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Analysis of the National Health Expenditure Survey Round 1 and Design of Survey Protocol for NHES Round 2 (Phase 1)

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Table of Contents

Trends in Healthcare Service Use among Filipinos with Usual Care Providers

Ida Marie T. Pantig and Valerie Gilbert T. Ulep[*]

Abstract

The universal health care (UHC) law mandates that all Filipinos should have access to essential primary care services with a focus on preventive healthcare. As plans are being made by the government to map out a comprehensive outpatient benefit package covering primary care, it would be a worthy exercise to explore the different outpatient use patterns of the population even as PhilHealth rolled out various primary care benefit packages in the past decade.

In the absence of a sound primary healthcare system in the Philippines, Filipinos may have identified with a usual healthcare provider that they seek during a health need. A usual healthcare provider is defined in this study as a particular doctor's office, clinic, health center, or other place that the household member usually goes to when sick or needs advice about his/her health. As the PhilHealth expands its outpatient benefit package as part of the transition to UHC, the different trends in outpatient care utilization would be worth exploring since having a usual healthcare provider may affect utilization patterns across the continuum of care.

The first round of the National Health Expenditure Survey (NHES) was conducted in 2018 and the survey covers areas such as healthcare service utilization and charges, types of facilities visited, health insurance coverage and sources of health financing, among others. Using this dataset, we explore how having a usual healthcare provider can be a determinant of healthcare service use. Specifically, this study examines the differences in outpatient care utilization among those with and without usual care providers. Specifically, the objectives of this study are: (1) to explore health service use trends in outpatient care services, (2) to explore the determinants of having a usual healthcare provider, and (3) to examine whether having a usual healthcare provider affects outpatient care, inpatient admissions, and emergency room visits. Using descriptive analysis and measures of association, we find that in general, more households with usual healthcare providers utilize outpatient care services compared to those with none. In addition, the individuals' age, household head's age, insurance coverage status, urbanity and wealth quintile are determinants of having a usual healthcare provider, while household size, sex, household head's education and Pantawid membership do not significantly determine if an individual having one. Lastly, we find that having a usual health provider increases the probability of seeking outpatient care services, inpatient admissions, and emergency room visits.

Keywords: health utilization, usual healthcare provider, primary care, preventive care, outpatient care, hospitalization

[*] IP is a technical consultant and VGU is a Senior Research Fellow at the Philippine Institute for Development Studies (PIDS).

1. Introduction

The call for national and international action for primary health care was reiterated in 2018 during the Global Conference for Primary Health Care in Astana which reaffirmed that the most effective and efficient approach to achieve the sustainable development goals is through primary health care. Primary health care, as defined by the World Health Organization (WHO), is a "whole-of-society approach to health that aims at ensuring the highest possible level of health and well-being and their equitable distribution by focusing on people's needs and as early as possible along the continuum from health promotion and disease prevention to treatment, rehabilitation and palliative care, and as close as feasible to people's everyday environment." (WHO and UNICEF 2018, p.2) Further, WHO stresses that primary health care "is the most inclusive, equitable, cost-effective and efficient approach to enhance people's physical and mental health, as well as social well-being." (WHO 2021, par. 8) Recognizing that there are still gaps in financing primary care and the shortfall in terms of health care workers, patient access to essential health services remains an issue (World Health Organization 2022). In the Philippines, despite the increasing investments in local health facilities and deployment of critical health staff, their maldistribution has resulted in inequitable access to care (Dayit, et al. 2018). In addition, there is no formal gatekeeping mechanism in the system and patients are free to seek care from their provider of choice, including secondary and tertiary facilities without a referral from a primary care physician (Bayani and Tan 2021).

The passing of the Universal Health Care law (Republic Act 11223) in 2018 aims to shift the Philippines' hospital-dependent system towards a primary care-oriented one by enhancing and reinforcing the primary health care system. The law defines primary care as the "initial-contact, accessible, continuous, comprehensive and coordinated care that is accessible at the time of need" (Section 4.r). The UHC law also mandates that every Filipino will register to a public or private primary care provider of choice and that the primary care provider "would act as a navigator, coordinator, and initial and continuing point of contact in the health care delivery system" (Sections 5.d and 5.e). The UHC law, therefore, aims to connect every Filipino to the intricate health system through a primary care provider, or in a similar context, a usual care provider.

Based on the experience of other countries, it has been observed that having usual care provider has increased the odds of receiving preventive care/screening services compared to those without (Blewett, et al. 2008). In addition, the receipt of preventive care was strongly associated with insurance and usual source of care (DeVoe, et al. 2003), and that the existence of a usual source of care was strongly correlated with the earlier receipt of preventive services (Ettner 1996). The effect of having a usual care provider on preventive services is of importance particularly in low-resource settings, and no similar studies have been conducted in the Philippine setting yet.

For this study, we focus on having a usual care provider as a determinant of healthcare service use before the implementation of UHC. Exploring the trends in health care service use could provide insights on patient behavior among those with and without a usual care provider. A usual care provider is defined in this study as a particular doctor's office, clinic, health center, or other place that the household member usually goes to when sick or needs advice about his/her health. In particular, the objective of this study is to examine the differences in outpatient care utilization among those with and without usual care providers. Specifically, the objectives of this study are: (1) to explore health service use trends in outpatient care services, (2) to explore the determinants of having a usual healthcare provider, and (3) to examine

whether having a usual healthcare provider affects outpatient care, inpatient admissions, and emergency room visits.

The first round of the National Health Expenditure Survey (NHES) was conducted in 2018 and covers healthcare service utilization and charges, types of facilities visited, health insurance coverage and sources of health financing, among others. Being the first round of NHES, the information that is available for our study is limited to general outpatient services (i.e., check-up, laboratory and diagnostic services, diagnosis and treatment) as no detailed information on the types of preventive services (i. e., blood pressure check, Pap smear, mammogram, influenza shot, etc.) are available. Despite this limitation, we hope that the findings of this study could provide valuable insights on the trends in healthcare service use among those with and without usual care providers and serve as inputs in the expansion of the primary health care system in the country.

2. Methodology

2.1 Data

This study uses the first round of 2018 National Health Expenditure Survey (NHES). The NHES covers topics such as health expenditure, insurance coverage, sources of health financing, visits to medical providers and medical facilities and type of visits, among others. The NHES has two components: household component (HC) and a linked medical provider component (MPC). The HC captures information on visits to medical providers and medical facilities, event types (e. g. outpatient visit, hospital stay, or emergency room visit), insurance coverage and types of medical providers, among others. The MPC, on the other hand, validates the HC and gathers data from medical providers and medical records. Data collection for HC took place from November 2018 to May 2019 while fieldwork for the MPC took place from January 2019 to February 2020, with data collection from the remaining 15 facilities lasting until May 2021 due to difficulties brought about by COVID-19.

In terms of sampling design, the NHES "employs a nationally representative, multistage sampling design based on provincial stratification, with probability proportional to the size of primary sampling units (barangays) at the first stage, and systematic sampling of secondary sampling units (dwellings) at the second stage" (Health Policy Plus 2021, p. 8-9). The major sampling domains are based on the 2013 PSA Master Sample Design (Health Policy Plus 2021). Household weights are provided in the dataset.

This study utilizes the household component of the NHES only. A total of 50,030 individuals in 11,017 households are included in the survey. The HC includes separate modules for outpatient, inpatient and emergency room visits, among others. These modules were also used for this study. The outpatient visit module includes 10,745 individual cases which are outpatient visits done in the last six months. On the other hand, the inpatient visit module includes 1,666 cases of inpatient admissions in the past year. The emergency room visit module has a total of 250 cases which took place six months prior to the survey. An individual household member may visit a facility more than once during the specified period for each event type, and a separate entry is included in the dataset for each visit.

In addition, the module on Primary Care, Health Status, Risky Behavior and Patient Satisfaction was also used in identifying individuals that reported having a usual care provider.

This module also includes the individual's self-reported health status. For this module, 28,449 individuals reported their usual care provider status (including 379 observations that are either unknown or if the individual refused to answer). In addition, 28,327 individuals indicated their perceived health status.

Table 1 presents the summary statistics for the dataset. The top half looks at household level characteristics, while the bottom half looks at the individual level characteristics. As already mentioned, some individuals may have multiple health events in the past six or 12 months and each event is recorded individually. For this study, only the first event is counted for individuals with multiple health events, thus the lower number of outpatient visits, inpatient admissions and emergency room visits for individuals compared to the total number of events. As for the usual healthcare provider and health status indicators, only household members that are living with the household head are included in the survey, thus the lower number of responses relative to total.

Table 1. Summary statistics

HOUSEHOLDS		
	Observations	**%**
Total households	11,017	
Urban	5,467	49.62
Rural	5,550	50.38
Household head's education		
No grade completed	160	1.44
Elementary	3,326	29.95
High school and vocational	5,170	46.55
College level and up	2,332	21.00
Unknown	29	0.26
Household head's age		
Age less than 21	120	1.08
Age 22-30	1,200	10.80
Age 31-40	2,330	20.98
Age 41-50	2,615	23.54
Age 51-60	2,374	21.37
Age 60 up	2,357	21.22
Unknown	111	1.00
Health Insurance Status*		
HH has any PhilHealth member	7,947	72.13
HH has any private HI/HMO/SSS/GSIS member	29	0.26
HH has no member covered	2,930	26.37
Usual Healthcare Provider for any member in HH**		
With usual healthcare provider	6,171	56.31
No usual healthcare provider	4,788	43.69

INDIVIDUALS		
	Observations	**%**
Total individuals	50,030	
Outpatient visits	6,044	12.08
Inpatient admissions (exc. pregnancy-related)	1,170	2.34
Emergency room visits	235	0.47
Total individuals with health event/s	7,449	
With usual healthcare provider**	16,661	58.46
No usual healthcare provider	11,459	40.21
Unknown/refused to answer	379	1.33
Male	25,257	50.48
Female	24,773	49.52
Age 0-5	5,658	11.31
Age 6-12	7,298	14.59
Age 13-25	12,138	24.26
Age 26-40	10,287	20.56
Age 41-60	9,942	19.87
Age 60 up	4,479	8.95
Unknown	228	0.46
Health Insurance Status		
PhilHealth – Paying	12,280	24.55
PhilHealth - Sponsored/Indigent	11,921	23.83
Private HI/HMO/SSS/GSIS	490	0.98
No Insurance Coverage	24,865	49.70
Unknown	474	0.95
Membership to *Pantawid* †		
Member	4,111	8.22
Non-member	45,919	91.78
Self-reported Health Status ** ‡		
"Good" health status	17,672	62.39
"Poor" health status	10,655	37.61

Source: NHES 2018

* Will not equal to total observations since categories are not mutually exclusive

** Will not equal to total observations since question in the NHES is only administered only to those members who are currently living in the household

† The Pantawid Pamilyang Pilipino Program is the Philippines' conditional cash transfer program where eligible members receive cash grants after meeting certain health and education conditionalities, including regular medical check-up and complete immunization for children below five and pre- and postnatal checks for pregnant mothers.

‡ The NHES asks individuals of their perceived health status according to five categories: Poor, Fair, Good, Very Good and Excellent. For this study, a "Good" health status means either Good, Very Good or Excellent; "Poor" health status means either Poor or Fair.

2.2 Descriptive analysis

To explore the trends in outpatient care utilization, household level analysis was done using household weights. The average number of households that utilized outpatient care services were estimated according to different socioeconomic characteristics such as household head's age and education, wealth quintile[†], health insurance status and urbanity. Averages of outpatient visits were also estimated depending on the household having at least any member with a usual healthcare provider, defined as a particular doctor's office, clinic, health center, or other place that the household member usually goes to when sick or needs advice about his/her health.

In addition to the household level analysis, individual health facility visits for outpatient care is also explored. The number of responses will instead be reported due to the unavailability of individual weights. Exploring the individual outpatient visits allows for a more detailed look at the different types of services being availed of and the characteristics of those who avail of such services. Distinction in the outpatient service use between those with and without usual healthcare provider is also explored.

2.3 Measures of association

To determine the different factors associated with having a usual healthcare provider, logistic regression will be used to estimate the odds ratio using the Primary Care, Health Status, Risky Behavior and Patient Satisfaction module. The odds ratio expresses the degree of association between the outcome and the exposure, estimating the odds of probability that the outcome is expected to grow (or decrease) for an increase (or decrease) in exposure. The dependent variable is a binary outcome variable which =1 if the individual reported to have a usual healthcare provider and is =0 otherwise. Independent variables such as socioeconomic and demographic characteristics as well as health insurance coverage are assessed as determinants.

In addition, logistic regression will also be employed in assessing whether having a usual health provider is associated with an outpatient care use or hospital admission or emergency room visit. For this analysis, the marginal effect (dy/dx) of having a usual healthcare provider on a facility visit will be explored. Binary outcome variable for facility visit will be the dependent variable, while the same covariates will be included as controls. The set of controls for this analysis follow the Behavioral Model of Health Service Use where predictors of utilization are categorized into three: predisposing factors that create the condition to increase the probability of health service utilization (age, sex, marital status), enabling factors that can hinder or facilitate health service use (income, wealth, health insurance status and regular sources of care), and need factors that affect the individual's perception of a change in his/her health status (individual's perceived need for health services) (Anderson 1973, SoleimanvandiAzar, et al.

