ORIGINAL ARTICLE

Health Benefit Utilization and Out-of-Pocket Expenses in Outpatient Care and Hospitalizations: Baseline Surveys of Three Primary Care Sites in the Philippines

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ABSTRACT

Background. The Philippine Primary Care Studies (PPCS) is a network of pilot studies that developed, implemented, and tested strategies to strengthen primary care in the country. These pilot studies were implemented in an urban, rural, and remote setting. The aim is to use the findings to guide the policies of the national health insurance program (PhilHealth), the main payor for individualized healthcare services in the country.

Objective. The objective of this report is to compare baseline outpatient benefit utilization, hospitalization, and health spending, including out-of-pocket (OOP) expenses, in three health settings (urban, rural, and remote). These findings were used to contextualize strategies to strengthen primary care in these three settings.

Methods. Cross-sectional surveys were carried out using an interviewer-assisted questionnaire on a random sample of families in the urban site, and a stratified random sample of households in the rural and remote sites. The questionnaire asked for out-patient and hospitalization utilization and spending, including the OOP expenses.

Results. A total of 787 families/households were sampled across the three sites. For outpatient benefits, utilization was low in all sites. The remote site had the lowest utilization at only 15%. Unexpectedly, the average annual OOP expenses for outpatient consults in the remote site was PhP 571.92/per capita. This is 40% higher than expenses shouldered by families in the rural area, but similar with the urban site.

For hospital benefits, utilization was lowest in the remote site (55.7%) compared to 75.0% and 78.1% for the urban and rural sites, respectively. OOP expenses per year were highest in the remote site at PhP 2204.44 per capita, probably because of delay in access to healthcare and consequently more severe conditions. Surprisingly, annual expenses per year for families in the rural sites (PhP 672.03 per capita) were less than half of what families in the urban sites spent (PhP 1783.38 per capita).

Conclusions. Compared to families in the urban site and households in the rural sites, households in remote areas have higher disease rates and consequently, increased need for outpatient and inpatient health services. When they do get sick, access to care is more difficult. This leads to lower rates of benefit utilization and higher out-of-pocket expenses. Thus, provision of "equal" benefits can inadvertently lead to "inequitable" healthcare, pushing disadvantaged populations into a greater disadvantage. These results imply that health benefits need to be allocated according to need. Families in poorer and more remote areas may require greater subsidies.

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INTRODUCTION

The Philippine Primary Care Studies (PPCS) is a network of studies with the goal of addressing frontline problems in the existing healthcare system of the Philippines, such as poor access to healthcare facilities, fragmented services, and a deficient healthcare workforce. Given the passing of the Universal Health Care (UHC) Bill in 2016, the study's main objective is to evaluate multiple strategies for strengthening the country's primary care system as the basic foundation of UHC. Three pilot sites were chosen: (1) the University of the Philippines (UP) University Health System (UHS), an urban setting; (2) the municipality of Samal in the province of Bataan, a rural setting; and (3) the municipality of Bulusan in the province of Sorsogon, a geographically isolated and disadvantaged area (GIDA). Strategies were adopted as deemed relevant to each setting. The ultimate goal is to use the findings from these studies to guide the future implementation of UHC in the country. The different sites are described in further detail in Table 1 and the following sections.

The University Health Service (Urban Site)

The University Health Service (UHS) was chosen for its human resources and facilities. Together with 12 permanent physicians and full medical staff, it has a medical laboratory, a pharmacy, and an X-ray center which can perform several types of medical procedures. It was an ideal location to test if the proposed primary care design would work in an urban setting.

The UHS serves an academic community in Quezon City, including faculty, employees, their dependents, and the students. Medical consultation fee is free and medical procedures are paid at subsidized prices. It also has 50 hospital beds for inpatient cases. For this study, only PhilHealth members (faculty and employees) and their dependents were included.[1]

Utilization of the covered benefits was examined to determine how the primary care design functions within the existing UHS system. Actual costs of these benefits were calculated to give a legitimate observation of the experience. An electronic medical record (EMR) was developed to supplement the research and to convert the record keeping of the system from manual to digital.

