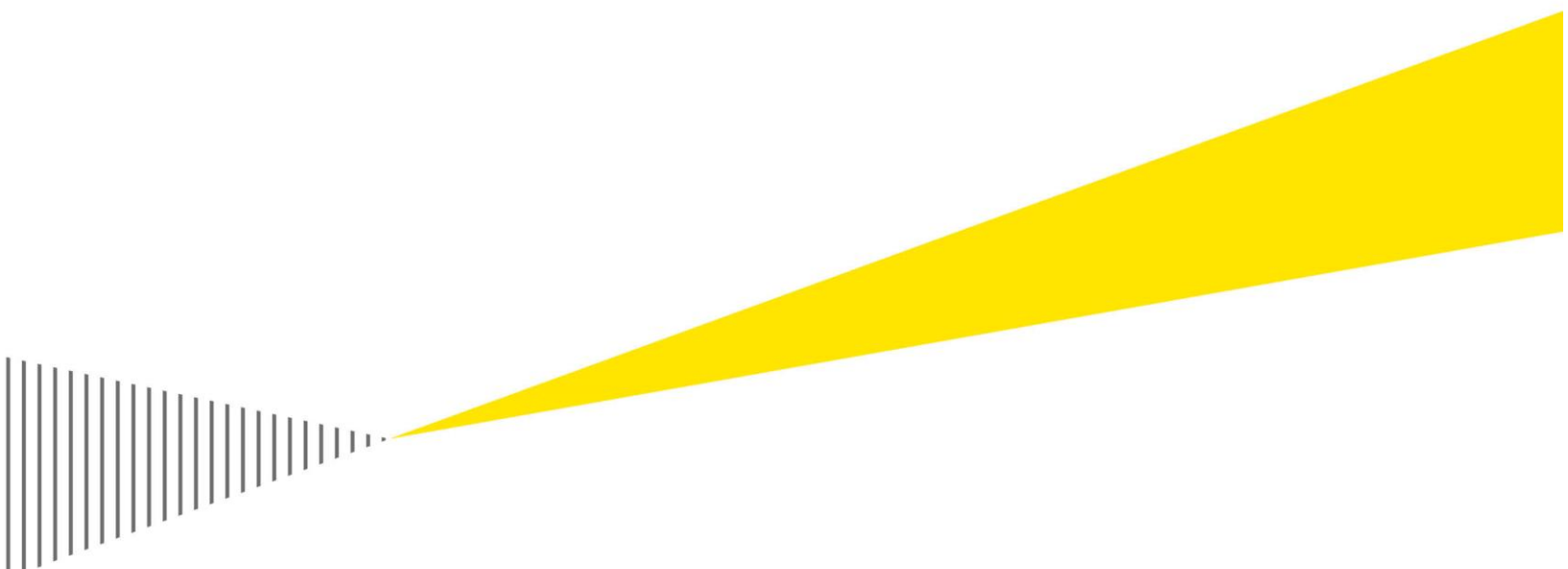


RIVERS STATE HEALTH SCHEME

HEALTH INSURANCE: PRICING REPORT FOR
MINIMUM HEALTH BENEFITS PACKAGE (MHBP).



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1 EXECUTIVE SUMMARY

Rivers State government, as part of its' responsibility to provide quality health care for the residents of the state, wants to create a Minimum Health Care package which provides a set of basic health care benefits to which residents can have unrestricted access. Abt Associates has contracted Ernst & Young to actuarially cost the state health benefit package called Minimum Health Benefit Package (MHBP) and this product is expected to be:

Affordable
High quality and
Sustainable by government

This report gives appropriately estimated risk premium covering the medical cost under each benefit package for both individuals and households. MHCP considers six (6) scenarios under this health insurance program.

Scenario I – Basic Benefit Package

Scenario II – Basic Benefit Package (BBP) + HTS + PMTCT

Scenario III – Basic Benefit Package (BBP) + HTS + PMTCT + ART

Scenario IV - Basic Benefit Package (BBP) + HTS + PMTCT + TB

Scenario V - Basic Benefit Package (BBP) + HTS + PMTCT + ART+ Secondary illness

Scenario VI - Basic Benefit Package (BBP) + HTS + PMTCT + ART + Other ailments partially covered in the Benefits Package.

We have considered both the individual and household plan for this report. The projected cost per person covers one person irrespective of age and gender, while the household plan covers two parents and four children.

This report also analyses other costs to the scheme such as marketing costs, operational costs and contingency costs. We have assumed marketing and operational costs to be 15% and 7% respectively, while contingency margin is assumed to be 8%. All these costs are in percentage of the gross premium and all values are in Naira.

The service data was provided by the Rivers State Hospitals' Management Board. This data contains the utilization for most ailments in the benefit package for the period 2014- 2017 across the twenty- three local governments of the state

The service data of HIV/AIDs and tuberculosis patients collated and validated by Rivers State Agency for the control of AIDS (RIVSACA) and the State Aids and STIs Control Program (SASCP) was used in our actuarial calculations. Also we relied on the Rivers State population projections also supplied by Rivers' State Ministry of Health. We have used in our costing the price list supplied to us by Rivers State Ministry of Health and the Proposed price list for hospitals under the Rivers State Hospitals' Management Board

We understand this is a new product for the residents, and the service data from various hospitals across the state helped us to a large extent. However, we recommend that experience data be

collated appropriately and further consider factors like age, salary of the sponsor, sex, sponsor's employer class etc. for further analysis and premium review.