[†] Wealth quintile was estimated based on per capita household expenditure. In estimating the per capita household expenditure, the methodology suggested by Deaton (2003) on adjusting for household composition when deflating household expenditures by total household size was used. Dividing the total household expenditure by the total number of household members will not give a accurate estimate of per capita household expenditure since expenditure levels and consumption could vary due to factors such as age and economies of scale. Deaton's methodology will take account of economies of scale in consumption within the household. His arbitrary approach in calculating equivalence scale is used here, where the number of adult equivalents is defined following the formula $AE = (A + \alpha K)^{\theta}$, where A is the number of adults in the household, K are the number of children; parameter α is the cost of a child relative to that of an adult, values of which lies between 0 and 1, and parameter θ controls the extent of economies of scale. For this purpose, $\alpha = 0.5$ (roughly ≈1 in richer economies and 0.3 in poorest) while $\theta = 0.85$ (roughly 0.75 in richer economies and ≈1 in poorest).

2020). The covariate of interest in this analysis will be the dummy variable on having a usual care provider.

While no individual level weights are available, the use of covariates in the regression should be able to control for the design weights that would generate more accurate estimates that are closer to the true population. This is applicable in both the logistic regression analysis that are done for this study.

3. Results

3.1 Descriptive analysis

Table 2 shows the share of households that had at least one member visit a facility for outpatient services. In 2018, 42.2 percent of households had at least one member visit a facility in the past six months. We see that there are more households in urban areas that had at least one member visit a facility at 45.1 percent compared to those in rural areas at 38.9 percent. In terms of insurance coverage, for households with at least one PhilHealth member, around 44.2 percent of these households visited a facility as opposed to 36.3 percent of households that had no member with insurance coverage. We also observe that households in richer quintiles had more of at least one member visit a facility compared to lower quintiles; same trend is observed as household heads get more years of education. More outpatient visits are noted for households with younger household heads (aged 40 and below) compared to their older counterparts.

We also observe the trends in outpatient visits depending on whether any member reports having a usual healthcare provider or not in a household. In general, 50.4 percent of households with a usual healthcare provider visited a facility in the past six months for outpatient care compared to 31.4 percent of households without a usual healthcare provider. The same trend with total outpatient visit is observed across demographic and socioeconomic subclasses as well.

Table 2. Share of households that used outpatient services, by usual healthcare provider availability (in percent)

	Total households			Any household member has usual healthcare provider			No household member with usual healthcare provider		
	Mean	95% CI		Mean	95% CI		Mean	95% CI	
All households	42.2	41.2	43.2	50.4	49.0	51.7	31.4	30.0	32.7
Rural	38.9	37.6	40.3	46.8	45.0	48.6	27.9	26.0	29.7
Urban	45.1	43.7	46.5	53.9	51.9	55.8	34.3	32.2	36.3
HH with PhilHealth member	44.2	43.0	45.3	51.4	49.9	53.0	33.7	31.9	35.4
Entire HH without insurance	36.3	34.5	38.2	46.4	43.7	49.1	25.8	23.4	28.2
Quintile 1	34.4	32.2	36.5	43.2	40.0	46.3	24.9	22.2	27.7
Quintile 2	39.6	37.5	41.7	49.1	46.1	52.1	29.1	26.3	31.9
Quintile 3	42.1	40.0	44.3	51.1	48.1	54.1	31.6	28.5	34.6
Quintile 4	45.6	43.2	47.9	52.0	48.8	55.1	36.2	32.8	39.6
Quintile 5	49.0	46.7	51.3	55.1	52.3	58.0	37.5	33.9	41.2
Household head:									
No grade completed	28.1	20.9	35.4	39.7	29.0	50.4	13.6	5.6	21.6
Elementary	39.4	37.6	41.2	47.7	45.2	50.3	29.2	26.8	31.6
High school and vocational	42.9	41.5	44.3	51.0	49.1	52.9	32.2	30.2	34.2
College level and up	45.2	43.0	47.4	53.0	50.1	55.9	33.9	30.5	37.2

Household head:									
Age less than 21	42.0	32.8	51.1	55.4	42.0	68.8	31.3	19.6	43.0
Age 22-30	48.2	45.2	51.3	57.9	53.7	62.1	36.9	32.7	41.0
Age 31-40	45.2	43.1	47.3	54.3	51.5	57.1	32.8	29.8	35.9
Age 41-50	40.1	38.0	42.1	46.8	43.9	49.6	31.5	28.8	34.3
Age 51-60	40.0	37.8	42.1	48.0	45.2	50.8	28.7	25.6	31.8
Age 60 up	41.1	38.9	43.2	49.3	46.3	52.2	29.6	26.5	32.6

Source: Author's calculations using data from NHES Round 1.

Table 3 explores the different health services that were availed during the outpatient visit. Among the households that reported visiting a facility, almost 80 percent visited for a general checkup. Around 15 percent of households visited for immunization and 9 percent of the visits are pregnancy related. Around 7 percent of households visited for follow-ups, while 4 percent of visits are for diagnosis and treatment of illnesses such as tuberculosis and HIV, among others. Of these households, we observe that in general, there seems to be a good balance between visits to public and private facilities, except for immunization-related visits, where preference is for public facilities, and visits for treatment and diagnosis and follow-up visit post-treatment, where private facilities are preferred. In terms of distance and travel time to the outpatient facility visited, on average, a facility for outpatient visit is 8.7 kilometers from home with a usual travel time of 41.4 minutes (Table 4). Facilities visited for immunization and pregnancy-related visits seem to be the nearest while facilities for diagnosis and treatment and follow-ups are the farthest.

Table 3. Type of outpatient service availed by households that visited a facility in the past six months (in percent)

Outpatient Service	TOTAL*	Public	Private	Other**
General checkup	79.79	39.03	40.12	0.65
Immunization/vaccination	14.42	9.81	4.53	0.076
Pregnancy-related	9.07	4.55	4.50	0.019
Diagnosis and treatment	4.09	1.71	2.25	0.13
Follow-up check-up post treatment	7.42	2.99	4.37	0.061
Follow-up check-up post-surgery	0.6	0.21	0.36	0.021
Others	5.69	2.68	2.83	0.18

Source: Author's calculations using data from NHES Round 1.

*Column may not equal 100 as some households may have different members that visited a facility more than once in the past six months for several types of outpatient services.

**Other facilities include eye clinics, TB dispensary/chest clinics, independent laboratory or testing facilities, alternative care provider, special therapy provider, and medical missions or outreach program providers.

Table 4. Average distance and travel time to the facility visited by households that utilized outpatient care services in the past six months

Outpatient Service	Distance (in kilometers)	Travel Time (in minutes)
General checkup	9.2	42.6
Immunization/vaccination	5.2	26.4
Pregnancy-related	4.9	33.6
Diagnosis and treatment	9.7	43.2
Follow-up check-up post treatment	8.8	44.4
Follow-up check-up post-surgery	16.7	52.8
Others	8.1	39.0
AVERAGE	**8.7**	**41.4**

Source: Author's calculations using data from NHES Round 1.

For the following section, trends in individual outpatient visits are explored and the number of responses instead of proportions are presented due to the lack of individual weights. Table 5 shows that there are 11,444 total outpatient visits, of which, 7,112 are visits by individuals that reported having a usual healthcare provider. Note that an individual may report multiple outpatient visits in the six months prior to the survey. We also observe that there are more individual outpatient visits among females, urban dwellers, those with elementary and high school level education, younger and middle-aged populations (0-5 and 41-60 years old), and among those with PhilHealth membership. General trend follows that there are more visits by individuals that reported having a usual healthcare provider across demographics. Important thing to note, though, is that among all outpatient visits, those without any health insurance coverage and without a usual healthcare provider still availed of outpatient services—roughly the same as the number of PhilHealth members with no usual healthcare provider that availed of outpatient services.

In terms of health facility visited, Table 6 disaggregates the outpatient service utilized by type of health facility visited. Unlike the results from Table 3, we see that there is clear preference for public facilities for immunization and general check-up, which indicate the need to interpret these results with caution due to the lack of individual weights and the potential bias of the numbers.

Table 5. Number of outpatient visits, by usual healthcare provider availability (unweighted)

	Total	With usual healthcare provider	No usual healthcare provider
Total outpatient visits	11,444	7,112	2,283
Rural	5,211	3,370	997
Urban	6,233	3,742	1,286
Male	4,429	2,472	813
Female	7,015	4,640	1,470
No grade completed	609	432	136
Elementary	3,125	1,789	564
High school and vocational	3,186	1,853	568
College level and up	1,749	1,023	323
Age 0-5	3,000	2,206	740
Age 6-12	1,091	824	248
Age 13-25	1,372	562	228

Age 26-40	1,697	1,037	329
Age 41-60	2,350	1,378	407
Age 60 up	1,918	1,104	331
PhilHealth - Paying	3,103	1,951	544
PhilHealth - Indigent/Sponsored	3,532	2,382	583
Private/HMO/SSS/GSIS	122	73	12
No Insurance Coverage	4,573	2,640	1,119
Quintile 1	2,250	1,354	535
Quintile 2	2,289	1,367	493
Quintile 3	2,273	1,308	512
Quintile 4	2,269	1,540	361
Quintile 5	2,188	1,428	347

Source: Author's calculations using data from NHES Round 1.

Table 6. Number of outpatient visits, by type of outpatient service and facility visited

	Facility Type			
	Total	**Public**	**Private**	**Others**
General check-up	7,110	3,910	2,631	569
Immunization	1,465	1,230	194	41
Pregnancy-related	1,287	765	445	77
Diagnosis and treatment	355	211	130	14
Follow-up check-up post treatment	693	376	271	46
Follow-up check-up post-surgery	54	32	21	1
Others	477	301	147	29
Unknown	3	0	2	1
Total	**11,444**	**6,825**	**3,841**	**778**

Source: Author's calculations using data from NHES Round 1.

3.2 Determinants of having a usual healthcare provider

Our descriptive analysis shows that there seems to be a difference between outpatient service use among those with and without usual healthcare provider. To investigate, we explore (1) the different determinants of an individual having a usual healthcare provider, and (2) assess whether having a usual healthcare provider is a predictor of outpatient service use, inpatient admission and emergency room visits among populations.

Table 7 shows the odds ratio for different predictor variables including household characteristics, individual characteristics, and insurance coverage. We see that among these predictors, urbanity, the individual's age, older females, household head's education and age, insurance coverage status and wealth quintile are determinants of having a usual healthcare provider, while household size, sex, individuals' years of education and Pantawid membership do not significantly determine if an individual has a usual healthcare provider.

We observe that an additional year of age for females means 0.3 percent higher odds of having a usual healthcare provider compared to an additional year for males. In addition, there is 63.2 percent higher odds for individuals with household heads with at least high school education compared to those with none, and for individuals belonging to households with heads aged 51-60 and 60 up, at 59.8 percent and 72.4 percent, respectively. Individuals in higher quintiles also

have higher odds of having a usual healthcare provider compared to the odds for those in Quintile 1.

Urban dwellers have almost 20 percent lower odds of having a usual healthcare provider compared to their rural counterparts, holding all other variables fixed. At the same time, individuals with no insurance coverage have 35 percent lower odds of having a usual health provider compared to PhilHealth paying members and dependents. Lastly, an additional year for an individual means around 1 percent lower odds of having a usual healthcare provider.

Table 7. Odds ratio: predictors of having a usual health care provider

	(1) Odds Ratio	(2) Adj. S.E.
Individual reports having a usual healthcare provider (=1)		
Urban	0.809*	(0.0798)
Household Size	1.012	(0.0223)
Age	0.996**	(0.00138)
Female	0.969	(0.0524)
Female x Age	1.003*	(0.00150)
Years of education†	1.001	(0.00214)
Pantawid member	0.973	(0.0547)
Household head:		
No grade completed ‡		
Elementary	1.402*	(0.196)
High school and vocational	1.632***	(0.230)
College level and up	1.578**	(0.229)
Household head:		
Age less than 21 †		
Age 22-30	1.310	(0.241)
Age 31-40	1.477*	(0.267)
Age 41-50	1.230	(0.222)
Age 51-60	1.598**	(0.290)
Age 60 up	1.724**	(0.317)
Health Insurance Coverage		
PhilHealth – Paying †		
PhilHealth - SP/Indigent	0.871**	(0.0431)
Private HI/HMO/SSS/GSIS	1.124	(0.167)
No Insurance Coverage	0.651***	(0.0268)
Wealth Quintile		
Quintile 1 †		
Quintile 2	1.253***	(0.0651)
Quintile 3	1.417***	(0.0735)
Quintile 4	1.528***	(0.0803)
Quintile 5	2.023***	(0.112)
Observations	21856	
Pseudo R^2	0.1460	

† Excludes individuals aged five and below (n= 5,658).
Reference group for categorical variables. City/municipality dummies are included as controls.
Goodness-of-fit test: Hosmer-Lemeshow chi2 = 8.64 (p = 0.3740)
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

To assess whether having a usual healthcare provider is related to healthcare service use, we estimate its marginal effect on outpatient visit (all visits, check-ups, and treatment/diagnosis), inpatient admissions (excluding pregnancy-related) and emergency room visit using logistic regression separately. We focus on having a usual healthcare provider as the independent variable of interest, together with other covariates such as health insurance status, demographics, household characteristics, and self-reported health status. Results in Table 8 show that our variable of interest is positive and significant for all outcome variables except for outpatient visits for treatment and diagnosis, indicating that those with usual health providers utilize healthcare services more than those without. For general outpatient visits, those with usual healthcare providers are 10.9 percent more likely to seek outpatient care compared to those without, holding all other variables constant. This is also true for outpatient visits for check-ups, which is higher by 7.8 percent compared to those without usual healthcare providers.