Samal, Bataan (Rural Site)

Samal is a 4th class municipality in the province of Bataan, Philippines. According to the 2015 census, it has a population of 35,298 people.[2] Samal is situated in the north-eastern portion of Bataan, 114 kilometers away from Manila. It has a total land area of 56.30 square kilometers (21.74 sq. miles).[3] Samal is subdivided into 14 barangays (villages). It is rich in marine aquatic resources and highly productive farmlands. Other industries situated in Samal include garment manufacturing, wooden shoemaking, capiz shell crafting, and pulp milling.

Samal has one Rural Health Unit (RHU) under one municipal health officer. It also has a barangay health station in each of the 14 barangays. In 2015, they had 16 nurses,

Table 1. Demographic and Community Characteristics of the Different Sites

	Urban	Rural	Remote
Community Characteristics			
Population size	15,051 *(faculty and employees + 2 dependents each)*	35,298	22,884
Average family/household size*	3	4.57	4.31
Average annual income	NA	PhP 11,701/HH *(2015 PhilAtlas)*	PhP 12,442/HH *(2015 PhilAtlas)*
Health System Characteristics			
# doctor (full time)	12	1	1
# nurse	14	16	21
# nursing attendant	6	0	0
# midwife	2	20	13
# barangay health worker	0	100	126
# dentist	5	0	1
# dental assistant	3	0	0
# pharmacist	4	0	0
# medical technologist	5	1	1
# radiology technologist	3	0	0
# administrative aide	15	0	2
# others**	13	3	14
Outpatient benefit sources	University funded and HMOs	LGU and PHIC funded	LGU and PHIC funded

* *For the urban site, the unit was by family. For the rural and remote sites, the unit was by household.*

** *For the urban site, 'others' include a nutritionist, sanitary inspectors, institutional workers, ambulance drivers, and cooks; for the rural site, 'others' include a laboratory technician and ambulance drivers; for the remote site, 'others' include barangay nutrition scholars, a sanitary inspector, a public health associate, and an ambulance driver.*

HMO – Health maintenance organization, LGU – local government unit, PHIC – Philippine Health Insurance Corporation

20 midwives, 100 Barangay Health Workers (BHWs) and one medical technologist. Within the Samal RHU, there is a lying-in maternity unit that has three beds. There are no private clinics within the municipality and the RHU handles most of the primary care consultations.

Bulusan, Sorsogon (Remote Site in GIDA)

Bulusan is a 4th class municipality in the province of Sorsogon, Philippines, that is classified as a Geographically Isolated Disadvantaged Area (GIDA). According to the 2015 census, it has a population of 22,884 people.[4]

It is bordered by the town of Barcelona in the north and, going counterclockwise, the towns of Casiguran, Juban, Irosin, and Santa Magdalena. The islets of San Bernardino, about 15 kilometers (9.3 miles) off the coast, fall under the jurisdiction of Bulusan.[5] Bulusan is politically subdivided into 24 barangays; eight of them are in the Poblacion area.

Bulusan has one RHU under one municipal health officer. It has seven barangay health stations for the 24 barangays. In 2015, they had 21 nurses, 13 midwives, 126 BHWs, one dentist, and one medical technologist. Within the Bulusan RHU, there is a lying-in maternity unit that has five beds. There are two private clinics within the municipality but the RHU handles most of the primary care consultations.

Health Financing and Benefits

The Philippine Health Insurance (PhilHealth) has been chosen to be the sole payor to finance UHC. PhilHealth is a tax-exempt, government-owned corporation under the Department of Health. Whereas its present functions are accrediting service providers, establishing benefit packages, and reimbursing health care services, the implementation of UHC in the country will position PhilHealth as a central player. Utilization of its health benefits will be critical to the success of the UHC. It is therefore essential and strategic to measure the baseline utilization rates in different settings in the Philippines that can demonstrate the impact of reforms in the health systems as we implement UHC.

The coverage of PhilHealth was reported as almost 'universal' at 93% in 2017. However, this report only accounted for PhilHealth-eligible individuals, not the general population.[6] Coverage may not be equivalent to actual utilization of services.[7] To address this, this study measured the utilization rate by surveying the community for the number of individuals who needed the benefit and were able to use it.