The tables below present the premiums to be charged per annum for all scenarios by exposure split of 25%, 10% and 5% of total Rivers State population.

Assuming 25% of Rivers State Population as Exposure		
Scenarios	Individual	Households
Scenario I	14,026	79,946
Scenario II	14,784	84,266
Scenario III	20,399	116,277
Scenario IV	20,788	118,494
Scenario V	22,347	127,376
Scenario VI	21,092	120,225

Assuming 10% of Rivers State Population as Exposure		
Scenarios	Individual	Households
Scenario I	35,064	199,866
Scenario II	36,959	210,666
Scenario III	50,998	290,691
Scenario IV	51,971	296,235
Scenario V	55,867	318,441
Scenario VI	52,730	300,563

Assuming 5% of Rivers State Population as Exposure		
Scenarios	Individual	Households
Scenario I	70,128	399,732
Scenario II	73,918	421,332
Scenario III	101,997	581,383
Scenario IV	103,942	592,470
Scenario V	111,734	636,882
Scenario VI	105,461	601,127

We hereby recommend the estimated premiums stated in the tables above as follows:

N14, 026 and N79,946 for individual and household rates under Scenario I
 N14,784 and N84,266 for individual and household rates under Scenario II
 N20,399 and N116,277 for individual and household rates under Scenario III

N20,788 and N118,494 for individual and household rates under Scenario IV
N22,347 and N127,376 for individual and household rates under Scenario V
N21,092 and N120,225 for individual and household rates under Scenario VI

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1.1 Scope of Work

The reported health insurance premiums consist of:

Pure premium which covers the medical element
Operational costs and
Contingency margin

This premium has been calculated for all scenarios Abt Associates instructed us to consider. The scenarios are

Scenario I – Basic Benefit Package

Scenario II – Basic Benefit Package (BBP) + HTS + PMTCT

Scenario III – Basic Benefit Package (BBP) + HTS + PMTCT + ART

Scenario IV - Basic Benefit Package (BBP) + HTS + PMTCT + ART+TB

Scenario V - Basic Benefit Package (BBP) + HTS + PMTCT +ART + Secondary illness

Scenario VI - Basic Benefit Package (BBP) + HTS + PMTCT + ART + Other Disease Conditions and Diseases under partial exclusions

1.2 Target Market

The objective of Rivers State Health Scheme benefit package is to provide an affordable and in the long run, a sustainable health insurance benefits package for its residents.

The population of Rivers State as at 2016 sits around 7 million and the scheme is to be rolled out to the general population with a 50% target in the next five years and 100% target over the next 15 years.

1.3 Actuarial Data and Limitations

The service data provided comprises health facilities from primary, secondary and tertiary hospitals across the twenty-three local government areas in the state.

We smoothed out errors where information has appeared odd in data such as male encounter being captured under ANC, or female-related ailments. Some adjustments have also been made to cases where number of hospital visits reduced in the following year with no improvements in the overall healthcare management in the state.

To perform trend analysis in the future, we advise collation of relevant data such as geographical location, stage of infection, duration of drugs, occupation/socio-economic status etc.

We have also used recent costs of drugs/treatments in our possession as well as the ones supplied by Rivers State Hospitals' Management Board (RSHMB) and River's State Primary Health Care Management Board (RSPHCMB).

2. Source of Data

2.1 Description of Data Source

This MHCP benefit package is a relatively new health insurance cover to be rolled by Rivers State Government in collaboration with USAID-HFG, Nigeria for Rivers State residents. Rivers State Ministry of Health provided us with a service data collated from hospitals across Rivers state. The data used covers the period from 2014 to 2017 thus using a sizeable data base.

We have checked for inconsistent patterns, random fluctuations, and errors in the data to ensure our estimates are not distorted by some past experience and some socio economic factors.

The case rates utilized was based on the Harmonized price list by the Rivers State Primary Health Management and the proposed price review for Hospitals in Rivers State for 2017. We also utilized the HIV costing data supplied by LMCU, Pharmaceutical Department, Ministry of Health for our pricing exercise.

The next section describes the distribution of the data

3. Exposure Data

Rivers State Ministry of Health supplied the Rivers State population categorized by Local Government Area, LGA. The projections and percentage of each LGA to the total population of Rivers State up until 2018 are presented below.

Table 2.2.1 Exposure Population by Local Government Area

LGA	2012 Population	2013 Population	2014 Population	2015 Population	2016 Population	2017 Population	2018 Population
Abua/Odual	345,853	357,612	369,771	382,343	395,342	408,784	422,683
Ahoada East	203,789	210,718	217,882	225,290	232,950	240,871	249,060
Ahoada West	304,834	315,198	325,915	336,996	348,454	360,301	372,552
Akuku Toru	190,662	197,145	203,848	210,778	217,945	225,355	233,017
Andoni	257,884	266,652	275,718	285,093	294,786	304,808	315,172
Asari-Toru	268,994	278,140	287,597	297,375	307,486	317,941	328,751
Bonny	263,199	272,148	281,401	290,968	300,861	311,091	321,668
Degema	305,259	315,638	326,370	337,466	348,940	360,804	373,071
Eleme	233,288	241,220	249,421	257,902	266,670	275,737	285,112
Emuoha	246,753	255,142	263,817	272,787	282,062	291,652	301,568
Etche	304,869	315,235	325,953	337,035	348,494	360,343	372,595
Gokana	279,661	289,170	299,002	309,168	319,679	330,548	341,787
Ikwerre	231,873	239,757	247,908	256,337	265,053	274,064	283,383
Khana	359,576	371,802	384,443	397,514	411,030	425,005	439,455
Obio/Akpor	568,040	587,354	607,324	627,973	649,324	671,401	694,228
Ogba/Egbema/Ndoni	347,102	358,903	371,106	383,724	396,770	410,260	424,209
Ogu Bolo	91,274	94,377	97,586	100,904	104,334	107,882	111,550
Okrika	271,348	280,574	290,114	299,978	310,177	320,723	331,627
Omumma	122,662	126,832	131,145	135,604	140,214	144,981	149,911
Opobo/Nkoro	185,169	191,464	197,974	204,705	211,665	218,862	226,303
Oyigbo	149,941	155,039	160,311	165,761	171,397	177,225	183,250
Port-Harcourt	661,322	683,807	707,056	731,096	755,953	781,656	808,232
Tai	143,965	148,860	153,921	159,155	164,566	170,161	175,947
Total	6,337,318	6,552,787	6,775,581	7,005,951	7,244,154	7,490,455	7,745,130