We also observe that the probability of inpatient admissions is also higher for individuals with usual healthcare providers by 2.3 percent and that the probability of emergency room visits is also positive and significant at 0.3 percent compared to those with no usual healthcare providers, albeit at a very small scale.

While we have already observed how having a usual healthcare provider affects the probability of healthcare service use, we also note that the following factors also improve the probability of visits to a facility for all outpatient visits and outpatient visit for checkup compared to their counterparts: health insurance coverage, Pantawid membership, urban dwellers, females and richer individuals. On the other hand, an additional household member decreases the probability of seeking care by 0.69 percent (0.53% for outpatient checkup), and an additional 10 years in the individual's age would also decrease the probability of seeking outpatient care by 0.42 percent (0.28% for outpatient checkup). Lastly, an individual that reports a "good" health status also has lower probability of seeking outpatient (4.1%) and inpatient care services (1.15%) compared to those who reported "poor" health status.

In terms of outpatient visits for treatment and diagnosis, the only significant covariate is the self-reported "good" health status, where people who report to have a good health status have 0.17 percent lower probability of seeking outpatient care for treatment and diagnosis. It is worth noting that for this survey, outpatient visits for treatment and diagnosis are related to tuberculosis and HIV, among others, which may also include drug rehabilitation and mental health-related diagnoses.

For inpatient admissions, we see similar trends in terms of the other covariates that predict the use of inpatient care services. Those with health insurance coverage have higher probabilities of inpatient admission (2.1%) compared to their counterpart. On the contrary, increasing the individual's age by 10 increases the probability of inpatient admission by 0.01% and that females, compared to males, have lower probability of inpatient admission by 0.5 percent—both trends run opposite the trends for outpatient visits. In addition, being a Pantawid member has higher probability of inpatient admission by 1.1 percent compared to non-Pantawid member counterparts. As for emergency room visits, urban dwellers have higher probability of emergency room visit compared to rural dwellers by 0.37 percent, and that the richest quintile have higher probability of emergency room visit by 0.33 percent compared to the poorest quintile.

Table 8. Marginal effects (dy/dx) on health service use of outpatient, inpatient and emergency room services

	DEPENDENT VARIABLE				
	(1)	(2)	(3)	(4)	(5)
	Outpatient visit	Outpatient visit: check-up	Outpatient visit: Treatment & diagnosis	Inpatient admission	Emergency room visit
Has usual provider (=1)	0.109***	0.0786***	0.000410	0.0228***	0.00344***
	(0.00497)	(0.00438)	(0.000641)	(0.00249)	(0.000955)
"Good" health status (=1)	-0.0410***	-0.0298***	-0.00173**	-0.0115***	-0.0000895
	(0.00456)	(0.00387)	(0.000640)	(0.00205)	(0.000743)
Has any health insurance (=1)	0.0314***	0.0127**	-0.000491	0.0214***	0.00124
	(0.00471)	(0.00402)	(0.000662)	(0.00236)	(0.000791)
Pantawid member (=1)	0.0391***	0.0191**	-0.00163	0.0111**	0.000250
	(0.00864)	(0.00728)	(0.000956)	(0.00395)	(0.00140)
Urban (=1)	0.0238***	0.00992*	-0.000458	-0.00153	0.00377***
	(0.00458)	(0.00387)	(0.000636)	(0.00207)	(0.000912)
HH member's age	-0.000424***	0.000284**	0.0000142	0.000142**	0.00000942
	(0.000120)	(0.000101)	(0.0000148)	(0.0000534)	(0.0000213)
HH member is female	0.0302***	0.0101*	-0.000266	-0.00504*	0.000328
	(0.00465)	(0.00394)	(0.000635)	(0.00206)	(0.000783)
Household size	-0.00695***	-0.00538***	-0.000126	0.0000465	0.000231
	(0.00113)	(0.000971)	(0.000139)	(0.000497)	(0.000165)
Head: at least HS level	0.00155	-0.00223	0.00104	-0.00129	0.000812
	(0.00453)	(0.00384)	(0.000625)	(0.00203)	(0.000743)
Quintile 2	0.00820	0.00578	-0.000161	-0.00380	0.00119
	(0.00704)	(0.00588)	(0.000837)	(0.00308)	(0.00107)
Quintile 3	0.0110	0.0144*	0.00114	-0.0000810	0.000599
	(0.00708)	(0.00599)	(0.000967)	(0.00318)	(0.000994)
Quintile 4	0.0225**	0.0203***	0.000148	0.000867	0.00167
	(0.00714)	(0.00603)	(0.000896)	(0.00316)	(0.00107)
Quintile 5	0.0376***	0.0281***	0.00134	0.0116***	0.00332**
	(0.00728)	(0.00613)	(0.00104)	(0.00341)	(0.00115)
Observations	27,658	27,658	27,658	27,658	27,658
Pseudo R^2	0.0340	0.0301	0.0211	0.0459	0.0466
HL chi-sq †	2.56	10.35	6.40	14.08	10.54
p-value	0.9588	0.2414	0.6031	0.0796	0.2291

Standard errors (in parentheses). Base category for quintile is Quintile 1.

† Hosmer and Lemeshow's goodness-of-fit test

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4. Discussion

We observe that in terms of proportions, there seems to be higher utilization of outpatient services among households and individuals that have a usual healthcare provider compared to those without. Unfortunately, the survey does not elaborate on the specific types of services, laboratory and diagnostics availed. In addition, we are also not able to elaborate on the characteristics of the usual healthcare provider, whether they are primary care providers, general practitioners, specialists, community health professionals and workers, or employers providing healthcare services. Given the lack of focus on primary care pre-UHC, this could imply that the "usual healthcare provider" as reported by the survey respondents is not limited to primary care providers. This could read two things: one is the positive health-seeking behavior among population; second is the additional costs incurred due to health care inefficiencies when seeking initial outpatient care with a specialist or at a higher-level medical facility.

As for facility preference, the only clear distinction on household preference for public facilities is when households visit for immunization, which are provided for free at these facilities. Other than this, there seems to be no clear difference between utilization of outpatient services in public and private facilities as most household would prefer either, in general. Outpatient services are offered in public facilities like barangay health stations, rural health units and outpatient department of public hospitals. On the other hand, outpatient care in the private sector is offered by individual medical practitioners, private clinics/polyclinics, outpatient department of private hospitals, standalone laboratories and diagnostic service providers, and industry players/employers providing regular health checks to their employees. While there will be differences in the costs and access to these outpatient service providers in the public and private sector, their integrated role in health service provision is something to be explored as the country transitions to UHC.

We also explored the different predictors of having a usual healthcare provider and observe that the usual predictors such as those without any form of health insurance coverage (compared to PhilHealth members) as well as the urban dwellers (vs. rural dwellers) have lower probability of having a usual healthcare provider. While the result on lower probability of urban dwellers having a usual care provider is surprising, the same results are observed in the United States in 2018-2019 (Kirby and Yabroff 2020), where residents of rural counties were 7 percentage points more likely to have a usual source of care. At the same time, it is also observed that as individuals age, the lower their probability of having a usual healthcare provider. These findings reiterate the need to prioritize the vulnerable population groups in providing access to health care. Despite not proving any causal link between usual health provider and more preventive health service use or better health outcomes, having access to a usual healthcare provider, in a way, makes it convenient for individuals to seek appropriate and timely healthcare when needed.

The marginal effect of having a usual health provider on outpatient visits, inpatient admissions and emergency room visits are worth exploring. The results indicate that those with usual healthcare providers are more likely to seek outpatient care compared to those without. This is important as we also find that having a usual healthcare provider does not have any relation with outpatient visits for treatment and diagnosis. This is worth noting since this shows that there is room for improving the set of outpatient care services that could be crafted and offered to the population that will also help the entire health system. For example, expanding treatment regimen of certain diseases like COVID-19 to outpatient/primary care could help unload the

hospital system of caring for patients that could be treated or managed as an outpatient instead of being admitted in a hospital. Certain illnesses such as hypertension could also look into such management options while considering the severity of the diagnosis.

While the higher probability of outpatient care for those with usual healthcare providers could be taken positively, this should be interpreted with caution on inpatient admissions and emergency room visits. Literature presents that having a usual healthcare provider means higher likelihood of preventive healthcare service use, and that avoidable inpatient admissions and inappropriate emergency room visits should supposedly be lower because of this. As evidenced among Medicare beneficiaries in the US in 1996 and 2006, patient continuity from outpatient to inpatient settings has decreased, indicating that among those that visited a medical provider or their primary care physician prior to inpatient admission has gone down between the two time periods (Sharma, et al. 2009). The authors of this study highlight the role of continuity of information, continuity in management and continuity in patient-physician relationship that results in increased knowledge of patient preferences, better communication and improved trust which could have led to the lower continuity from outpatient to inpatient care over the years. The same trend could be observed for nonurgent emergency room visits where absence of a relationship with a regular doctor was correlated with emergency room visits for nonurgent cases (Petersen, et al. 1998). In the Philippines' case, the lack of a reliable primary care system could be feeding this higher probability of inpatient admissions since no outpatient primary care package that covers comprehensive set of services is available to the entire population at the moment. This could also be the missing link between better treatment and management choices for the patient in the outpatient setting and better patient choices that could eventually minimize avoidable hospitalizations and unnecessary ER visits among the population. Although several PhilHealth outpatient benefit packages are available such as the Expanded Primary Care Benefit Package (EPCB), this was only expanded to the lifetime and formal members in 2019 and still does not cover an extensive range of preventive health services that would be necessary to result to an impact on lower inpatient admissions. This is something that the primary care component of the UHC wishes to work on as the country transitions to a new health service delivery paradigm.

5. Conclusion and policy recommendation

The first round of NHES in 2018 provides a detailed look at the healthcare utilization patterns in the Philippines. In this paper, we explored the different outpatient services being utilized by the population as well as explore who among the subpopulations are able to utilize these services. Of interest to this work is on exploring how having a usual healthcare provider affects outpatient care utilization as well as inpatient admissions and emergency room visits.

While a usual healthcare provider is not necessarily a primary care provider in this context, this study hopefully gave insights on the first line of contact for healthcare service use among Filipinos in the absence of a reliable primary healthcare system in the country. We do observe that those with usual healthcare providers do utilize more outpatient services compared to their counterparts for general check-ups, but not so much for treatment and diagnosis. We also noted in our results that those who utilize outpatient care for treatment and diagnosis usually come from the richer quintiles compared to the poorer ones.

In light of crafting a primary healthcare system in the country, this study provides insights on what could be leveraged as the country transitions to UHC. In terms of policy recommendations, expanding the primary healthcare system to the private sector could be

tapped since majority of the outpatient services were also utilized in private medical facilities. This will aid in the creation of "primary health care networks" that the UHC law is advancing in order to tap all other players in the healthcare sector and slowly veering away from focusing on the traditional clinics and individual medical practitioners. In addition, expanding outpatient care visits to widen utilization of treatment and diagnostic services should be done, which should be a more cost-effective option for the health system. As the country's primary healthcare system firms up in the coming years, we hope to observe some changes in inpatient admissions and emergency room visits due to improved preventive health care among populations and better outpatient care management of what are traditionally managed in hospitals. Lastly, in terms of data, expanding the future rounds of NHES to include specific details on preventive health services and primary care services would aid in monitoring the country's progress towards implementing the expanded outpatient benefit package that is part of the UHC.

The results of this study, however, should be interpreted with caution. One of the major limitations of the analysis is the issue on the potential reverse causality on the relationship between having a usual care provider and the individual's perceived health status. The lower probability of seeking care by an individual with "good" perceived health status may be due to having a usual care provider, and vice versa. In addition, the inability to control for unobserved variables that explain health service utilization such as personal preferences or true health state also limit the accuracy of the results. While these limitations are recognized, the content of the NHES also prohibits the conduct of further analyses due to the lack of variables that could be explored and used as instruments in instrumental variable regression or, in this study's case, probit regression model with the use of instrumental variables for endogenous binary covariates. This presents an opportunity for the future rounds of NHES to include variables such as number of years of residence in the locality (Ettner 1996) as an instrument for having a usual care provider, and also to create a pooled dataset with various years that will be useful in the analysis of trends in healthcare service use in the country. In addition, exploring inappropriate health service use among patients (ex. unnecessary hospital admission or emergency room visit) could also be explored if specific services availed are included in the future rounds of NHES.

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Determinants of Household Out-of-Pocket Expenditure on Noncommunicable Diseases: Evidence from the 2018 National Health Expenditure Survey

Lovely Ann C. Tolin and Valerie Gilbert T. Ulep‡

Abstract

In 2015, noncommunicable diseases (NCDs) have increasingly taken a larger share of global mortality, therefore surpassing infectious diseases. The Philippines is no exception, with 7 of the top 10 causes of death and disabilities classified as NCDs. This is an important area of concern, as the adverse impacts of NCDs extend not only on health but also on economic well-being. This study provides a granular analysis of the out-of-pocket health expenditure on NCDs and its determinants using the 2018 Philippine National Health Expenditure Survey. The findings of the study suggest that the type of health facility and health insurance, as well as travel time matters in reducing/increasing OOP spending on NCDs. Increased insurance coverage, improved primary health care services, and greater accessibility to these health services could aid in reducing the burden of health care costs of NCDs among Filipinos.

