

Effect of Capitation on Utilization and Quality of Healthcare in the Ghanaian National Health Insurance Scheme

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Introduction

■ Definition of Capitation:

A healthcare provider payment method in which the provider receives a predetermined fee for specified services to each insured assigned to the facility for a specified period whether or not the insured seeks healthcare.

- This method of payment is a supply side cost sharing method and it provides incentive for the provider to contain cost
- Given that revenue (in the form of the capitated fee) is fixed, the provider is able to maximize profit by minimizing the cost of care.
- Capitation then creates the incentive for the minimization of waste that occurs under the fee for service payment scheme




Introduction

- Ability of capitation to contain cost is determined by the healthcare providers' ability to control quality and utilization of care.
- With asymmetric information between provider and consumer, and the provider being better informed than the consumer, the provider has the upper hand in decision making that affect the use of resources,
- Capitation can reduce utilization but to what extent is that efficient?
- To what extent does capitation affect quality of care?
- What about patient satisfaction? Important for enrolment.



Objectives of study

- find out the effect of capitation on
 - utilization,
 - quality of healthcare
 - Cost shifting
 - Patient satisfaction
- In the Ghanaian National Health Insurance



Ghanaian National Health Insurance (NHIS)

- The NHIS was established by an Act of Parliament in 2003 (Act 650 revised in 2012 in Act 852)
- Purpose to secure financial risk protection for healthcare for all Ghanaian residents
- Funding: earmarked fund – NHIS levy, SSNIT contribution – 90%
- Benefit package: 95 percent of disease conditions



Provider payment schemes in the NHIS

- 2003 Fee for services for Services and Medicines
- 2008 Introduction of the Ghana Diagnostic related group (G-DRG)
- 2012: Pilot of Capitation in the Ashanti region
- 2016: roll out of capitation to other regions

Provider payment method and incentives

- Fee for service → Inducement
- Diagnostic Related Grouping → up-coding of episodes
- These incentives could explain the escalating expenditures of the NHS
- Hence the introduction of capitation to help contain costs.

Capitation in the NHS

- Services covered by Capitation
 - Outpatient primary care insured services
- **Features**
 - Preferred primary provider (can be changed after 6 months)
 - Done together with two other payment methods:
 - G-DRG for
 - Inpatient care
 - Specialized OPD
 - Emergency
 - Fee for Service for all medicines

Possible incentives from Capitation

- Effect on Quality
- Cost Shifting
- Utilization

Previous Research

- Iverson and Luras (2000) used Norway data to show a positive correlation between capitation and referrals (**Cost Shifting**)
- Kira et al. (2014) used Ontario data on diabetes to show that capitation models induce greater effort (**Quality**) for monitoring than fee for services models
- Sorbero (2003) used US data to show that patients with chronic diseases and high utilizers of care were more likely to switch Preferred physicians than their counterparts under fee for service. (**Quality**)
- Szilagyi (1998) used US data to show a fall in outpatient visits for preventive care under capitation (**Utilization**)

Previous studies on NHIS capitation

- ▶ Limited studies available:
- ▶ Adjei-Baffour et al (2013) showed high awareness of capitation but poor attitude by enrollees.
- ▶ Andoh-Adjei et al. (2016) showed that enrollees have high trust in their primary care physicians and also examined the factors that affect the choice of a preferred provider.
- ▶ Boakye, (2013) – capitation reduces quality of care

Methodology

- ▶ Specification of regression equation
- ▶ General regression equation
 - ▶ $Y_i = \beta_1 + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + e_i$
 - ▶ X_{2i} = a vector of demographic variables
 - ▶ X_{3i} = a vector of socio-economic variables
 - ▶ X_{4i} = 1 if patient paid a fee = 0 otherwise
 - ▶ X_{5i} = 1 if patient is from a capitated region = 0 otherwise
 - ▶ X_{6i} = a vector of facility ownership type

Dependent variables and measurements

- Utilization – number of OPD visits – Poisson regression
- Quality of healthcare provided: attitude of health workers on a five point scale: excellent, very good, good, poor, very poor, – Ordered logit
- Referrals: 1 if referred and 0 otherwise – binary logistic regression
- Willingness to retain current primary provider: 1 if willing to retain, 0 otherwise – Binary logistic regression

Data – primary data used

- Respondents:
 - patients who have received OPD treatment for Urinary Tract Infection in the two major Teaching hospitals in the country: Komfo Anokye Teaching Hospital (KATH) and Korle Bu Teaching Hospital (KBTH) in the past one month.
 - UTI was chosen because it is one of the most common medical complications with pregnancy, but affects both men and women
- Sample size 250 for each hospital hence total of 500
- Respondents randomly selected from records of the hospitals and contacted for interview.