Table 2.2.2 Exposure Distribution from 2012 to 2018 by Local Government Area

Rivers State Health Scheme: Minimum Health Benefit Package

LGA	2012 Population	2013 Population	2014 Population	2015 Population	2016 Population	2017 Population	2018 Population
Abua/Odual	5.46%	5.46%	5.46%	5.46%	5.46%	5.46%	5.46%
Ahoada East	3.22%	3.22%	3.22%	3.22%	3.22%	3.22%	3.22%
Ahoada West	4.81%	4.81%	4.81%	4.81%	4.81%	4.81%	4.81%
Akuku Toru	3.01%	3.01%	3.01%	3.01%	3.01%	3.01%	3.01%
Andoni	4.07%	4.07%	4.07%	4.07%	4.07%	4.07%	4.07%
Asari-Toru	4.24%	4.24%	4.24%	4.24%	4.24%	4.24%	4.24%
Bonny	4.15%	4.15%	4.15%	4.15%	4.15%	4.15%	4.15%
Degema	4.82%	4.82%	4.82%	4.82%	4.82%	4.82%	4.82%
Eleme	3.68%	3.68%	3.68%	3.68%	3.68%	3.68%	3.68%
Emuoha	3.89%	3.89%	3.89%	3.89%	3.89%	3.89%	3.89%
Etche	4.81%	4.81%	4.81%	4.81%	4.81%	4.81%	4.81%
Gokana	4.41%	4.41%	4.41%	4.41%	4.41%	4.41%	4.41%
Ikwerre	3.66%	3.66%	3.66%	3.66%	3.66%	3.66%	3.66%
Khana	5.67%	5.67%	5.67%	5.67%	5.67%	5.67%	5.67%
Obio/Akpor	8.96%	8.96%	8.96%	8.96%	8.96%	8.96%	8.96%
Ogba/Egbema/Ndoni	5.48%	5.48%	5.48%	5.48%	5.48%	5.48%	5.48%
Ogu Bolo	1.44%	1.44%	1.44%	1.44%	1.44%	1.44%	1.44%
Okrika	4.28%	4.28%	4.28%	4.28%	4.28%	4.28%	4.28%
Omumma	1.94%	1.94%	1.94%	1.94%	1.94%	1.94%	1.94%
Opobo/Nkoro	2.92%	2.92%	2.92%	2.92%	2.92%	2.92%	2.92%
Oyigbo	2.37%	2.37%	2.37%	2.37%	2.37%	2.37%	2.37%
Port-Harcourt	10.44%	10.44%	10.44%	10.44%	10.44%	10.44%	10.44%
Tai	2.27%	2.27%	2.27%	2.27%	2.27%	2.27%	2.27%
Total	100%	100%	100%	100%	100%	100%	100%

4. Encounter Data

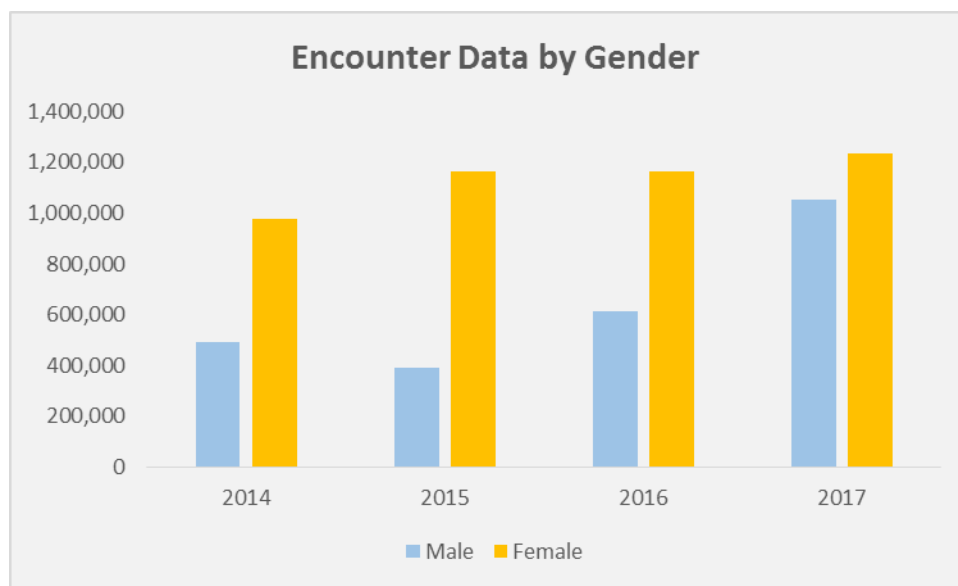
The data comprises of different ailments attended to at state hospitals, and health centers over a four-year period (2012 - 2017).