OBJECTIVES

1. To compare the baseline utilization of outpatient and inpatient health benefit and services in three health settings (urban, rural, and remote).
2. To compare the baseline health spending, including out-of-pocket (OOP) expenses, from social health insurance in three health settings (urban, rural, and remote).

METHODS

Cross-sectional surveys were carried out using an interviewer-assisted questionnaire. Random sampling was conducted in the three primary care sites. Verbal informed consent was obtained from respondents. Only the researchers had access to the data forms, which were kept securely and anonymized for processing.

Each respondent was interviewed regarding utilization and expenses of their immediate family. Interviewers were research team members who underwent training on the interview instrument and process. This was consistent with the prevailing pattern of the National Health Insurance which is largely based on family units.

Within a family or household, there may be more than one outpatient consultation or inpatient admission. Each instance of consultation or hospitalization was counted separately. Multiple admission diagnoses in the same hospitalization were counted separately, as were multiple admissions at the same hospital by members of the same family or household.

Sampling

Urban Site

The intended beneficiaries of the proposed pilot program were 5,017 university employees, contract workers, and faculty. Two dependents per family of each beneficiary were estimated, with a total of 15,051 individuals. A sample size of 357 with a confidence interval of ±5% at a significance level of $p<0.05$ was obtained using a sample size calculator (www.surveysystem.com). Sample size calculation for the urban site was obtained based on the estimation of the population proportion, with an estimated utilization rate of 50%. The 357 university employees, contract workers, and faculty were randomly selected from the latest official list and interviewed in person. Students, as well as workers employed or contracted by agencies other than the university, were excluded from this survey as they were not covered by the corporate clinic pilot study.

Rural Site

For the municipality of Samal, the intended beneficiaries of the proposed pilot program were 35,298 Samal residents from 5,942 households. A sample size of 403 residents produced a two-sided 95% confidence interval with a width equal to 0.1 (±0.05). The sample size calculation was based on a utilization rate of 46.7%, obtained from a pilot sample of 15 households in the different barangays. Assuming a design effect of two and a refusal rate of 10%, the number of participants included in the survey was 896. Assuming a four-member household, the number of sample households to be included in the survey was computed at 228. The 228 households were randomly sampled per strata (of 14 barangays) proportional to barangay size from the list of households per barangay.

Table 2. Formula for Outpatient and Inpatient Services

Variable	Formula
Outpatient Services	
Outpatient consultation rate per capita	$\frac{\text{Total consultations for one year}}{\text{Number of families/households surveyed}} \times \frac{1}{n}$
Outpatient benefit utilization rate	$\frac{\text{Total consultations which used PhilHealth or LGU benefits for one year}}{\text{Total consultations for one year}}$
Average Annual Expenses per capita (PhP)	$\frac{\text{Total outpatient expenses for one year}}{\text{Number of families/households surveyed}} \times \frac{1}{n}$
Average Annual Out-Of-Pocket (OOP) Expenses per capita	$\frac{\text{Total OOP outpatient expenses for one year}}{\text{Number of families/households surveyed}} \times \frac{1}{n}$
OOP Expense Rate	$\frac{\text{Total OOP outpatient expenses for one year}}{\text{Total outpatient expenses for one year}}$
Inpatient Services	
Hospital admission rate per capita	$\frac{\text{Total hospital admissions for one year}}{\text{Number of families/households surveyed}} \times \frac{1}{n}$
Hospital benefit utilization rate	$\frac{\text{Total hospital admissions with Philhealth coverage for one year}}{\text{Total hospital admissions for one year}}$
Average Annual Expenses per capita (PhP)	$\frac{\text{Total hospital expenses for one year}}{\text{Number of families/households surveyed}} \times \frac{1}{n}$
Average Annual OOP Expenses per capita	$\frac{\text{Total OOP hospital expenses for one year}}{\text{Number of families/households surveyed}} \times \frac{1}{n}$
OOP Expense Rate	$\frac{\text{Total OOP hospital expenses for one year}}{\text{Total hospital expenses for one year}}$

** For the urban site, the information was obtained per family with an n=3 (average family size). For the rural and remote sites, the information was obtained per household with an n=4 (average household size).*

Remote Site

The stratified random sampling was similarly performed for Bulusan. The intended beneficiaries of the proposed pilot program were 22,884 Bulusan residents from 5,477 households. A sample size of 362 residents produced a two-sided 95% confidence interval with a width equal to 0.1 (±0.05). The sample size calculation was based on a utilization rate of 66.7%, obtained from a pilot sample of 24 households in the different barangays. Assuming a design effect of two and refusal rate of 10%, the number of participants included in the survey was 805. The number of sample households included in the survey was computed at 202, assuming that a household is composed of four members. The 202 households were randomly sampled per strata (of 24 barangays) proportional to barangay size from the list of households per barangay.