Keywords: noncommunicable disease, insurance, two-part model, health expenditure

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1. Introduction

In 2015, noncommunicable diseases (NCDs) have increasingly taken a larger share of global mortality, therefore surpassing infectious diseases. Recent data from 2019 shows that NCDs are the leading cause of mortality, being responsible for 71 percent of all deaths worldwide (or 41 million people per year) (Bigna and Noubiap 2019). The Philippines is no exception, with 7 of the top 10 causes of death and disabilities classified as NCDs. Within NCDs, cardiovascular diseases (CVDs), cancer, diabetes, and chronic respiratory diseases are identified as the leading diseases (Niessen et al. 2018).

The adverse impacts of NCDs extend not only on health but also on economic well-being. At the household level, NCDs incur large financial burden due to direct medical (e.g. medical consultations, hospital stays) and non-medical costs (e.g. transportation, adjustments to household amenities), coupled with indirect costs from loss of income for patients and caregivers (Datta et al. 2018). This is particularly problematic in the Philippines, where household out-of-pocket (OOP) expenditures remain the major source of financing during healthcare episodes. Costs afflicted by such diseases weigh more heavily on those who are least able to afford them, which alternately increases the likelihood of impoverishment. Thus, NCDs could worsen social inequities (Sommer et al. 2015).

Despite its prevalence, studies modelling health care expenditures in the Philippines, to examine both the average cost and the distribution of costs directly attributable to individual diseases are lacking. Most of the available analyses have only focused on the aggregate health care expenditure on all NCDs, particularly its total economic costs (WHO and UNDP 2019). The lack of detailed analysis on health care costs associated with NCDs make it difficult to identify potential gaps in service provision and financial protection, which is exacerbated by the Philippine health system being historically geared towards addressing infectious diseases and child health (Ulep and Cruz, n.d.).

Health systems must ensure that people are protected from the financial consequences of receiving medical care (Bredenkamp and Buisman 2016). One of the objectives of the Universal Health Care Law of 2019 (UHC Law) is to provide a comprehensive set of cost-effective and preventive health services without causing financial hardship, prioritizing the needs of those who are unable to afford such services. To fulfill this objective, a systematic assessment of health care expenditures by type of disease is imperative. This will ensure that specific, well-targeted, and sustainable strategies are implemented under the UHC law.

This study aims to produce a granular analysis of the out-of-pocket health expenditure on NCDs and its determinants, with the potential to be expanded to more specific diseases or other health care afflictions. The study also attempts to determine the incidence of catastrophic health expenditures on NCDs. Findings from this study could offer guidance in creating or developing health policies that protect households from financial risks of illnesses (Haakenstad et al. 2019; Kien et al. 2016). In doing this, the new dataset from the 2018 National Health Expenditure Survey (NHES) is utilized.

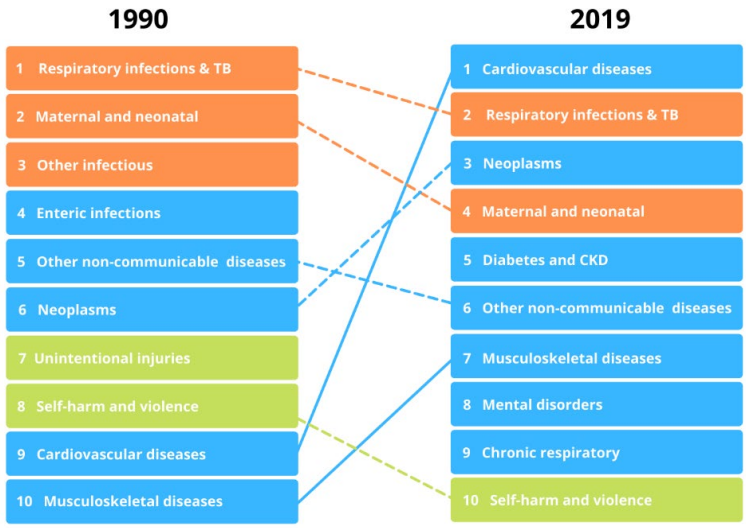
2. Review of related literature

2.1. Background on noncommunicable diseases

NCDs kill over 41 million people per year, constituting approximately 71 percent of all deaths worldwide (Forouzanfar et al. 2015). The effect of NCDs is disproportional, as its impact is felt more in low- and middle-income countries, where more than three-quarters of NCD deaths happen (Forouzanfar et al. 2015). A substantial amount of evidence shows a positive correlation between low-income, low-socioeconomic status, or low educational attainment and NCDs (Niessen et al. 2018).

In the Philippines, NCDs have also overtaken communicable diseases as the top cause of mortality. As of 2019, 7 out of the top 10 leading causes of disability and death are NCDs (Figure 1). In terms of mortality alone, NCDs account for approximately 67 percent of all deaths in the country, and the probability of dying between the ages of 30 and 70 from one of the four major NCDs is estimated at 29 percent (WHO and UNDP 2019). Two of the most significant NCDs, namely cardiovascular diseases (CVDs) (35%), and neoplasm which includes cancer (10%), account for almost half (45%) of all NCD mortality.

Figure 1. Top 10 causes of disability and death, 1990 and 2019 (DALYs per 100,000)

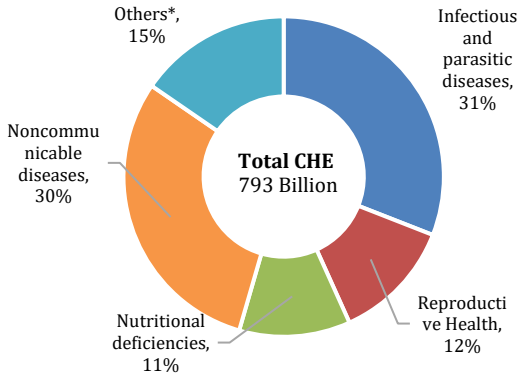


DALY = Disability-adjusted life years
Source: Institute for Health Metrics and Evaluation (2021).

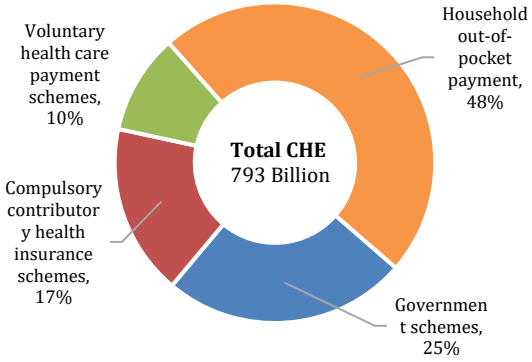
Apart from the health burden, the financial burden of NCDs is substantial. Estimates from the Philippine Statistics Authority (PSA) show that it accounts for 30 percent of total health expenditures in 2019 (Figure 2, panel A). This is a particular concern given that household OOP expenditures still constitute almost half (48%) of total health expenditures, owing to the lengthy and expensive treatment processes for NCDs (Figure 2, panel B). This may explain the regressive nature of NCDs, which tend to increase at a much faster rate in poor communities (UIep, Uy, and Casas 2020). Within NCDs, CVDs and cancer are among those which incurred the highest total health expenditures, based on the average from 2014 to 2019 (Figure 3).

Figure 2. Current health expenditure (percent share), 2019

a. By disease group

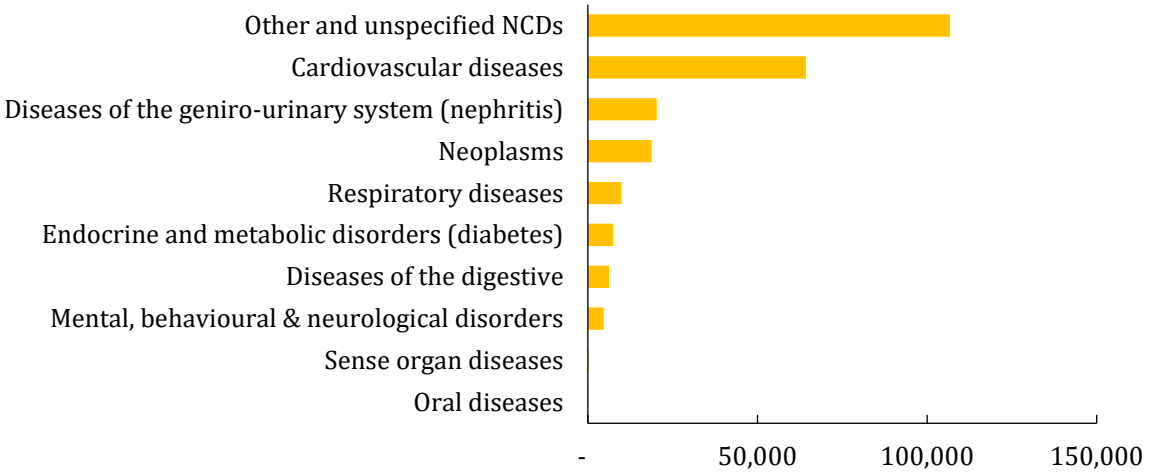


b. By financing scheme



CHE = Current Health Expenditures
Source: National Health Accounts (2021).

Figure 3. Current health expenditure on NCDs (in million PHP), 2014-2019



Source: National Health Accounts (2021).

To wit, there are numerous programs and policies implemented by the government to ameliorate the widespread case of NCDs in the Philippines, which involves a mix of environmental, lifestyle, and clinical interventions. It also includes avenues which could reduce the burden caused by high OOP spending among households. Some of these interventions are as follows:

- Provision of NCD drugs through the Medicine Access Programs (breast cancer, childhood cancer, colon and rectum cancer, insulin, NCD maintenance medicines for hypertension and diabetes),
- National Integrated Cancer Control Act or NICCA (Philippines Republic Act 11215) which includes a Cancer Assistance Fund, and
- Philhealth primary care benefit package for NCDs.

2.2. Studies on health expenditure on non-communicable diseases

The economic costs of NCDs, which include direct (e.g., medical consultations, hospital stays) and indirect costs (i.e., productivity losses) are large in scale. The World Health Organization (WHO) estimates that in 2015, NCDs cost the Philippine economy PHP 756.5 billion, equivalent to 4.5 percent of the country's GDP annually (4). Further, the same analysis shows that investing in policy packages aimed at curbing NCDs would save more than 394,977 lives over 15 years.

Despite its importance, there remains a dearth of literature on the determinants of health care expenditures on NCDs in the Philippines. There appears to be only two studies that implemented such assessment, and whose results are not generalizable to the population. One of these studies measured the hospitalization cost of congestive heart failure among adults (Tumanan-Mendoza et al. 2018). The study employed cost analysis using data from representative government/private hospitals and a drug store in all regions. Results showed the disparity between actual hospitalization costs and PhilHealth's coverage.

Another study measured the economic impact of cancer and determined the predictors of financial catastrophe among cancer patients (Ngelangel et al. 2018). A multinomial regression model was used for the analysis. The data was collected from diagnosed cancer patients, mainly situated in Metro Manila. Results from the study highlight massive OOP expenditure among the patients included in the study, leading to financial catastrophe. Additionally, the study also finds that insurance does not have a significant impact on reducing the risk of death or financial catastrophe.

3. Methodology

3.1. Data: National Health Expenditure Survey (NHES)[4]

This study utilizes the dataset from the 2018 National Health Expenditure Survey (NHES). The NHES is a household- and health provider-based data collection mechanism that gathers detailed health information, which includes the following topics: healthcare-seeking behavior, sources, costs paid, and financing sources for specific health services utilized. The survey consists of two components: 1) household component (HC), and 2) medical provider component (MPC). The analysis for this paper mainly utilizes data from the HC component which contains information on inpatient and outpatient visits, payments (by source of financing), insurance coverage, out-of-pocket expenses, and reimbursements among others.

The NHES HC employed a nationally representative multi-stage sampling based on proportional provincial stratification with probability proportional to size selection of barangays as primary sampling units at the first stage, and systematic sampling of dwelling units in the second stage. The measured size of sampling was based on the number of households per barangay based on the 2015 census data. The sampling method controls for anticipated non-response and attrition between panel rounds of data collection. In the end, the HC included 12,575 households across 503 barangays.

[4] A more detailed discussion on the NHES sampling design is provided in the publication entitled *Philippines National Health Expenditure Survey Round 1: Key Lessons Learned*.

Information gathered from the NHES HC component is provided in different modules. To exploit the granular information offered by the NHES dataset, the analysis of out-of-pocket healthcare expenditures on NCDs was done separately for outpatient and inpatient care, where information is contained in the following modules: 1) Module C1: Outpatient Care Utilization and Charge Payments (past 6 months), and 2) Module C3: Inpatient Care Utilization and Charge Payments (past 12 months). The mentioned modules were matched individually with other modules containing more information on the characteristics of households and household members.

Since Module C1 and C3 were originally presented by *patient visit*, the dataset was further synthesized so that the unit of observation is at the *individual* level. As the analysis is done at the individual level, and since only household weights are available in the dataset, a proxy for individual weights was created by multiplying the household weight with household size, under the assumption that individuals within a household have an equal probability of being chosen. Meanwhile, NCDs were identified using the variable which corresponds to. Examples of NCDs in the dataset include malignant neoplasms (cancer), diabetes mellitus, cardiovascular diseases (CVD), and chronic obstructive pulmonary diseases (COPD).[5]

3.2. Econometric model

Modelling health care expenditure is not straightforward due to its data characteristics. As such, health expenditure data is often described to have a significant proportion of zero-cost observations, and having a heavily right-skewed distribution for positive costs with a relatively small proportion of patients incurring very high expenses (Buntin and Zaslavsky 2004; Deb and Norton 2018). With this type of data, estimation through the standard ordinary least squares (OLS) regression is deemed biased and inefficient. Methodical developments have been made through the years in handling health care expenditure data, and therefore, alternatives to OLS regression have emerged. Among the popular ones is the use of the two-part model.