We have also grouped the ailments under the two major modes of payment; Capitation and Fee-For-Service for all the years mentioned above. Below are tabular representations of the encounter distribution whilst the pictorial representations are presented in the Appendix.

As contained in the Benefit description, we have treated ART, Secondary Illness and Tuberculosis) separately. Hence the HIV information in this encounter data were not used, but rather, we have relied on the data sent by LMCU, Pharmaceutical Department Ministry of Health for HIV/AIDS costing.

Table 2.3.1 Encounter Distribution from 2014 to 2017 by Gender

Encounter Data				
	2014	2015	2016	2017
Male	489,963	389,178	610,426	1,055,041
Female	979,180	1,162,793	1,166,165	1,234,775
Total	1,469,143	1,551,971	1,776,591	2,289,816



5. Actuarial Assumptions and Methodology

We have built our pricing model as described below:

5.1 Capitation Cost

As treated in data section, we analysed the diagnosis individually, and categorized them as presented in the Appendix for the four years period (2014 to 2017). We have extracted the treatment costs from the data supplied. We have multiplied each diagnosis encounter with the assumed treatment cost to obtain the total capitation cost each year.

5.2 Fee- For- Service

Similarly to the case above, we have also used fee-for-service costs, and multiplied each diagnosis encounter. Case rates supplied were also used.

5.3 Marketing Cost

An assumption of **15%** was made and this as a percentage of Capitated and Fee-for-Service fees. This is to cover solely the marketing expenses (sensitization, advertisement e.t.c)

5.4 Operating Expense

We anticipate this spending on advertising and announcements to the public on this health scheme to be initial, and gradually fades off over time. We assumed this to be **7%** of Capitated and Fee-for-Service fees.

5.5 Contingency Margin

In the event that the actual utilisation and the emerging cost of treatment differ from our projections, we have included a contingency margin of **8%** of premium p.a.

5.6 Premium

This is sum of the following elements

- the Capitated fee
- Fee-For-Service
- Marketing cost,
- Operating expenses and the Contingency Margin

with split into per person and per household premiums.

6. Results

The tables below is the average cost per encounter under each mode of payment.

We assumed only 25% of Rivers State residents were exposed throughout the four year period. However we ran sensitivity analysis to see the discrepancies between premiums estimated having considered 10%, and 5%.

Scenario I : Basic (Minimum) Benefits Package

This has been designed to cover six (6) categories – Outpatient Services, Investigations, Maternity Services, Surgical Services, Emergency Services and Inpatient Services. The estimated cost per individual and household is summarized in the table below.

Table 6.1.1 (a) Total premium per person

Basic Benefit Package	N
Capitation	2,935
Fee for Service	6,883
Pure Cost	9,818
Marketing Cost	2,104
Operating Cost	982
Contingency Margin	1,122
Total premium	14,026

Table 6.1.1 (b) Total premium per household

Basic Benefit Package	N
Capitation	17,611
Fee for Service	41,297
Pure Cost	58,908
Marketing Cost	11,992
Operating Cost	5,596
Contingency Margin	6,396
Total premium	79,946

Scenario II: Basic Benefit Package + HTS and PMTCT

This covers the Basic benefit package, HIV Testing services (HTS) and Prevention of mother-to-child transmission (PMTCT). The premium is given below:

Table 6.1.2 (a) Total premium per person

Basic Benefit Package	N
Capitation	2,935
Fee for Service	6,883
HTS+PMTCT	
Capitation	458
Fee for Service	73
Pure Cost	10,348
Marketing Cost	2,218
Operating Cost	1,035
Contingency Margin	1,183
Total premium	14,784

Table 6.1.2 (b) Total premium per household

Basic Benefit Package	N
Capitation	17,611
Fee for Service	41,297
HTS+PMTCT	
Capitation	2,746
Fee for Service	437
Pure Cost	62,091
Marketing Cost	12,640
Operating Cost	5,899
Contingency Margin	6,741
Total premium	84,266

Scenario III: Basic Benefit Package + HTS and PMTCT + ART

This covers the Basic benefit package, HIV Testing services (HTS) and Prevention of mother-to-child transmission (PMTCT) and Antiretroviral therapy (ART). The premium details is given below:

Table 6.1.3 (a) Total premium per person

Basic Benefit Package	N
Capitation	2,935
Fee for Service	6,883
HTS+PMTCT	
Capitation	458
Fee for Service	73
ART	
Capitation	2,303
Fee for Service	1,628
Pure Cost	14,280
Marketing Cost	3,060
Operating Cost	1,428
Contingency Margin	1,632
Total premium	20,399

Table 6.1.3 (b) Total premium per household

Basic Benefit Package	N
Capitation	17,611
Fee for Service	41,297
HTS+PMTCT	
Capitation	2,746
Fee for Service	437
ART	
Capitation	13,816
Fee for Service	9,770
Pure Cost	85,677
Marketing Cost	17,441
Operating Cost	8,139
Contingency Margin	9,302
Total premium	116,277

Scenario IV: Basic Benefit Package + HTS and PMTCT + ART + Tuberculosis

This covers the Basic benefit package, HIV Testing services (HTS) and Prevention of mother-to-child transmission (PMTCT) and Antiretroviral therapy (ART) and Tuberculosis treatment (Routine screening and Directly-Observed-Treatment Short course (DOTS)). The premium details are given below:

Table 6.1.4 (a) Total premium per person

Basic Benefit Package	N
Capitation	2,935
Fee for Service	6,883
HTS+PMTCT	
Capitation	458
Fee for Service	73
ART	
Capitation	2,303
Fee for Service	1,628
TB	
Capitation	19
Fee for Service	253
Pure Cost	14,552
Marketing Cost	3,118
Operating Cost	1,455
Contingency Margin	1,663
Total premium	20,788

Table 6.1.4 (b) Total premium per household

Basic Benefit Package	N
Capitation	17,611
Fee for Service	41,297
HTS+PMTCT	
Capitation	2,746
Fee for Service	437
ART	
Capitation	13,816
Fee for Service	9,770
TB	
Capitation	116
Fee for Service	1,518
Pure Cost	87,311
Marketing Cost	17,774
Operating Cost	8,295
Contingency Margin	9,480
Total premium	118,494

Scenario V: Basic Benefit Package + HTS and PMTCT + ART + Secondary Illness

This covers the Basic benefit package, HIV Testing services (HTS) and Prevention of mother-to-child transmission (PMTCT)

and Antiretroviral therapy (ART) and Secondary Illness. The premium details are given below:

Table 6.1.5 (a) Total premium per person

Basic Benefit Package	N
Capitation	2,935
Fee for Service	6,883
HTS+PMTCT	
Capitation	458
Fee for Service	73
ART	
Capitation	2,303
Fee for Service	1,628
Secondary Illnesses	
Capitation	
Fee for Service	1,363
Pure Cost	15,643
Marketing Cost	3,352
Operating Cost	1,564
Contingency Margin	1,788
Total premium	22,347

Table 6.1.5 (b) Total premium per household

Basic Benefit Package	N
Capitation	17,611
Fee for Service	41,297
HTS+PMTCT	
Capitation	1,825
Fee for Service	437
ART	
Capitation	14,737
Fee for Service	9,770
Secondary Illnesses	
Capitation	
Fee for Service	8,179
Pure Cost	93,856
Marketing Cost	19,106
Operating Cost	8,916
Contingency Margin	10,190
Total premium	127,376

Scenario VI: Basic Benefit Package + HTS and PMTCT + ART + Other Diseases and Diseases under partial exclusions

This covers the Basic benefit package, HIV Testing services (HTS) and Prevention of mother-to-child transmission (PMTCT) and Antiretroviral therapy (ART) and Other Diseases under partial exclusion. The premium details are given below:

Table 6.1.6 (a) Total premium per person

Basic Benefit Package	N
Capitation	2,935
Fee for Service	6,883
HTS+PMTCT	
Capitation	458
Fee for Service	73
ART	
Capitation	2,303
Fee for Service	1,628
Other Diseases and Partial Exclusions	
Capitation	135
Fee for Service	349
Pure Cost	14,765
Marketing Cost	3,164
Operating Cost	1,476
Contingency Margin	1,687
Total premium	21,092

Table 6.1.6 (b) Total premium per household

Basic Benefit Package	N
Capitation	17,611
Fee for Service	41,297
HTS+PMTCT	
Capitation	2,746
Fee for Service	437
ART	
Capitation	13,816
Fee for Service	9,770
Other Diseases and Partial Exclusions	
Capitation	813
Fee for Service	2,097
Pure Cost	88,587
Marketing Cost	18,034
Operating Cost	8,416
Contingency Margin	9,618
Total premium	120,225

7. HIV Modular Pricing

In our analysis for HIV/AIDS pricing, we have separately determined the modular costs for HIV Testing Services (HTS), PMTCT and ART. Further assumptions with respect to the utilization rate and cost of drugs are provided below;

Module	Utilisation assumption	Annual cost assumption (N)
ART(1st line)	0.06713	32,387
ART(2nd line)	0.00069	88,299
PMTCT (for mother)	0.00442	33,919
Pediatrics (1st line)	0.00412	15,853
Pediatrics (2nd line)	0.00004	82,226
HTC (General test)	1 test	325
HTC (Confirmatory test)	1 test	584
Viral Load	2 tests	12,301
EID test for 6 weeks	1 test	6,735
Nevirapine	1 dose	796
CD4 count	2 tests	9,692

Breakdown of HTC modular cost	Capitation (N)
HTC (General test)	274.40
HTC (Confirmatory test)	24.85
Tie Breaker	4.93
Cost of HTC Module	304.18

Breakdown of PMTCT modular cost	Capitation (N)	Fee for Service (N)
PMTCT (mother)	149.94	
PMTCT (child) - single dose Nevirapine	3.52	
Viral Load Testing - pregnant women		68.76
EID for Infants		4.12
Cost of PMTCT Module	153.46	72.88

Breakdown of ART modular cost	Capitation (N)	Fee for Service (N)
ART (1st line) -Adults	2,174.05	
ART (2nd line) -Adults	59.87	
ART (1st line) -Pediatrics	65.37	
ART (2nd line) -Pediatrics	3.42	
CD4 Count (twice a year)		650.62
Viral Load (twice a year)		825.75
Chemistry and Hematology		152.00
Cost of ART Module	2,302.72	1,628.37

The risk premium for HIV/AIDS cover based on a 25% population exposure is shown in the table below.