Apart from utilization rate, sample size was computed using the percentage of OOP expenses at 47.1% for Samal and 74.3% for Bulusan. The percentage of OOP expenses was also extracted from the pilot sample of each municipality. Using the same design effect size, refusal rate, and assumed number of household members, sample size was estimated at 228 households for Samal and 174 households for Bulusan. Since the sample size computed using the OOP expenses was smaller compared to the sample size computed using the utilization rate for Bulusan, the 202 households estimate using utilization rate was applied for this study.

Preparation of Questionnaire

A healthcare utilization, hospitalization, and financial risk protection questionnaire was created to assess baseline outpatient and inpatient expenses for consults, as well as laboratory tests and medicines, prior to the interventions instituted by the PPCS. Questions were asked on frequency of outpatient visits and inpatient care, choice of facility and health professional, and overall and OOP expenses.

The number of consults and hospital admissions obtained from the survey represent consults done at any healthcare facility, in any manner (in-person consult or telemedicine consult), and by any type of healthcare provider (public or private healthcare provider). Benefit utilization in this study refers to utilization of financial benefits as provided

by the PhilHealth or local government unit (LGU) for the corresponding outpatient or inpatient service. The costing was obtained from the patient's perspective. These costs included direct costs (cost of diagnostic tests, medications, and professional fees) and indirect costs (transportation cost).

No question was asked regarding the use of health maintenance organization (HMO) plans for outpatient consults. Only two percent of Filipinos are members of HMOs or are covered by private health insurance.[8] Moreover, payments made using HMO plans are smaller and harder to recall than hospitalization bills; they are typically deducted from an annual balance. These factors would hinder a 3-month recall of HMO costs.

Pretesting was done and required minimal modification for clarity. To minimize recall bias, recall periods of one year for hospitalizations and three months for outpatient consults were set for the urban site. Due to the observed difficulties of the urban respondents with the recall period of three months, the recall period was adjusted to two weeks for the rural and remote site surveys. The collected data were then adjusted to estimate annual utilization and expenses. The surveys were conducted from July to September 2016 in the urban site, December 2017 to February 2018 in the rural site, and December 2017 to January 2018 in the remote site.

Analysis of Results

Data was encoded into an Excel spreadsheet and analyzed using descriptive statistics. Demographic characteristics were reported as frequencies and percentages for categorical data, and means and standard deviation for continuous data. Missing data was placed as "not reported." The formula used for the outpatient and inpatient services are shown in Table 2. Data was checked for completeness by the research team. Data was processed using STATA 14 software.

Ethical Clearance

The study and survey instrument were granted ethical clearance by the University of the Philippines Manila Research Ethics Board (UPMREB), under study protocol code UPMREB 2015-489-01, valid during the year in which data was gathered for this paper.

RESULTS

A total of 787 families/households were sampled across the three sites, with 357 in the urban site, 228 in the rural site, and 202 in the remote site. Replacements were done in case of non-response or refusal to participate in all three sites. There were no dropouts from the included participants. The characteristics of the included participants are summarized in Table 3.

Outpatient Services

Comparing the three sites, the outpatient consultation rate per capita was highest in the rural and remote sites at around three consults per year, compared to only one consult per year in the urban site (Table 4).

Utilization of outpatient benefits was low in all sites. It was higher in the rural site (53%) and urban site (23%) compared to the remote site, where utilization was only 15%.

Interestingly, the average annual OOP expenses for outpatient consults in the remote site was PhP 571.92 per year. This is 40% higher than OOP expenses for outpatient consults in the rural area.