Results – Descriptive results

Patient's personal Information	Percentage	Patient Information	Percentage
Female	69	Referred	49.6
Employed	89	Referred from	
Basic education	20.8	Public health facility	10.4
Secondary	27.4	Mission	20.4
Tertiary	29.2	Private	22.8
Income (mean)	GHC789	Paid a fee	39.2
Age (mean)	39.2	Kath	50
Distance travelled (mean)	2.9 km	Willing - PPP	48.4
Number of visits (mean)	8.2		

Results: Poisson regression - utilization

Dependent variables: visits	Estimates		
	coefficients	Standard Error	P-value
Independent variables			
Income	-0.0000273	0.0000363	0.452
Age	0.0059209	0.0010802	0.000
Time spent travelling	-0.0092194	0.0053553	0.0085
Employed	0.0607700	0.05688727	0.285
Basic education	0.0548638	0.0442254	0.215
Secondary education	0.5148670	0.455511	0.258
Tertiary education	0.05388825	0.04302	0.215
Additional Fee	0.0188462	0.0197774	0.341
Capitation	-0.2329937	0.0339884	0.000
Female patients	0.8322959	0.0355759	0.016
Constant	1.874926	0.0763184	0.000

Results – Ordered Logistic regression - Quality

Explanatory variable	coefficients	Standard Error	P-value
Income	0.0001362	0.0001872	0.488
Age	0.0353173	0.0062021	0.000
Time spent travelling to health facility	0.0098768	0.0186465	0.596
Employed patients	0.1007628	0.2955913	0.733
Patients that paid additional fee	- 0.001671	0.1047859	0.987
Basic education	0.4386264	0.2387434	0.084
Secondary education	0.6099278	0.2443369	0.010
Tertiary education	0.0694085	0.2269755	0.760
Capitation	-2.034651	0.2328123	0.000
Female	0.182992	0.1840527	0.320
Referred UTI patients	-0.358922	0.1848105	0.052
/cut1	-4.455404	0.5937195	
/cut2	-1.708563	0.4145942	
/cut3	0.4408989	0.4054114	

Results- Binary Regression - Referral


Independent variables	Coefficient	Standard Error	P-value
Income	-0.000698	0.0004898	0.122
Age	0.016007	0.0134498	0.234
Time spent travelling to the health facility	0.005669	0.0825347	0.07
Employed patients	0.484972	0.4849716	0.553
Additional fee	-0.224746	0.2941734	0.445
Basic education	0.679249	0.5169494	0.189
Secondary education	1.00769	0.5602566	0.072
Tertiary education	0.877982	0.5217497	0.092
Capitation	0.321455	0.3868007	0.008
Privately owned health facility	4.8995	0.6680536	0.000
Mission health facility	5.896433	1.168168	0.000
Government owned health facility	4.467689	1.067555	0.000
Females	-0.640877	0.058376	0.090

Results – Binary logistic – Willingness to keep current PPP (Patient Satisfaction)

Independent variables	coefficient	Standard Error	P-value
Income	3.72005	0.001987	0.985
Age	-0.0048322	0.0072619	0.506
Time spent travelling to the health facility	0.1185033	0.693565	0.088
Additional fee	0.0004933	0.1301152	0.997
Basic education	-0.245322	0.2809805	0.383
Secondary education	-0.1001441	0.275488	0.715
Tertiary education	-2.405152	0.2626421	0.361
Females	-0.2620075	0.2140634	0.221
Privately owned health facility	0.3446954	0.2444882	0.159
Mission health facility	-0.0033237	0.272679	0.990
Government owned health facility	0.4112946	0.4348955	0.344
Capitation	-0.961796	0.2568498	0.000

Summary of Results

- ▀ Utilization
 - ▀ Age and Female +
 - ▀ Distance travelled, Capitation -
- ▀ Quality
 - ▀ Age, Secondary education +
 - ▀ Capitation -
- ▀ Referral
 - ▀ Facility type +
 - ▀ Capitation +
- ▀ Willingness to keep current provider
 - ▀ Capitation -



Conclusion - Capitation

- Associated with
 - decreased utilization
 - Increased referral – cost shifting thus inefficiency
 - Decreased quality
 - Low patient satisfaction
- Hence, ability to contain cost - Questionable



Recommendations

- Improve access to health facilities to improve utilization
- Keep Capitation to reduce utilization
- Need for monitoring of capitated facilities for quality, with financial incentives – **reward high performance**
- Integration of a cluster of facilities with referral facilities under capitation – more research needed here