Rivers State Health Scheme: Minimum Health Benefit Package

Risk Premium for HIV/AIDS cover	Capitation (N)	Fee for Service (N)
HTC	304.18	
PMTCT	153.46	72.88
ART	2,302.72	1,628.37
Total risk premium	2,760.36	1,701.25

Risk Premium for HIV/AIDS cover	Capitation (N)	Fee for Service (N)
HTC	304.18	
PMTCT	153.46	72.88
ART	2,302.72	1,628.37
Contingency margin	828.11	510.37
Total risk premium	2,760.36	1,701.25

8. Sensitivity Analysis

This section gives the individual and household total premium rates for this product having considered 5% and 10% of Rivers State population as the Exposure. We have captured the scenarios suggested as follows:

Scenario I – Basic Benefit Package

These are family and household premiums for all common ailments, and other under the base benefit package.

5% of Rivers Population

	Individual	Household
Basic Benefit Package	N	N
Capitation	14,676	88,055
Fee for Service	34,414	206,484
Pure Cost	49,090	294,539
Marketing Cost	10,519	59,960
Operating Cost	4,909	27,981
Contingency Margin	5,610	31,979
Total premium	70,128	399,732

10% of Rivers Population

	Individual	Household
Basic Benefit Package	N	N
Capitation	7,338	44,028
Fee for Service	17,207	103,242
Pure Cost	24,545	147,270
Marketing Cost	5,260	29,980
Operating Cost	2,454	13,991
Contingency Margin	2,805	15,989
Total premium	35,064	199,866

Scenario II – Basic Benefit Package + HTS + PMTCT

The premiums here also reflect ailments covered under the base benefit package and HTS and PMTCT.

5% of Rivers Population

	Individual	Household
Basic Benefit Package	N	N
Capitation	14,676	88,055
Fee for Service	34,414	206,484
HTS+PMTCT		
Capitation	1,521	9,125
Fee for Service	364	2,186
Pure Cost	50,975	305,851
Marketing Cost	10,923	62,263
Operating Cost	5,098	29,056
Contingency Margin	5,826	33,207
Total premium	72,822	415,084

10% of Rivers Population

	Individual	Household
Basic Benefit Package	N	N
Capitation	7,338	44,028
Fee for Service	17,207	103,242
HTS+PMTCT		
Capitation	760	4,563
Fee for Service	182	1,093
Pure Cost	25,488	152,926
Marketing Cost	5,462	31,131
Operating Cost	2,549	14,528
Contingency Margin	2,913	16,603
Total premium	36,411	207,542

Scenario III – Basic Benefit Package + HTS + PMTCT + ART

Rivers State Health Scheme: Minimum Health Benefit Package

5% of Rivers Population

	Individual	Household
Basic Benefit Package	N	N
Capitation	14,676	88,055
Fee for Service	34,414	206,484
HTS+PMTCT		
Capitation	1,521	9,125
Fee for Service	364	2,186
ART		
Capitation	12,281	73,685
Fee for Service	8,142	48,851
Pure Cost	71,398	428,387
Marketing Cost	15,300	87,207
Operating Cost	7,140	40,697
Contingency Margin	8,160	46,511
Total premium	101,997	581,383

10% of Rivers Population

	Individual	Household
Basic Benefit Package	N	N
Capitation	7,338	44,028
Fee for Service	17,207	103,242
HTS+PMTCT		
Capitation	760	4,563
Fee for Service	182	1,093
ART		
Capitation	6,140	36,843
Fee for Service	4,071	24,425
Pure Cost	35,699	214,194
Marketing Cost	7,650	43,604
Operating Cost	3,570	20,348
Contingency Margin	4,080	23,255
Total premium	50,998	290,691

Scenario IV – Basic Benefit Package + HIV/AIDS + TB

5% of Rivers Population

	Individual	Household
Basic Benefit Package	N	N
Capitation	14,676	88,055
Fee for Service	34,414	206,484
HTS+PMTCT		
Capitation	2,288	13,729
Fee for Service	364	2,186
ART		
Capitation	11,514	69,081
Fee for Service	8,142	48,851
TB		
Capitation	97	581
Fee for Service	1,265	7,589
Pure Cost	72,759	436,557
Marketing Cost	15,591	88,870
Operating Cost	7,276	41,473
Contingency Margin	8,315	47,398
Total premium	103,942	592,470

10% of Rivers Population

	Individual	Household
Basic Benefit Package	N	N
Capitation	7,338	44,028
Fee for Service	17,207	103,242
HTS+PMTCT		
Capitation	1,144	6,865
Fee for Service	182	1,093
ART		
Capitation	5,757	34,541
Fee for Service	4,071	24,425
TB		
Capitation	48	290
Fee for Service	632	3,794
Pure Cost	36,380	218,278
Marketing Cost	7,796	44,435
Operating Cost	3,638	20,736
Contingency Margin	4,158	23,699
Total premium	51,971	296,235

Scenario V – Benefit Package + HIV/AIDS + Secondary Illness

Rivers State Health Scheme: Minimum Health Benefit Package

5% of Rivers Population

	Individual	Household
Basic Benefit Package	N	N
Capitation	14,676	88,055
Fee for Service	34,414	206,484
HTS+PMTCT		
Capitation	2,288	13,729
Fee for Service	364	2,186
ART		
Capitation	11,514	69,081
Fee for Service	8,142	48,851
Secondary Illnesses		
Capitation		
Fee for Service	6,816	40,894
Pure Cost	78,214	469,281
Marketing Cost	16,760	95,532
Operating Cost	7,821	44,582
Contingency Margin	8,939	50,951
Total premium	111,734	636,882