Out-of-pocket expense rates (the proportion of OOP expenses out of the annual expenses) were high in all sites but was much higher in the urban area (100%) compared to rural and remote sites, with rates of 89% and 87%, respectively.

Inpatient Expenses

Table 5 provides a summary on utilization and OOP expenses for inpatient benefits. Hospital admission rates per capita were twice higher in the rural and remote site compared to the urban site.

Surprisingly, when confined, benefit utilization was lowest in the remote site (55.7%) compared to 75.0% and 78.1% for the urban and rural sites, respectively. Average annual expenses per year were lowest for families in the rural sites (PhP 1408.60 per capita). This was less than half of what families in the remote sites spent (PhP 2991.82 per capita). This led to lower OOP expense rates in the rural site 47.7% compared to 58.4% and 73.7% in the urban and remote sites, respectively. Annual over-all and OOP expenses were

Table 3. Characteristics of Included Participants

	Urban site n (%) N=357 families	Rural Site n (%) N=228 households	Remote Site n (%) N=202 households
Occupation			
Employed	357 (100)	218 (95.6)	175 (86.6)
Unemployed	0	10 (4.4)	21 (10.4)
Retired	0	0	6 (3.0)
Age in years (Mean [SD])	Not reported	53.6 (12.5)	54.1 (15.8)
Sex	Not reported		
Male		146 (64.0)	152 (75.3)
Female		82 (36.0)	50 (24.7)

SD - standard deviation

Table 4. Utilization and OOP Expenses for Outpatient Services[a]

	Urban*	Rural	Remote
Outpatient Consultation Rate (per capita)	1.49	2.65	2.74
Outpatient Benefit Utilization Rate (% of consults that used benefits)	23%	53%	15%
Average Annual Expenses (per capita)	PhP 560.92	PhP 394.04	PhP 659.21
Average Annual OOP Expenses (per capita)	PhP 560.92	PhP 351.53	PhP 571.92
OOP Expense Rate for Consultations (% of annual expenses paid OOP)	100%	89%	87%

[a] Estimates were annuitized from a recall period of 3 months for the urban site. Because of noted difficulties in recall, the recall period used for rural and remote sites was reduced to 2 weeks.
** Urban was per family, while for the rural and remote sites, they were per household.*

Table 5. Utilization and OOP Expenses for Hospitalization Benefits

	Urban	Rural	Remote
Hospital admission rate (per capita)	0.05	0.08	0.10
Hospital benefit utilization rate (% of consults that used benefits)	75.0%	78.1%	55.7%
Average annual expenses (per capita)	PhP 3054.06	PhP 1408.60	PhP 2991.82
Average Annual OOP Expenses (per capita)	PhP 1783.38	PhP 672.03	PhP 2204.44
OOP Expense Rate for Admissions (% of annual expenses paid OOP)	58.4%	47.7%	73.7%

highest in the remote site at PhP 2991.82 and PhP 2204.44, respectively.

DISCUSSION

Outpatient Services

In this study, we found lower rates of outpatient consults in the urban site. This may be due to several reasons:

1. The urban site is a corporate setting (within a university) and may represent healthier families headed by professors and employees, who were younger and healthier. In contrast, the rural and remote households were unselected and represented all types of households in the area. As observed in the demographic characteristics, the average age of the surveyed participants in the rural and remote area was 53 to 54 years old.
2. Though we report annuitized rates of consultation, the recall periods were different. The recall period for the urban site was three months, while for rural and remote areas, it was reduced to two weeks. This may have allowed more reliable recall.
3. The differences could also have occurred by chance.

In contrast, the differences in benefit utilization are easier to explain. The high utilization rate in the rural area is probably due to well-established, accessible rural health unit with provisions for pharmacy and laboratory services. While health services were far from comprehensive in this rural area, participants did not have many options for alternative care. In contrast, those in the urban area had access to several alternative sources of healthcare. The more affluent families in the urban site may opt to consult with private providers, leading to lower benefit utilization. In the remote area, the very low benefit utilization rate for outpatient services may be due to difficulties in accessing their RHU because of distance and poor road systems.