The two-part model has been widely applied in the health field after the RAND Corporation used it to model health expenditures from the Health Insurance Experiment (Brook et al. 2006). In the two-part model, the zero values are handled by first modelling for the probability of any costs, and second through a conditional regression model for positive costs. This model accounts for the fact that the excessive zero-cost observations may be generated by a mechanism different from that of positive expenditures. Compared to single-equation models, two-part models perform better in handling the heterogeneity between users and non-users as well as the heterogeneity based on level of use (Duan 1983).

Therefore, this study addresses these concerns by using a two-part model to estimate healthcare expenditures, particularly on NCDs. In the first part of the model, the probability of having any healthcare expenditure (zero versus non-zero expenditures) associated with NCDs will be estimated using a logit model. The first part is specified as:

Equation 1. $Pr(Y > 0|X) = \frac{\exp(X\alpha)}{1+\exp(X\alpha)}$

where the dependent variable Y represents out-of-pocket health expenditures (i.e., total of inpatient and outpatient costs) on NCDs, X represents the set of covariates, and α is a vector of the regression coefficients for the first part.

[5] ICD10 codes classified as NCDs include the following: C00-C97, D00–D48, D55-D64 (minus D 64.9), D65–D89, E03-E07, E10-E16, E20-E34, E65-E88, F01-F99, G06-G98, H00-H61, H68-H93, I00-I99, J30-J98, K00-K92, N00-N64, N75-N98, L00-L98, M00-M99, Q00-Q99 (Statistics Canada n.d.).

Meanwhile, the second part of the model aims to estimate the expected health expenditures from observations with non-zero costs (positive costs), conditional on the same set of covariates as in the first part. The second part is estimated using a generalized linear model (GLM) and is specified as:

Equation 2. $E(Y|Y > 0, X) = \exp(X\beta)$

where β corresponds to the vector of regression coefficients for the second part of the model.

GLM is preferred over the traditional OLS model as it relaxes assumptions on normality and explicitly accounts for heteroskedasticity (Kirkland et al., n.d.). Based on the literature, the best fit for expenditure data is often observed under the log link functional form, where the natural logarithm of the expected value of the dependent variable is modeled as the linear index (Deb and Norton 2018). Meanwhile, a modified Park Test, which empirically tests the relationship between the mean and the variance, will be employed to identify the proper distribution family. Usually, the gamma distribution is deemed most reliable, and this is selected when the coefficient parameter from the Park test is approximately 2. Assuming that a gamma with the log link function is indeed used, the interpretation of the each β coefficient will be as percentage change, given by $(\left(e^{\beta}\right) - 1)$ (Deb, Manning, and Norton, n.d.).

Estimates of the predicted healthcare expenditures can be obtained by multiplying the probability from the first part of the model by the expected levels from the second part, as shown in Equation 3. Predictions will be done separately for inpatient and outpatient costs.

Equation 3. $E(Y|X) = Pr(Y > 0|X) * E(Y|Y > 0, X)$

3.3. Econometric model covariates

The same set of covariates such as age, sex, expenditure quintile, educational attainment, insurance coverage household size, urban-rural classification, travel time to a health facility, and facility type will be used in both the first and second models.[6] Based on the available literature, these variables are the main confounders that could affect or influence healthcare expenditures (Patel et al. 2020; Zhang et al. 2017). Comorbidity is also added as another variable since it is assumed that having comorbidities results in higher health spending, as compared with having no comorbidities (Ciminata et al. 2020). In identifying individuals with comorbidity, the variable containing the ICD10 classification based on the final diagnosis on the individual (per outpatient/inpatient visit) was used. Patients with multiple recorded medical conditions are considered to have comorbidities. From this variable, 1 indicates no comorbidity, 2 the presence of one comorbidity, and 3 the presence of several comorbidities. The effect of the covariates on health expenditures will also be analyzed.

4. Results

4.1. Summary statistics

Table 1 presents descriptive statistics of individuals who availed of outpatient and inpatient services due to NCDs. The utilization of outpatient and inpatient services tends to vary by type of location. For outpatient care, individuals with outpatient care visits in the urban areas (59.65%) tend to be higher than those situated in rural areas (40.35%). The opposite is true for inpatient services. For both outpatient and inpatient services, more than half of the individuals

[6] Expenditure quintiles are derived by ranking the households according to per capita household expenditures (weighted). The first quintile represents the poorest 20% while fifth quintile represents the richest group.

are covered by PhilHealth at least, while a very small fraction is covered by other types of health insurance (e.g., private, HMO, SSS, GSIS). Public hospitals tend to be utilized the most for both inpatient (25.66%) and outpatient care (60.16%), followed by private hospitals. Proportional differences in other variables such as age, sex, and educational attainment tend to be minimal.

Table 9. Summary statistics

Independent variables	Outpatient utilization/cost (%)	Inpatient utilization/cost (%)
Observations	2,843	618
Population	27,698,703	5,666,591
Location		
Rural	40.35	51.54
Urban	59.65	48.46
Household size (mean)	6.05	6.02
Sex		
Male	39.33	47.32
Female	60.67	52.68
Age (mean)	44.69	43.69
Educational attainment		
No grade completed	1.37	1.34
At least elementary	34.16	34.04
At least high school	44.79	45.59
At least college	19.68	19.03
Expenditure quintile		
1	10.20	12.63
2	13.96	16.16
3	18.55	19.64
4	22.04	18.14
5	35.25	33.44
Insurance type		
No insurance	38.87	25.43
PhilHealth only	53.63	68.65
Private/HMO/GSIS/SSS only	2.12	1.91
PhilHealth + Others*	5.38	4.01
Comorbidity		
No comorbidity	18.72	90.05
1 comorbidity	15.01	7.68
2 or more comorbidities	3.71	2.27
Health facility type		
Barangay health station (BHS)	13.00	
Rural health unit (RHU)/Health center	15.79	0.27
Private clinic	24.55	1.39
Public hospital	25.66	60.16
Private hospital	19.98	38.19
Others	1.01	0.00
Travel time to health facility (hours)	0.36	0.58

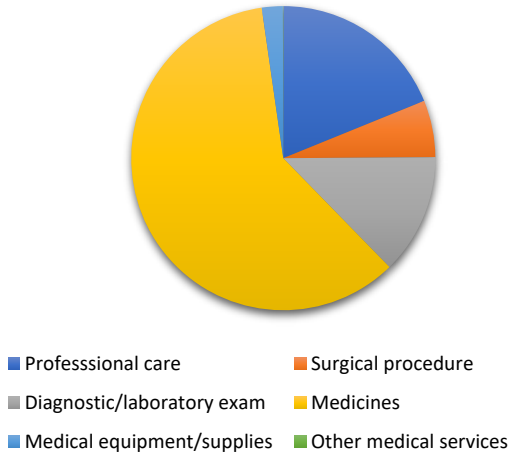
Note: The reference period for outpatient cost is 6 months, while for inpatient cost it is 12 months. Under the health facility, the 'others' category includes the following facilities: eye, tuberculosis dispensary/chest clinic, independent laboratory/testing facility, alternative care provided, special therapy provider, medical

mission/outreach program provider. The population variable refers to the number of individuals (representative) who reported to have non-communicable disease/s as the reason for inpatient/outpatient visit. For insurance types, 'others' include private/HMO/GSIS/SSS insurance.
Source: Author's estimates from the National Health Expenditure Survey (2018)

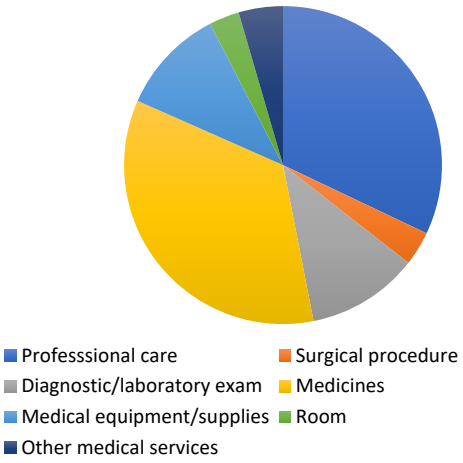
A breakdown of expenditure on outpatient and inpatient utilization by service type shows that the majority of spending among individuals with NCDs are on medicines, followed by professional care. Most of the expenditures are financed from own household resources/savings/income, both for outpatient (98%) and inpatient services (78%).

Figure 4. Outpatient and inpatient care by service type (% of total expenditure), 2018

a. Outpatient



b. Inpatient



Source: Author's estimates from the National Health Expenditure Survey (2018).

4.2. Health expenditure model on NCDs: Econometric modelling results

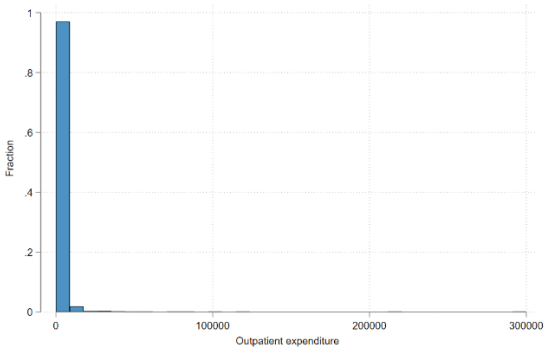
To confirm the validity of using a two-part model for modelling out-of-pocket expenditures on NCD cases, histograms were created. Figure 5 illustrates the distribution of OOP spending for NCDs, thus confirming that its distribution for outpatient and inpatient services is highly skewed with a large mass at zero. Instead, the data appears to be lognormally distributed, as the log of OOP spending appears to follow a normal distribution, albeit being slightly skewed for inpatient expenditure. This warrants the use of the two-part model. Results from the modified Park test also confirm that the gamma distribution is the appropriate distribution family.[7]

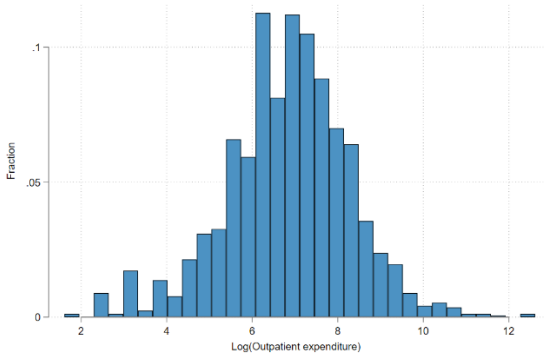
Table 2 presents the results from the regression analysis. The first part of the model explains the probability of having OOP spending versus not having one, presented in log-odds unit. For outpatient OOP spending, only expenditure quintile and health facility type were found to be statistically significant. The expenditure quintile variable is associated with an increased likelihood of having outpatient OOP spending by 68 percent ($p<0.001$) when the individual belongs to quintile 5 relative to quintile 1. Meanwhile, the type of health facility tends to affect the likelihood of having OOP spending by 2.8 times ($p<0.001$) for private hospitals, relative to barangay health units (BHUs).

[7] Results from the modified Park test for both outpatient and inpatient expenditure models returns a coefficient almost equal to 2, thus confirming the appropriate use of the gamma distribution.

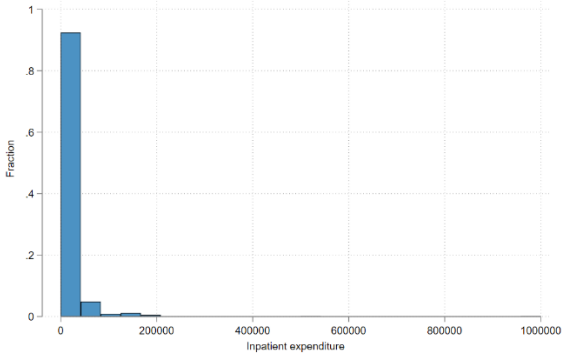
Figure 5. The distribution of out-of-pocket spending on outpatient and inpatient services for NCDs

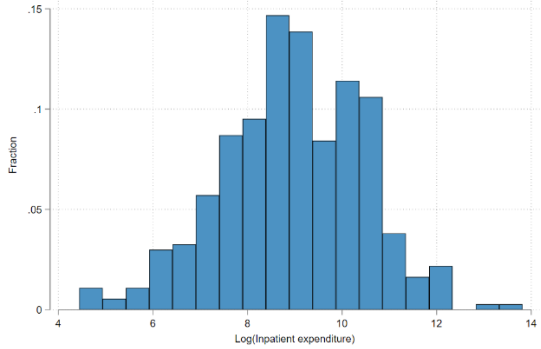
a. Outpatient expenditure





b. Inpatient expenditure





SSS = Social Security System; GSIS = Government Service Insurance System; HMO = Health Maintenance Organization; RHU = Rural Health Unit
Source: Author's estimates from the National Health Expenditure Survey (2018).

For inpatient OOP spending, only several categories within a few variables were found to be significant. Age tends to marginally decrease the probability of having incurred inpatient OOP spending by 1 percent ($p<0.05$). Interestingly, private/HMO/GSIS/SSS insurance coverage (sole) tends to increase the probability of having incurred any inpatient OOP spending by almost 1.9 times relative to having no insurance coverage. Having two or more comorbidities also increases the probability of spending by 1.6 times ($p<0.05$) relative to having no comorbidity.