10% of Rivers Population

	Individual	Household
Basic Benefit Package	N	N
Capitation	7,338	44,028
Fee for Service	17,207	103,242
HTS+PMTCT		
Capitation	1,144	6,865
Fee for Service	182	1,093
ART		
Capitation	5,757	34,541
Fee for Service	4,071	24,425
Secondary Illnesses		
Capitation		
Fee for Service	3,408	20,447
Pure Cost	39,107	234,641
Marketing Cost	8,380	47,766
Operating Cost	3,911	22,291
Contingency Margin	4,469	25,475
Total premium	55,867	318,441

Scenario VI – Benefit Package + HIV/AIDS + Other Disease Conditions and Diseases under Partial Exclusions

5% of Rivers Population

	Individual	Household
Basic Benefit Package	N	N
Capitation	14,676	88,055
Fee for Service	34,414	206,484
HTS+PMTCT		
Capitation	1,521	9,125
Fee for Service	364	2,186
ART		
Capitation	12,281	73,685
Fee for Service	8,142	48,851
Other Diseases and Partial Exclusions		
Capitation	677	4,064
Fee for Service	1,747	10,484
Pure Cost	73,823	442,936
Marketing Cost	15,819	90,169
Operating Cost	7,382	42,079
Contingency Margin	8,437	48,090
Total premium	105,461	601,127

10% of Rivers Population

	Individual	Household
Basic Benefit Package	N	N
Capitation	7,338	44,028
Fee for Service	17,207	103,242
HTS+PMTCT		
Capitation	760	4,563
Fee for Service	182	1,093
ART		
Capitation	6,140	36,843
Fee for Service	4,071	24,425
Other Diseases and Partial Exclusions		
Capitation	339	2,032
Fee for Service	874	5,242
Pure Cost	36,911	221,468
Marketing Cost	7,910	45,085
Operating Cost	3,691	21,039
Contingency Margin	4,218	24,045
Total premium	52,730	300,563

9. Appendix

Appendix 1

Encounter Data by Ailments for Scenario 1

Sub-category	2014	2015	2016	2017
Outpatients only	606,276	449,551	651,595	540,705
Health prevention and promotion, Education	32,703	33,117	68,282	67,762
Vitamin A supplementation (children)	493,950	973,371	91,025	923,875
Treatment of Infections and Infestations	238	149	342	287
Malaria	143,044	32,765	94,152	104,692
Fever	219,206	70,772	173,331	227,854
Severe Malaria	4,485	4,014	5,031	4,004
New coronary heart disease	574	625	1,392	1,226
New diabetes mellitus case	5,622	3,416	5,734	6,100
New hypertension case	13,559	8,029	14,237	15,324
New sickle cell disease case	197	139	318	330
New cases of snake bites	31	23	40	105
New cases of Asthma	1,142	859	1,867	1,659
New Arthritis	5,142	2,654	4,945	4,166
Sexually Transmitted Infections (STIs)	1,313	932	2,374	2,847
Eye Care	3,520	3,575	5,719	9,151
Ear, Nose and Throat	2,816	2,860	4,575	7,321
Dental care	5,293	5,758	6,133	9,813
Psychiatric care	2,583	3,201	7,026	6,560
Antenatal Care (ANC)	137,932	98,587	160,328	164,521
Delivery services	16,210	10,993	15,846	18,660
Postnatal care	60,784	54,401	71,528	71,607
Gynecology	18,933	21,596	19,039	19,138
Emergency Services	1,336	803	1,911	1,887
Admission	15,435	13,194	23,361	24,925

Encounter Data by Ailments for Scenario 2

Sub-category	2014	2015	2016	2017
Outpatients only	606,276	449,551	651,595	540,705
Health prevention and promotion, Education	32,703	33,117	68,282	67,762
Vitamin A supplementation (children)	493,950	973,371	91,025	923,875
Treatment of Infections and Infestations	238	149	342	287
Malaria	143,044	32,765	94,152	104,692
Fever	219,206	70,772	173,331	227,854
Severe Malaria	4,485	4,014	5,031	4,004
New coronary heart disease	574	625	1,392	1,226
New diabetes mellitus case	5,622	3,416	5,734	6,100
New hypertension case	13,559	8,029	14,237	15,324
New sickle cell disease case	197	139	318	330
New cases of snake bites	31	23	40	105
New cases of Asthma	1,142	859	1,867	1,659
New Arthritis	5,142	2,654	4,945	4,166
Sexually Transmitted Infections (STIs)	1,313	932	2,374	2,847
Eye Care	3,520	3,575	5,719	9,151
Ear, Nose and Throat	2,816	2,860	4,575	7,321
Dental care	5,293	5,758	6,133	9,813
Psychiatric care	2,583	3,201	7,026	6,560
Antenatal Care (ANC)	137,932	98,587	160,328	164,521
Delivery services	16,210	10,993	15,846	18,660
Postnatal care	60,784	54,401	71,528	71,607
Gynaecology	18,933	21,596	19,039	19,138
Emergency Services	1,336	803	1,911	1,887
Admission	15,435	13,194	23,361	24,925
Screening Tests		1,471,829	1,555,720	1,661,692
Confirmatory Tests		73,591	77,786	88,498
Tie Breaker		14,718	15,557	16,617
Prevention of Mother to Child Transmission Of HIV (PMTCT)	19,133	13,810	26,675	22,226
Infants	863	620	1,487	1,970