The unfortunate result is that average annual expense for outpatient care in the remote area was PhP 659.21 per capita, which is 40-50% higher than in the urban and rural area. Factors contributing to this higher expenditure include higher transportation costs because of difficult access to the health facility, and poorer health status by the time individuals in the remote site finally consult. This is an inequitable situation where a poorer remote community may be pushed deeper into poverty. Clearly, greater health subsidies are needed in more remote areas.

Inpatient Services

Like outpatient consults, the urban site had lower hospital admission rates compared to the rural and remote sites. Again, this difference may be attributed to a selected, younger, healthier population in a corporate setting in the urban site, with better access to preventive services.

When admitted in hospitals, the benefit utilization rates for hospital services in the three sites were all >50%, which is comparable to the reported national utilization rate of 60% during the same period.[9] Unfortunately, benefit utilization was lowest among those who needed the benefits most, namely households from the remote site. This result is consistent with previous studies showing lower benefit utilization in populations with lower income.[10]

The OOP expense we reported is consistent with the mean total hospitalization bill (PhP 8,209-34,007) reported in a 10-year pooled analysis using data from Philippine Demographic and Health Survey from 2008-2017.[11] The annual OOP cost per capita, as expected, was highest by far in the remote site (PhP 2204.44). It is striking that average OOP expenses were more than three times greater in the

remote area (PhP 2204.44) than in the rural site (PhP 672.03). The proportion of expenses paid OOP was also higher in the remote area (73.7%) compared to the rural area (47.7%).

These results show that despite equivalent hospitalization benefits, participants in remote areas still get admitted in hospitals more often. When they do get sick, they have less access to hospital benefits, and spend more per year than those in urban and rural areas. Possible reasons include:

1. Poorer general health because of poorer access to preventive services;
2. Delayed admission due to difficulties in access, which ultimately leads to disease worsening and higher expenses; and
3. Inability to cope with complex requirements needed to avail of hospitalization benefits.

This is consistent with previous data that indicates that the factors which contribute to poverty also make PhilHealth use less likely.[12]

Results of this study are consistent with international studies that report disparities in healthcare utilization in urban and rural settings.[13-15] A study in 2022 in China reported that healthcare utilization of outpatient and inpatient services were affected by place of residence and household income. Actual outpatient services utilization was 1.07 times higher among the rich compared to the poor, while actual inpatient services utilization was 1.46 times higher among the rich.[13]

This data highlights that equal provision of services invariably leads to inequity. More vulnerable populations in lower-income areas have poorer utilization of health services. Targeted policies protecting the low-income areas, where the allocation of health services is determined by need, are needed to ensure equitable access and use of health services.

There are several limitations to this study. First, data was derived from three pilot sites only: urban, rural, and remote settings. The external generalizability of this study must be considered carefully when applying to the national level. Second, data was obtained through survey of the participants. Completeness and accuracy of data are subject to recall bias of the participants. Third, the time period by which the surveys were done varied. In the urban site, the survey was done in 2016 while in the rural and remote sites, the survey was done in 2017-2018. The political and socio-economic landscape may have differed in these time periods. Lastly, the urban site was surveyed by family, with a recall period of three months. This was revised in the rural and remote site, which was surveyed by household with a recall period of two weeks. This may affect the comparability of results across these sites.

CONCLUSIONS

Compared to families in urban sites and households in rural areas, households in remote areas have higher disease rates and consequently, increased need for outpatient and inpatient health services. When they do get sick, access to care is more difficult. This leads to lower rates of benefit utilization, and higher out-of-pocket expenses. Thus, provision of "equal" benefits can inadvertently lead to "inequitable" healthcare, pushing disadvantaged populations into a greater disadvantage. These results imply that health benefits need to be allocated according to need. Households in poorer and more remote areas may require greater subsidies.

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Statement of Authorship

All authors certified fulfillment of ICMJE authorship criteria.

Author Disclosure

The authors declare that there is no conflict of interest. The authors had full access to all data in this study. The Philippine Health Insurance Corporation requested that only active PhilHealth members be included in the study. Funders had no other role in study design; collection, analysis, and interpretation of data; writing of the report; or the decision to submit the report for publication.

