other African countries. These findings demonstrate the huge opportunity cost of OOP payment in the event of adverse health events and explain some of the disruptions in household finance that may result from spending on healthcare in this environment.

Only 4.5% of our households are enrolled under the National health insurance scheme (NHIS) despite its 14 years of existence. While this is within the enrolment bracket of 1-10% reported in some African countries,<sup>33</sup> it is about twice the proportion reported among households accessing emergency care for their children in a tertiary hospital<sup>13</sup> but similar to the 4.2%

reported among households with adult members who are receiving care for long-term conditions in a tertiary hospital.<sup>12</sup> The low proportion of enrollees indicates that not much progress has been achieved by the scheme over the last decade.<sup>34</sup> The poor enrolment into the NHIS is likely the result of the poor governance framework which favours federal control; the distrust among the three tiers (federal, state, and local) of government; corruption; ignorance of potential beneficiaries and the belligerent attitudes of the organised labour movement.<sup>35</sup> The findings from this study further indicates that enrollees may be enjoying reasonable level of protection from financial catastrophe with utilization of available healthcare. It is hoped that the inclusion of the basic healthcare provision funds in the national budget and the recent commencement of enrolment under the BHIS would increase coverage for social insurance in this setting.

This study like many studies conducted in low and middle-income countries (LMIC) found that OOP form of payment is prevalent.<sup>8, 10, 11, 13, 18, 23, 27</sup> Although most respondents claimed they funded the OOP payment from household saving, about a third still had to wait for payment of salary before they sought or continued to utilize healthcare services. The practice of waiting for payment of salary before accessing care obviously causes a delay in access or a disruption of on-going care. Similarly, household savings are often intended for payment of other essential household needs such as pending school fees and rents. The

act of spending such savings on healthcare could result in the inability of the households to meet these other legitimate obligations.

Difficult choices need to be made on the allocation of scarce HH financial resources. When the cost of meeting critical needs in the HH outstrips the HH total earnings, then borrowing provides the HH an opportunity to meet those critical needs. Borrowing from cooperative groups and selling of HH assets were among the coping strategies used to finance OOP payment for healthcare where the HH earning is not enough. Cooperative loans may appear easier to obtain than commercial loans, but they are associated with catastrophic opportunity cost since they result in a decline in future HH income during loan repayment. Similarly, replacement of sold assets depletes households' wealth and reduces future resources.<sup>18</sup>

Finally, the disparity in the incidence of CHE, 20.3% and 6.7% of households in the poorest and richest income quintiles respectively is similar to the 22.6% and 7.6% incidence of CHE in these groups reported in an earlier study.<sup>14</sup> Both reports which show that CHE is widespread among the poor in Nigeria raise equity concerns in current health financing mechanisms in Nigeria. It is critical to provide answers to questions on what happens to poor households who bear this financial burden and others who decide to completely forgo healthcare because they cannot afford it.

## Limitations

The self-reported health expenditure data for patients using the OOP option included only direct medical and non-medical cost paid for by patients. This excludes the cost of health worker's time and all indirect cost (productivity loss). Income data from households whose members earn a living in the informal sector was also challenging to estimate accurately. However, breaking down income and expenditure estimates to the smallest unit, for example asking for the previous day food expenditure or yesterday's income from daily income earners helped reduced errors in the estimation. Secondly, the one-year recall period for expenditures on chronic illnesses, hospitalizations and childbirths may be prone to recall bias. Lastly, the study only took a snapshot of the effect of health expenditure on living standards which should ideally be estimated by a longitudinal study.

## Conclusion

This study showed the prevalence of direct OOP mechanism and the consequence this has on households in Yenagoa. The exposure to CHE is seen in all forms of health events (minor and chronic illnesses, childbirth and hospitalization) but higher among the lower income groups. Efforts should be made to expand the coverage of pre-payment and risk-sharing scheme provided by the NHIS and the BHIS. Relevant stakeholders including policy and decision makers need to support the expansion of enrolment into existing prepayment schemes and encourage the

growth of community-based health insurance (CBHI) which should also target the informal sector. Furthermore, operators of these schemes would need to be innovative in designing plans that protect the poor and other vulnerable population. Disease-specific programs designed to mitigate the burden of some chronic health condition should be included in this plan. Future research should aim to identify drivers of healthcare cost and strategies to reduce them. These strategies would reduce exposure to financial risks by HHs and facilitate the attainment of universal health coverage in Yenagoa, Bayelsa State.

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