The second part of the model indicates the increase or decrease in OOP spending, conditional on having any expenditure. For outpatient OOP spending, numerous variables were found to be statistically significant. Travel time to the health facility is highly significant and tends to increase OOP spending for NCDs by 17 percent ($p<0.001$). The presence of one comorbidity leads to an increase in expenditure by almost 28 percent ($p<0.05$), relative to having no comorbidity. Having a private/HMO/GSIS/SSS insurance was found to significantly reduce outpatient OOP spending massively by 1.48 times ($p<0.001$) relative to having no insurance.

For inpatient OOP spending, being female tends to decrease spending by 36 percent ($p<0.10$) albeit the significance level is low. Similarly, belonging to quintile 5 also increases spending substantially, as compared to quintile 1. The presence of one comorbidity is associated with a

decrease in spending while having 2 or more comorbidities leads to higher spending, relative to having no comorbidities. Interestingly, it was found that insurance coverage of any type is not statistically significant.

The estimated (modelled) outpatient cost of NCDs among individuals is PHP 1,879 (95% CI PHP 1,476 to PHP 2,282), for a period of 6 months. Unsurprisingly, the estimated inpatient cost for NCDs is substantially higher at PHP 15,622 (95% CI PHP 9,937 to PHP 21,307) for a period of 12 months. Average adjusted predictions (AAP) are provided in Table 3 to better assess the change in OOP spending induced by a unit (level) change in variables found to be inpatient OOP spending increases by PHP 3,545 and PHP 22,997, respectively when the health care facility is a private facility significant in at least one part of the model. Results from the analysis show that outpatient and rather than a BHU. Conversely, being covered by private/HMO/GSIS/SSS insurance and PhilHealth together with other types of insurance reduces outpatient OOP spending by PHP 1,194 and PHP 271, respectively.

Table 10. Regression results: Probability of healthcare resources utilization and cost estimation on NCDs

Covariates	Outpatient				Inpatient			
	Probability (first modelling part)		Cost ratios (second modelling part)		Probability (first modelling part)		Cost ratios (second modelling part)	
	Coef.	95% CI	Coef.	95% CI	Coef.	95% CI	Coef.	95% CI
Location								
Rural	Reference							
Urban	-0.011	(-0.262 - 0.240)	0.177	(-0.047 - 0.401)	-0.012	(-0.539 - 0.515)	0.155	(-0.243 - 0.553)
Household size	0.007	(-0.043 - 0.056)	0.056*	(-0.009 - 0.121)	0.020	(-0.082 - 0.122)	0.021	(-0.069 - 0.111)
Sex								
Male	Reference							
Female	0.047	(-0.179 - 0.273)	-0.091	(-0.284 - 0.101)	0.183	(-0.243 - 0.609)	-0.308*	(-0.629 - 0.014)
Age	-0.000	(-0.002 - 0.001)	-0.000	(-0.003 - 0.003)	-0.011**	(-0.022 - -0.000)	0.004	(-0.004 - 0.012)
Educational attainment								
No grade completed	Reference							
At least elementary	0.482	(-0.532 - 1.496)	-0.746**	(-1.466 - -0.026)	-0.563	(-2.552 - 1.427)	0.380	(-0.520 - 1.280)
At least high school	0.347	(-0.665 - 1.358)	-0.568	(-1.284 - 0.147)	-0.290	(-2.269 - 1.688)	0.410	(-0.497 - 1.316)
At least college	0.399	(-0.639 - 1.437)	0.140	(-0.659 - 0.938)	-0.483	(-2.487 - 1.521)	0.433	(-0.493 - 1.359)
Expenditure quintile								
1	Reference							
2	0.378*	(-0.027 - 0.784)	0.045	(-0.305 - 0.394)	0.886**	(0.147 - 1.625)	-0.186	(-0.703 - 0.331)
3	0.475**	(0.081 - 0.869)	0.191	(-0.159 - 0.541)	0.034	(-0.712 - 0.780)	-0.112	(-0.680 - 0.457)
4	0.386*	(-0.017 - 0.790)	0.295*	(-0.048 - 0.639)	0.421	(-0.342 - 1.183)	0.102	(-0.477 - 0.681)
5	0.688***	(0.258 - 1.118)	0.310*	(-0.039 - 0.659)	0.595	(-0.133 - 1.323)	0.961***	(0.421 - 1.501)
Insurance type								
No insurance	Reference							
PhilHealth only	-0.156	(-0.392 - 0.080)	0.061	(-0.133 - 0.255)	-0.458	(-1.008 - 0.092)	0.045	(-0.315 - 0.405)

Private/HMO/GSIS/SSS*	-0.174	(-0.901 - 0.553)	-0.912***	(-1.342 - -0.482)	1.916**	(0.284 - 3.549)	0.605	(-0.843 - 2.053)
PhilHealth + Others	-0.099	(-0.608 - 0.410)	-0.126	(-0.549 - 0.297)	-0.825	(-1.948 - 0.298)	0.340	(-0.338 - 1.019)
Comorbidity								
No comorbidity	Reference							
1 comorbidity	0.071	(-0.253 - 0.395)	0.244**	(0.001 - 0.488)	0.234	(-0.504 - 0.972)	-0.736***	(-1.169 - -0.304)
2 or more comorbidities	0.361	(-0.157 - 0.878)	0.180	(-0.378 - 0.738)	1.644**	(0.179 - 3.109)	1.347***	(0.417 - 2.276)
Health facility type								
Barangay health station (BHS)	Reference						N/A	
RHU/Health center	0.813***	(0.404 - 1.221)	-0.293	(-0.914 - 0.327)			Reference	
Private clinic	3.361***	(2.927 - 3.794)	1.005***	(0.426 - 1.585)	0.506	(-2.137 - 3.149)	2.395***	(1.251 - 3.538)
Public hospital	2.007***	(1.618 - 2.397)	0.780***	(0.191 - 1.369)	0.133	(-1.907 - 2.172)	2.503***	(1.620 - 3.386)
Private hospital	2.871***	(2.457 - 3.285)	1.535***	(0.924 - 2.147)	1.091	(-0.990 - 3.172)	3.233***	(2.283 - 4.183)
Others	3.976***	(2.353 - 5.600)	0.406	(-0.284 - 1.097)				
Travel time to health facility (hours)	-0.010	(-0.081 - 0.061)	0.159***	(0.061 - 0.258)	0.060	(-0.106 - 0.226)	0.114	(-0.111 - 0.339)
Constant	-2.063**	(-3.839 - -0.286)	6.749***	(5.619 - 7.880)	1.724	(-2.141 - 5.589)	4.473***	(2.297 - 6.648)

SSS = Social Security System; GSIS = Government Service Insurance System; HMO = Health Maintenance Organization; RHU = Rural Health Unit

Note: Reference period is past 6 months for outpatient costs and 12 months for inpatient costs. Fixed effects for regions are included but not presented. Under the health facility, the 'others' category include the following facilities: eye, tuberculosis dispensary/chest clinic, independent laboratory/testing facility, alternative care provided, special therapy provider, medical mission/outreach program provider.

Source: Author's estimates from the National Health Expenditure Survey (2018)

Table 11. Average adjusted predictions, in PHP

Covariates	Outpatient (PHP)	Inpatient (PHP)
Health facility type		
Barangay health station (BHS)	Reference	N/A
RHU/Health center	58	Reference
Private clinic	2,243	7,896
Public hospital	1,144	7,603
Private hospital	3,545	22,977
Others*	1,265	
Insurance type		
No insurance	Reference	
PhilHealth only	41	-1,284
Private/HMO/GSIS/SSS*	-1,194	22,944
PhilHealth + Others	-271	1,509
Comorbidity		
No comorbidity		
1 comorbidity	279	-7,542
2 or more comorbidities	658	67,697
Travel time to health facility (hours)	294	2,067

SSS = Social Security System; GSIS = Government Service Insurance System; HMO = Health Maintenance Organization; RHU = Rural Health Unit

Note: Reference period for outpatient cost is 6 months, while for inpatient cost it is 12 months. Under the health facility, the 'others' category include the following facilities: eye, tuberculosis dispensary/chest clinic, independent laboratory/testing facility, alternative care provided, special therapy provider, medical mission/outreach program provider.

Source: Author's estimates from the National Health Expenditure Survey (2018)

4.3. Catastrophic health expenditure of households with NCDs

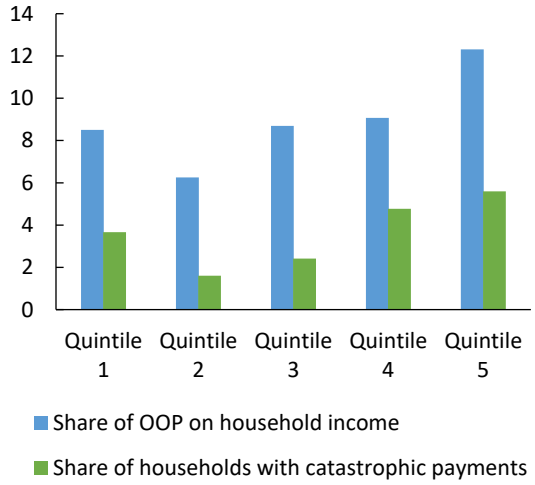
Catastrophic health expenditure (CHE) refers to any expenditure for medical treatment that can pose as a threat towards a household's financial ability to maintain its subsistence needs (Puteh and Almualm 2017). CHE occurs in the form of OOP on healthcare. Using the NHES dataset, catastrophic health expenditure on NCDs in this study is measured following the definition provided by the WHO (15). As such, health expenditure is considered catastrophic if the household's out-of-pocket payment for healthcare exceeds 40 percent of the household's capacity to pay. This could be denoted as follows, where the variable for catastrophic health expenditure is denoted as 1 if a household incurs catastrophic health expenditure, and 0 otherwise:

$$cata_h = 1 \; if \; {}^{oop_h}/_{ctp_h} \geq 0.4$$
$$cata_h = 0 \; if \; {}^{oop_h}/_{ctp_h} < 0.4$$

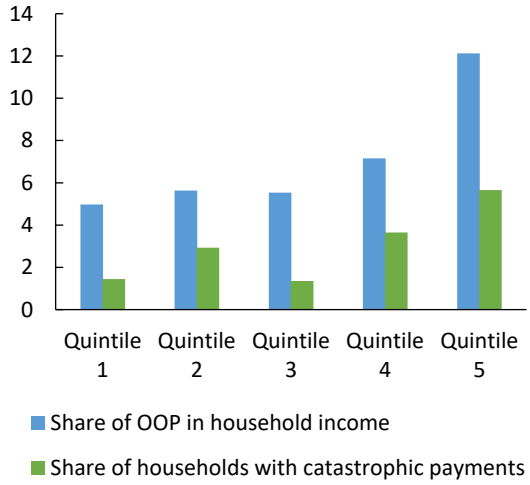
Note that the calculation is based on the total medical expenditure of a household wherein at least one member is identified to have NCDs. Figure 6 below shows that the correlation between catastrophic payments among households with NCDs and their socioeconomic status does not seem to be straightforward. Households in quintile 2 and quintile 3 have a lower proportion of households which incurred catastrophic payments, relative to quintile 1. In comparison with households with at least one member with a communicable disease, the incidence of catastrophic spending among those with NCDs tend to be higher.

Figure 6. Incidence of catastrophic payments among households with members identified to have NCDs or communicable diseases

a. Noncommunicable



b. Communicable



OOP = Out-of-pocket spending

Note: Catastrophic payments are defined as out-of-pocket payments exceeding 10 percent of total household consumption.

Source: Author's estimates from the National Health Expenditure Survey (2018).

5. Discussion

To date, this study is the first to conduct a granular analysis on the drivers of OOP spending on NCDs, owing to the rich data offered by the NHES dataset. It is important to note that the results from this study do not seek to create causal claims based on the results. Instead, the results as discussed in this section must be viewed as 'potentially' causal.

Based on the analysis, PhilHealth insurance alone does not seem to significantly decrease OOP spending on NCDs, both for outpatient and inpatient services. The likely reason for this is that the benefits package offered or support value for NCDs was inadequate, which also implies that PhilHealth insurance was not able to ensure financial protection. This is consistent with an earlier finding which highlighted that government insurance did not have a significant impact on financial catastrophe specifically among cancer patients (Ngelangel et al. 2018).

A key area which could be further investigated are the costs of medicines since it constitutes the bulk of spending on outpatient and inpatient care due to NCDs. As experienced in many low- and middle-income countries (LMICs), it may be the case that the PhilHealth insurance does not cover all the essential medicines, or patients have to shoulder substantial copayments (Sum et al. 2018). For instance, a study conducted in Viet Nam showed that health insurance did not significantly reduce catastrophic health expenditures, where one of the reasons was the high cost of medicines and unavailability of the medicines at hospitals (Van Minh et al. 2013). In the Philippine context, a recent study noted that some health centers are not reimbursed by PhilHealth despite claims being filed, while the others simply gave up claiming for reimbursement despite providing services (Querri et al. 2018). This may have had implications on the quality of services, which includes continuous supplies of medication and equipment. As a consequence, this encouraged irrational use of health services, where patients opt to directly access secondary or tertiary facilities for primary care, resulting in inefficient services delivery (Querri et al. 2018), concomitantly leading to higher expenses.

While PhilHealth seems to be unable to offer the right amount of financial protection, the significant and negative effect found for private/HMO/GSIS/SSS insurance at least on outpatient care may be a worthy area to explore. For one, providing tax incentives to increase private health insurance coverage to supplement PhilHealth could be investigated to improve healthcare access for NCDs and reduce the burden of OOP spending (Jiang and Ni 2020). Meanwhile, to limit OOP spending and increase awareness among those in the poorest and richest quintiles, which are found to have the highest incidence of OOP spending, issuance of health insurance cards and defining a clear copayment structure could also help (Bredenkamp and Buisman 2016).