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REFERENCES

1. Office of the Vice President for Academic Affairs, The impact of an outpatient primary care system on health care delivery in UP Diliman [Internet]. 2017 [cited 2020 Mar]. Available from: https://ovpaa.up.edu.ph/the-impact-of-an-outpatient-primary-care-system-on-health-care-delivery-in-up-diliman/
2. Philippine Statistics Authority, Population of region III – Central Luzon (based on the 2015 census of the population) [Internet]. 2016 [cited 2020 Jun]. Available from: https://psa.gov.ph/content/population-region-iii-central-luzon-based-2015-census-population
3. PhilAtlas, Province of Bataan [Internet]. 2020 [cited 2020 Mar]. Available from: https://www.philatlas.com/luzon/r03/bataan/samal.html
4. Philippine Statistics Authority, Census of population (2015), region 5 Bicol [Internet]. 2015 [cited 2020 Jun]. Available from: https://psa.gov.ph/content/highlights-region-v-bicol-region-population-2020-census-population-and-housing-2020-cph#:~:text=The%20population%20of%20Region%20V,the%20Philippine%20population%20in%202020.
5. PhilAtlas, Province of Sorsogon [Internet]. 2020 [cited 2020 Jun]. Available from: https://www.philatlas.com/luzon/r05/sorsogon.html

6. Querri A, Ohkado A, Kawatsu L, Remonte MA, Medina A, Garfin AMC. The challenges of the Philippines' social health insurance programme in the era of Universal Health Coverage. Public Health Action. 2018 Dec;8(4):175-80. doi: 10.5588/pha.18.0046. PMID: 30775277; PMCID: PMC6361486.
7. Philippine Health Insurance Corporation, PhilHealth annual report 2017 [Internet]. 2017 [cited 2019 Sep]. Available from: https://www.philhealth.gov.ph.
8. Wagner N, Quimbo S, Shimkhada R, Peabody J. Does health insurance coverage or improved quality protect better against out-of-pocket payments? Experimental evidence from the Philippines. Soc Sci Med. 2018 May; 204:51-8. doi: 10.1016/j.socscimed.2018.03.024. PMID: 29574292.
9. Obermann K, Jowett M, Kwon S. The role of National Health Insurance for achieving UHC in the Philippines: A mixed methods analysis. Glob Health Action. 2018;11(1):1483638. doi: 10.1080/16549716.2018.1483638. PMID: 29914319; PMCID: PMC6008596.
10. Faraon EJA, Estrada JAG, Farillas ELF, Mabera FRD, Paras AMP, Pastranam MKR, et al. Significant predictors of underutilization of inpatient benefits among Philhealth members in selected barangays in Manila. Acta Med Philipp. 2013;47(3):69–73. doi: 10.47895/amp.v47i3.1324.
11. Haw NJL, Uy J, Ho BL. Association of SHI coverage and level of healthcare utilization and costs in the Philippines: a 10-year pooled analysis. J Public Health (Oxf). 2020 Nov;42(4):e496-e505. doi: 10.1093/pubmed/fdz142. PMID: 31781739.
12. Quimbo S, Florentino J, Peabody JW, Shimkhada R, Panelo C, Solon O. Underutilization of social insurance among the poor: evidence from the Philippines. PLoS One. 2008;3(10):e3379. doi:10.1371/journal.pone.0003379. PMID: 18852881; PMCID: PMC2557126.
13. Zhang X, Ning N, Zhou H, Shan L, Hao Y, Jiao M, et al. Inequity in health services utilization in economically underdeveloped regions of Northeast China. Front Public Health. 2022 Apr;10:850157. doi: 10.3389/fpubh.2022.850157. PMID: 35493377; PMCID: PMC9051237.
14. Fu X, Sun N, Xu F, Li J, Tang Q, He J, et al. Influencing factors of inequity in health services utilization among the elderly in China. Int J Equity Health. 2018 Sep;17(1):144. doi: 10.1186/s12939-018-0861-6. PMID: 30219075; PMCID: PMC6139169.
15. Zhu L, Peng M, Jiang L, Wang Z. Inequality of opportunity in health service utilization among middle-aged and elderly community-dwelling adults in China. Arch Public Health. 2023 Jan;81(1):13. doi: 10.1186/s13690-022-01010-1. PMID: 36698213; PMCID: PMC9878938.