Encounter Data by Ailments for Scenario 3

Sub-category	2014	2015	2016	2017
Outpatients only	606,276	449,551	651,595	540,705
Health prevention and promotion, Education	32,703	33,117	68,282	67,762
Vitamin A supplementation (children)	493,950	973,371	91,025	923,875
Treatment of Infections and Infestations	238	149	342	287
Malaria	143,044	32,765	94,152	104,692
Fever	219,206	70,772	173,331	227,854
Severe Malaria	4,485	4,014	5,031	4,004
New coronary heart disease	574	625	1,392	1,226
New diabetes mellitus case	5,622	3,416	5,734	6,100
New hypertension case	13,559	8,029	14,237	15,324
New sickle cell disease case	197	139	318	330
New cases of snake bites	31	23	40	105
New cases of Asthma	1,142	859	1,867	1,659
New Arthritis	5,142	2,654	4,945	4,166
Sexually Transmitted Infections (STIs)	1,313	932	2,374	2,847
Eye Care	3,520	3,575	5,719	9,151
Ear, Nose and Throat	2,816	2,860	4,575	7,321
Dental care	5,293	5,758	6,133	9,813
Psychiatric care	2,583	3,201	7,026	6,560
Antenatal Care (ANC)	137,932	98,587	160,328	164,521
Delivery services	16,210	10,993	15,846	18,660
Postnatal care	60,784	54,401	71,528	71,607
Gynaecology	18,933	21,596	19,039	19,138
Emergency Services	1,336	803	1,911	1,887
Admission	15,435	13,194	23,361	24,925
Screening Tests		1,471,829	1,555,720	1,661,692
Confirmatory Tests		73,591	77,786	88,498
Tie Breaker		14,718	15,557	16,617
Prevention of Mother to Child Transmission Of HIV (PMTCT)	19,133	13,810	26,675	22,226
Infants	863	620	1,487	1,970
Adult on 1st Line		109,403	118,163	128,595
Adult on 2nd Line		1,105	1,194	1,299
Peads on 1st Line		7,428	7,423	7,554
Peads on 2nd Line		75	75	76
PMTCT Mothers		7,259	7,926	8,165
Babies needing PMTCT Services		7,259	7,926	8,165
CD4 Count/Viral Load/EID		109,403	118,163	128,595

Encounter Data by Ailments for Scenario 4

Sub-category	2014	2015	2016	2017
Outpatients only	606,276	449,551	651,595	540,705
Health prevention and promotion, Education	32,703	33,117	68,282	67,762
Vitamin A supplementation (children)	493,950	973,371	91,025	923,875
Treatment of Infections and Infestations	238	149	342	287
Malaria	143,044	32,765	94,152	104,692
Fever	219,206	70,772	173,331	227,854
Severe Malaria	4,485	4,014	5,031	4,004
New coronary heart disease	574	625	1,392	1,226
New diabetes mellitus case	5,622	3,416	5,734	6,100
New hypertension case	13,559	8,029	14,237	15,324
New sickle cell disease case	197	139	318	330
New cases of snake bites	31	23	40	105
New cases of Asthma	1,142	859	1,867	1,659
New Arthritis	5,142	2,654	4,945	4,166
Sexually Transmitted Infections (STIs)	1,313	932	2,374	2,847
Eye Care	3,520	3,575	5,719	9,151
Ear, Nose and Throat	2,816	2,860	4,575	7,321
Dental care	5,293	5,758	6,133	9,813
Psychiatric care	2,583	3,201	7,026	6,560
Antenatal Care (ANC)	137,932	98,587	160,328	164,521
Delivery services	16,210	10,993	15,846	18,660
Postnatal care	60,784	54,401	71,528	71,607
Gynecology	18,933	21,596	19,039	19,138
Emergency Services	1,336	803	1,911	1,887
Admission	15,435	13,194	23,361	24,925
Screening Tests		1,471,829	1,555,720	1,661,692
Confirmatory Tests		73,591	77,786	88,498
Tie Breaker		14,718	15,557	16,617
Prevention of Mother to Child Transmission Of HIV (PMTCT)	19,133	13,810	26,675	22,226
Infants	863	620	1,487	1,970
Adult on 1st Line		109,403	118,163	128,595
Adult on 2nd Line		1,105	1,194	1,299
Infants on 1st Line		7,428	7,423	7,554
Infants on 2nd Line		75	75	76
PMTCT Mothers		7,259	7,926	8,165
Babies needing PMTCT Services		7,259	7,926	8,165
CD4 Count/Viral Load/EID		109,403	118,163	128,595
Genexpert and Sputum Test I - III	1,927	1,253	3,489	5,154
Drug Susceptible-TB (Kids - Pediatrics)	65	155	89	96
Drug Susceptible -TB (Adults)	1,499	761	5,128	5,918

Additional scenarios

Assuming 50% of Rivers State Population as Exposure		
Scenarios	Individual	Households
Scenario I	7,013	39,973
Scenario II	7,392	42,133
Scenario III	10,200	58,138
Scenario IV	10,394	59,247
Scenario V	11,173	63,688
Scenario VI	10,546	60,113

Assuming 75% of Rivers State Population as Exposure		
Scenarios	Individual	Households
Scenario I	4,675	26,649
Scenario II	4,928	28,089
Scenario III	6,800	38,759
Scenario IV	6,929	39,498
Scenario V	7,449	42,459
Scenario VI	7,031	40,075

Assuming 100% of Rivers State Population as Exposure		
Scenarios	Individual	Households
Scenario I	3,506	19,987
Scenario II	3,696	21,067
Scenario III	5,100	29,069
Scenario IV	5,197	29,623
Scenario V	5,587	31,844
Scenario VI	5,273	30,056

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