Another noteworthy result is the highly significant relationship between OOP spending on NCDs and the type of healthcare facility utilized. Unsurprisingly, private hospitals and clinics incur significantly higher costs than the other health facilities. This may be problematic as a high proportion of the population is still reliant on these private facilities (approximately 40% to 45%). To ameliorate the exorbitant costs, especially for inpatient services, early detection by preventive screenings and early treatment initiation will help in decreasing disease progression, and thus reduce preventable hospitalizations (Sriram and Khan 2020). Improving the current state of primary health care in the Philippines could aid in this matter (UIep, Uy, and Casas 2020). An earlier study conducted by Gertham and Jonsson (2000) shows that countries with primary health care have 18 percent lower health expenditures than those

without. In a similar vein, a more recent study by Starfield, Shi, and Macinko (2005) show that countries with weaker primary care had statistically significant higher health care costs.

Meanwhile, results from the regression analysis show a rather mixed result on the influence of comorbidity on health spending, which merits a more thorough examination. On the one hand, outpatient OOP spending tends to increase with the number of comorbidities, and this is more consistent with the literature. However, the opposite is true in the case of inpatient OOP spending, where the presence of 1 comorbidity tends to incur a significantly lower cost relative to no comorbidity. Based on the sub-sample of inpatient visits among individuals diagnosed with NCDs, costly diseases (e.g., malignant neoplasms) are more prevalent among those with no comorbidity relative to those with 1 comorbidity. The counterintuitive result may be explained by this heterogeneity and/or different combinations of the diseases among those with or without comorbidities, which the model does not capture or control for.

The analysis also reveals that the incidence of catastrophic spending is higher among households with at least one member who has NCD relative to those who have at least one member with a communicable disease. In addition, the incidence of catastrophic spending among those in the poorest quintile within households with NCDs is also found to be relatively higher than those in the middle quintiles. An earlier study by Bredenkamp and Buisman (2016) provides cross-country comparisons of the incidence of catastrophic spending among *all households* in selected Asian countries using the 40 percent threshold (Table 4). Estimates from the foregoing study reveal higher figures for the Philippines relative to Thailand and Indonesia. Meanwhile, the estimates from our study, which zooms in on households with NCDs, are even higher. These findings show the more regressive and costly nature of the treatment of NCDs.

Table 12. Incidence of catastrophic and impoverishing expenditure in Indonesia, Thailand and Vietnam

Country	Year	Catastrophic payment headcount		Percentage point change in impoverishment		Data
		10% of consumption	40% of non-food consumption	USD1.25 per day threshold	USD2.00 per day threshold	
Indonesia	2011	4%	1.8%	0.9pp	1.3pp	SUSENAS
Thailand	2009	1.8%	0.2%	0pp	0pp	HSES
Vietnam	2008	7.8%	2.5%	2pp	3pp	VHLSS
Philippines	2012	7.7%	2.3%	1pp	1.5pp	FIES

Source: Bredenkamp and Buisman (2016).

Finally, the findings of this study suggest that accessibility to the health facility matters – at least for outpatient OOP spending. This may suggest a need to provide additional services to NCD patients who live farther from the healthcare units, especially those in rural areas (Rocque et al. 2019). Telemedicine may be a potential venue for increasing accessibility, and sharing of medical records through information technology systems enhanced in the health system could be explored and looked into in this area (Rocque et al. 2019).

6. Limitations and further study

It is important to note that the study is confronted by data and methodological limitations. First, the study only utilizes the NHES HC, which is based on self-reported data. As such, OOP expenditure on NCDs might be underestimated due to recall bias (Wang et al. 2015). The NHES HC could have been merged with the NHES MPC component to validate information, yet this will lead to several observations being dropped from the sample. Second, the analysis is grounded on a cross-sectional type of data. Considering that the NHES is still currently at the piloting stage, time-series data is not yet available. In the future, the extended series of the NHES data could be exploited to establish causal inference through quasi-experimental techniques. Third, data on expenditure was used to create the quintile variable in the analysis, but this might not well represent wealth. A wealth index would have been more appropriate for the analysis. The authors of this study initially planned to compute this index following the methodology from NDHS ("The DHS Program - Wealth-Index-Construction" n.d.). However, the NHES did not have enough variables needed for the index construction.

The same model from this analysis could be applied to identify the determinants and expenditure on communicable diseases, and consequently compare it with the findings from this study. Concurrently, since the two-part model (first part) does not actively identify whether the increase or decrease in the probability of healthcare spending is due to an increase in accessibility, moral hazard or other reasons, other methods that could explore or control for this condition could be addressed in the future.

7. Conclusion

To date, this is the only study that we are aware of which analyzes the drivers of OOP spending on NCDs using nationally representative survey data. As such, findings from the empirical analysis allow for an enlarged scope of discussion on the determinants of OOP spending, albeit at a more granular level. The findings of the study suggest that the type of health facility and health insurance, as well as travel time matter in OOP spending on NCDs. Supplementary or increase in insurance coverage, improved primary health care services, and greater accessibility to these services could aid in reducing the burden of health care costs of NCDs among Filipinos.

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Analysis of National Health Expenditure Survey (NHES) Round 1 and Design of Survey Protocol for NHES Round 2

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Abstract

In 2018 to 2021, the Department of Health (DOH) with assistance from United States Agency for International Development-Health Policy Plus (USAID-HP+) and European Union-Philippine Health Sector Reform Contract, implemented a National Health Expenditure Survey (NHES). The NHES consists of two components: a household survey (NHES-HC) and a medical provider survey (NHES-MPC). Health care use and financing information provided by select NHES-HC respondents are cross-referenced during the NHES-MPC with their health facility records.

Intended as a regular tool to inform decision making on health sector reforms, DOH plans to implement a second round of NHES by 2022 to 2023. DOH commissioned the Philippine Institute for Development Studies to redesign the NHES questionnaires to address the challenges encountered during its first round implementation; capture critical facets of the Universal Health Care agenda; and revise the sampling design to consider panel survey and be representative at the regional level. NHES Round 1 related reports, datasets, and documentations obtained from DOH were reviewed to identify the recommendations.

The first round of NHES yielded rich information on health-seeking behavior and utilization, healthcare billing, healthcare expenditure, financial protection, and quality of care. The recommendations of USAID-HP+ on NHES tools are valid and sufficient as enhancements for the next round of NHES. The health utilization, expenditure, and financial information that can be collected through NHES are adequate. In NHES-HC, questions on referral; primary health care; components of out of pocket spending; and delay in health-seeking behavior are proposed to be added. Health facilities visited by respondents for primary care, as well as referring and/or referral facilities identified in NHES-HC with health care events in the last 6 months are recommended to be subject for conduct of the proposed NHES-MPC Supplemental questionnaire. Deleted questions for the next round does not necessarily mean discontinued questions, but could be collected intermittently for certain rounds, particularly if NHES will be implemented as a panel survey. If so, the frequency and interval between rounds shall determine if there are sections, subsections, or questions that can be omitted in some rounds. In the meantime, some questions are proposed to be removed due to space constraints and consideration for respondent fatigue in general, in lieu of other proposed questions to be explored. The abovementioned recommendations, however, are subject to change pending discussions with DOH for priority specifications and indicators. In terms of NHES sampling methodology, due to data limitations, it is proposed to use the same Round 1 sampling design with 12,500 sample size or up to 15,625, if interested to conduct NHES as panel design. The additional 25 percent accounts for possible attrition in the next round.

Keywords: national health expenditure survey, household survey, medical provider survey, health care provider, health facilities, health care, health care utilization, health care financing,

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sources of financing, health care expenditure, health account, out of pocket spending, catastrophic health, sources of medical care, sources of financing

1. Introduction

In the Philippines, the current administration is closing out with a health reform anchored on good governance to reduce poverty and achieve the Sustainable Development Goals. The Philippine Development Plan, including the National Objectives for Health, prioritized the attainment of the Universal Health Care (UHC) agenda, which has three strategic thrusts: achievement and sustenance of universal health insurance; access to functional service delivery networks; and protection from triple burden of diseases.

As support to the UHC policies and interventions, the Department of Health (DOH), with technical assistance from United States Agency for International Development (USAID) projects: Health Policy Development Program 2 and Health Policy Plus (HP+); as well as Philippine Health Sector Reform Contract (PHSRC) of the European Union (EU), designed and developed a National Health Expenditure Survey (NHES), which is a nationally-representative survey on health service utilization and its associated expenditure.

The NHES is the first comprehensive survey in the country that links utilization of health care services with corresponding expenses of that health care use; that is, it collects data on specific health services used by Filipinos, how frequently the health services are used, the cost of these health services, and how they are paid for. The survey collects from household respondents, information on socio-demographics; health status; health conditions; health care use; expenses; and insurance; and then verifies such information from medical and/or billing records of health care facilities the respondents' have visited.

In 2018 to 2021, the first round of NHES was implemented by DOH, USAID-HP+, and EU-PSRC. Findings of NHES Round 1 provided empirical evidence to inform improvements to existing and future health financing policies and programs; examples of which include, but are not limited to, exploring the incidence of catastrophic health expenditures for outpatient and inpatient care (Javier et al. 2022a) and understanding determinants of out-of-pocket (OOP) spending (Javier et al. 2022b). In the end, the NHES showed that it can be used to calibrate health care policies and reforms, and allow monitoring of indicators important to achieve UHC.

In line with this, DOH aims to implement a second round of NHES by 2022 to 2023. The Philippine Institute for Development Studies was commissioned to redesign the NHES questionnaires to: (i) address the challenges encountered during its Round 1 implementation; (ii) capture critical facets of health reforms under the UHC Act of 2019; and (iii) revise the sampling design to provide regional estimates and consider panel survey, if needed. The survey should enable researchers and decision-makers to further assess the effectiveness of UHC reforms.

2. Overview of NHES

2.1. Significance

The NHES is an extensive survey on health utilization linked with financing, that provides better information and parameters for use in analytical and policy work. It aims to gather information on the nation's health care use, expenditures, insurance coverage, sources of health payments, and other information that the existing surveys such as Annual Poverty Indicator Survey, Family Income and Expenditure Survey, and National Demographic and Health Survey (NDHS) do not provide.

Inspired by the United States Medical Expenditure Panel Survey applied in the Philippine setting, the NHES is designed as a mechanism for collecting information on the utilization of health care services and how much is spent for the use of the chosen health care services. In addition, the NHES provides information on the factors that influence the choice of health care as well as the sources of funds for health care expenses and the magnitude of the said expenses relative to total household expenditure. This information is essential to ensuring the alignment of health policies to the health seeking behavior of Filipinos. Although bits and pieces of data on health care utilization and expenditure can be obtained from available sources, more often than not, the needed data is not collectively available. Consequently, the information on what drives the decisions to seek health care and how the choice is affected by the burden of expenditures cannot be extracted; for instance, an analysis of how health insurance reimbursements affect the choice of health care cannot be undertaken if the available data pertains to one group of individuals while health care utilization data corresponds to another group of individuals. Moreover, available survey data either are for special and one-time undertakings with limited regularity or do not have the necessary level of detail and disaggregation. A case in point is data from NDHS that is collected only once every five years and is inadequate for the annual planning and policy design cycle of the DOH and its attached agencies. In particular, the NDHS data on health care utilization and financing is incomplete. Data on total health care expenditure incurred per incident of health care utilization cannot fully be disaggregated into its component parts, by funding source (private insurance, borrowing, etc.) or by treatment component (professional fees, labs, drugs, etc.).

Through time, the NHES information will help track how the level and pattern of health expenditures and sources of payment are affected by broad changes in the economy and with reforms in health policy. Specifically, it will address informational gaps and provide better parameters for the estimation of the National Health Accounts; provide information needed for a more thorough assessment of the National Health Insurance Program performance; and provide better understanding of relationships between health seeking behavior and determinants such as factors in socio-economy, financial risk protection, and availability of health providers, which allows for the better interpretation of recorded program performance by the DOH.

2.2. Objectives

The primary goal of NHES is to obtain detailed information on the utilization of health care services; sources of the medical healthcare; and the associated household health expenditures and sources of financing used for the health services utilized. In addition, the first round of NHES specifically aimed to:

- Determine the OOP expenditures of households and quantify the incidence of catastrophic health spending;
- Provide baseline data on the unmet needs for healthcare, determinants of health-seeking behavior, and patient satisfaction; and
- Develop and test the NHES linked household and medical provider design for future NHES rounds as means to obtain key performance monitoring information for DOH and attached agencies.

2.3. Methodology

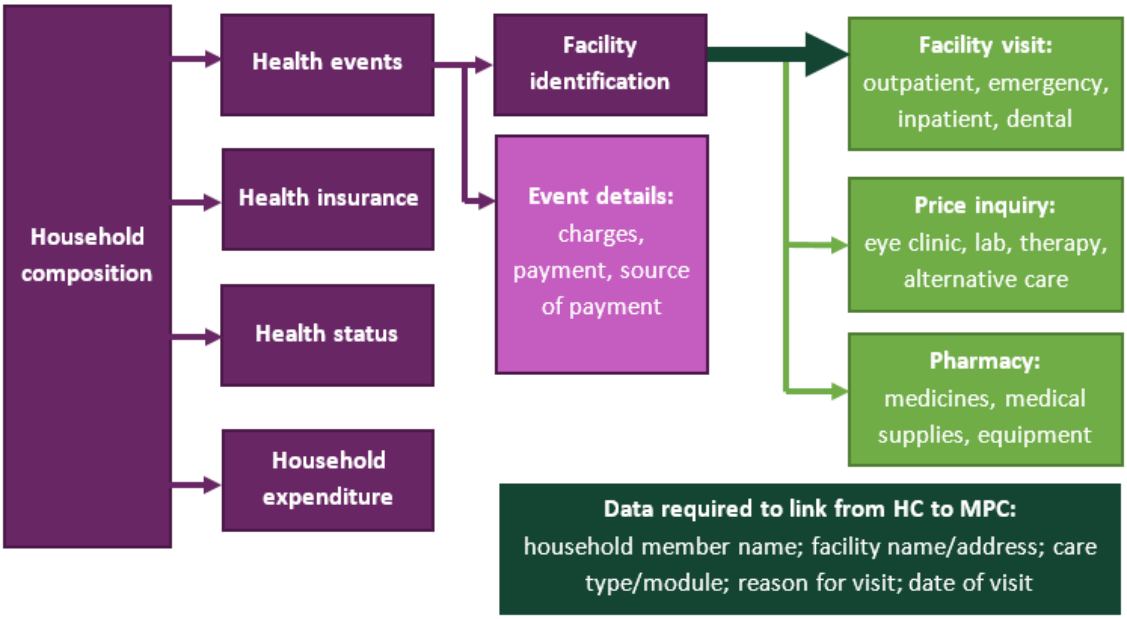
2.3.1 Survey Components

The NHES consists of two survey components: a household component (HC) and a medical provider component (MPC). Health care use and financing information provided by select NHES-HC respondents are cross-referenced during the NHES-MPC with their health facility records. The structure of NHES is shown in Figure 1.

The NHES-HC collected information on visits to medical providers and facilities (identifying the name and type/category of facility); health events types such as emergency room visit, inpatient hospital stay, or outpatient care visit; prescribed medications during the visits; specific health conditions that led to use of the health care; details and disaggregation of charges (e.g. professional fees, room and board, diagnostics, drugs, etc.) and payments (by sources of financing); insurance coverage; OOP expenses; and reimbursements.

On the other hand, the NHES-MPC validated the information reported by the NHES-HC respondents directly from health providers' end. With authorization from the interviewed patients, medical records are accessed and collected. The MPC asks about specific details on medical care received by household members such as date of service, services provided, diagnoses/conditions, charges for each service, and payments including source and modes of payments.

Figure 7. The structure of NHES



Source: Health Policy Plus (2021).

2.3.2 Sample Size and Response Rates

A total of 12,575 households across 503 study barangays was initially sampled for NHES-HC. The NHES-HC employs a nationally representative multistage sampling design based on proportional provincial stratification with probability proportional to size selection of primary sampling units (barangays) at the first stage, and systematic sampling of secondary sampling units (dwelling units) at the second stage.

In the selection of barangays (first stage), 115 domains were included in the NHES-HC sample frame out of the 117 major sampling domains in the 2013 Philippine Statistics Authority (PSA) Master Sample Design. The difference accounts for inaccessible barangays due to hazardous travel or security concerns. In the selection of dwelling units (second stage), 25 households were randomly selected without replacement, in each of the 503 study barangays. Households were sampled using interval sampling with a random starting point. The sampling measure of size was the number of households in each barangay, per updated 2015 census data. However, on the ground, six barangays were excluded after being identified as conflict-zones and areas with high concentration of separatist and communist movements.

Ultimately, out of 497 barangays, 12,425 households were sampled. Overall, there is a 12.1 percent refusal rate among households. Despite such rate, if sampled dwelling units included more than one household, all those households were invited to participate in the survey. Thus, the total number of households included in the NHES-HC was 11,107 with household members amounting to 50,030. Of these respondents, 15,055 healthcare events were identified among visits to 5,149 health providers that occurred in the 12 months previous to the survey for inpatient and home care, and 6 months for other types of healthcare. Out of these reported events, 7,906 have consent for the NHES-MPC data collection. Of the events with consent for MPC, 57.3 percent (4,528 event records) were successfully collected out of 2,053 healthcare facilities.

2.3.3. Survey Tools

The HC questionnaire is administered to a key informant household member which can be the household head, spouse of household head, or household member knowledgeable about persons who live in the household. Members present in the household during the interview are also asked to participate. The HC questionnaire has nine separate sections and nine sub-sections described in Table 1, which also includes other related NHES-HC forms.

Table 13. Description of survey forms on NHES Household Component

Module	Section	Description
NHES-HC Questionnaire		
B1	Household Composition	Determines the household respondent and generates the roster of household members
B2	Identification of Facility Visited	Collects details of health facility visits by household members in the past 6 months for medical consultation, emergency care, primary care, diagnosis, prescription, and follow-up and/or referral episodes as well as visits in the past 12 months for confinement or hospitalization and home care. *Details of health facility visit, including services billed and paid amounts, and financing sources per health event are recorded in C modules.*
C1	*Outpatient Care Utilization (OP)*	An event in the last 6 months for which any medical care or service is provided on an outpatient basis; that is, a person comes to a provider to receive care and services, leaves the same day, and does not require a written order for admitting the person as an inpatient.
C2	*Emergency Care Utilization (ER)*	A medical emergency event in the last 6 months that poses an immediate risk to a person's life or long-term health; provided in an emergency room at a hospital or infirmary open 24 hours a day and no appointment necessary to receive care.
C3	*Inpatient Care Utilization (IP)*	An event in the last 12 months for which any medical care or service is provided on an inpatient basis; that is, a person has a written order to be admitted as an inpatient to a hospital, infirmary, or birthing facility for a period of 24 hours or longer.
C4	*Dental Care Utilization (DN)*	An event in the last 6 months that includes a visit to a dental care provider for general work, such as fillings, cleaning, and extractions, as well as specialized work, such as root canals or fittings for braces.
C5	*Health Care Utilization in Other Facilities (OF)*	An event in the last 6 months that includes a visit to non-hospital-based social hygiene clinics; tuberculosis dispensaries or chest clinics; eye clinics/centers; clinical or independent diagnostics laboratories (e.g., Hi-Precision and Ace Diagnostics); testing facilities (e.g., drug testing laboratories); and other healthcare providers for diagnostic procedures, such as x-ray and other tests

Module	Section	Description
C6	*Special Therapy Care Utilization (ST)*	An event in the last 6 months that includes a visit to a healthcare provider for rehabilitation care or services, such as occupational therapy, physical therapy, psychological and behavioral rehabilitation, prosthetics and orthotics rehabilitation, or speech and language therapy.
C7	*Alternative Care Utilization (AC)*	An event in the last 6 months that includes approaches to healthcare different from those typically practiced by medical doctors, such as reflexology, acupuncture, massage therapy, and herbal remedies, among others.
C8	*Utilization of Health Care Provided by Medical Mission Outreach Program (MM)*	An event in the last 6 months for which any medical care or service is provided by a government or nongovernment organization through an outreach or health-related mission in a non-healthcare facility within a community.
C9	*Home Health Care Utilization (HH)*	An event in the last 12 months that includes home service healthcare, such as birth delivery, checkups, immunization, micronutrient supplementation, alternative care, or rehabilitation services.
B3	Household Members with Medication	Aims to cover other health conditions with medications (e.g. vitamins, supplements, family planning commodities), medical equipment, and/or medical supplies in the last 6 months not associated with health care events identified in modules C1 to C9.
B4	Individual Module of Household Members with Medication	Aims to determine the costs of medications identified in Module B3 and whether these medications are prescribed or for maintenance.
B5	Household Member Did Not Avail Health Care or Medications	Aims to cover other health conditions not yet identified in modules C1–C9 and B4, and identify reasons why household members did not avail themselves of healthcare services or medications in the last 6 months.
B6	Health Insurance (HI)	Asks about health insurance coverage by type, policyholder, how health insurance was obtained, who pays for health insurance, amount of premium, coverage of medicines prescribed by a doctor, and ability to continue coverage without help from employer/sponsors.
B6	Household Expenditures (HE)	Probes for average household spending per week (e.g., food, tobacco, alcoholic beverages); per month (e.g., fuel, utilities); and during the past 6 months (e.g., clothing, taxes).
B8	Primary Care (PC), Health Status (PS), Risky Behavior (RB), and Patient Satisfaction (PS)	Probes about the overall health status of household members available during the interview (compared to others, compared to last year); risky behaviors, such as smoking or drinking; and satisfaction regarding issues encountered or pleasant experiences during health facility visits.

Module	Section	Description
B9	Closing	Facilitates the review of completed consent forms for each unique person-provider pair.
Other NHES-HC Forms		
	Assent Form	The manifestation of agreement of a minor (aged 7 to 14 household member of the sampled NHES-HC household) to participate in a research. It includes an Information Sheet that provides all the information about the survey and a Certificate of Assent where the minor must sign if he/she agrees to participate in the survey.
	Consent Form	Includes the privacy notice for all participating household members. Interviewers use this form to obtain voluntary consent from household members who will participate in the NHES data collection. The consent form documents whether the respondent further agrees to the survey firm's access to medical and billing records from the facilities reportedly used by the household members.
	Top Sheet	Includes field interviewer and respondent details crucial when they have to be contacted or visited again for clarifications and follow-ups. It is used to verify if respondents for interview is eligible or not.
Form A	Field interviewers' Documentation Form A	Used by interviewers to document courtesy calls at the province level and city/municipality/barangay level.
B10	Field Interviewers' Record Form	Documents outcomes of household visits to conduct the household survey.
B11	Show Cards and code book	Serves as a guide to respondents when answering some questions with multiple response options in the questionnaire.
B12	Field Interviewers' Interview Observations Form	Used by interviewers to record their observations during the household interviews.
B13	Refusal Report Form for the Supervisor	Completed by the field supervisor for household respondents who refuse to participate in the survey.

Source: Author's compilation from DOH (2021a, 2021c), Health Policy Plus (2021), and Javier et al (2021)

Meanwhile, the MPC questionnaire is administered to facility personnel assigned to medical and/or billing records of the sample patient in three parts: first part collects data on facility information, summary of health events, and interview record for the respondent; second part collects data based on the type of care sought (i.e., outpatient, emergency, inpatient, and dental care visits); while third part collects data on price inquires for eye clinics, independent laboratories, special therapy, alternative care, and pharmacies. Described in Table 2 are the sections of MPC questionnaire, which includes other related NHES-MPC forms.

Table 14. Description of survey forms on NHES Medical Provider Component

Module	Section	Description
H1	Part I Introduction	The first part of MPC questionnaire includes facility information, summary of health events, and interview record for the respondent. One form is used for hospitals and another for nonhospital facilities. It consists of the following sections: 1. *Facility Information*. Records the facility name, address, and type; date of interview; and survey staff information (i.e., interviewer, group leader, observer). • *Summary of Health Events*. Summarizes the number of questionnaires to be administered per health event module (Part II of the questionnaire). • *Interview Record for the Respondent*. Records the interview date, time started, time ended, duration, result, and notes.
H2	Part II-A Outpatient Care	The second part of MPC questionnaire records information per patient by healthcare event. Each event is a separate module. Sections in each module include the following: • *Medical Records*. Inquires about visits/admissions dates. • *Attending Physicians and Other Medical Staff*. Asks about the medical professionals providing the patient's healthcare; this section also asks about separate billing doctors whose charges are not included in the hospital bill. • *Diagnoses*. Given in ICD-10 or DSM-4 codes. • *Global Fee.* Asks whether the visit was covered by a single charge from previous visits (except Modules II-C and II-D). • *Services and Charges.* Includes room and board which is only applicable for Module II-C only. This excludes Module II-D. • *Reimbursement Type.* Excludes Module II-D. • *Sources of Payment.* Excludes Module II-D. • *Verification of Payment.* Excludes Module II-D. • *Capitated-Based/Case-Based.* Probes for insurance plan, co-payment, and other payments for capitated or case-based reimbursement types (except Module II-D).
H3	Part II-B Emergency Care	
H4	Part II-C Inpatient Care	
H5	Part II-D Dental Care	
H6	Part III-A Eye Clinic Price Inquiry	Third part of the MPC questionnaire records information on price inquiries for eye clinics, independent laboratories, nonhospital-based special therapies, alternative care providers, and pharmacies. Each type of facility has a separate module.
H7	Part III-B independent Lab Price Inquiry	
H8	Part III-C Special Therapy Price Inquiry	
H9	Part III-D Alternative Care Price Inquiry	
H10	Part III-E Pharmacy, Supplies Price Inquiry	

Other NHES-MPC Forms		
Form B	Field interviewers' Documentation Form B	Used by interviewers to document facility-level engagement: advance call, courtesy call/orientation, administration of the MPC questionnaire, and collection/reproduction of listed patients' records.
Form G	Confidential Patient Checklist	Includes a list of patients who authorize the release and photocopying of their medical and billing records, used as reference for the MPC.

Source: Author's compilation from DOH (2021b, 2021d) Health Policy Plus (2021).

3. Proposed revisions to NHES

For future rounds of NHES, all survey forms and questionnaires are suggested to be streamlined based on recommendations resulting from the experiences during the first conduct of the survey as well as analyses of NHES Round 1 results. A review of the DOH-approved NHES Round 2 tools drafted by USAID-HP+ project has been made and it is recommended to adopt majority of their suggestions. Summarized in the succeeding texts are the outcome of the review, including recommendations by the author. Overview of the recommendations per NHES forms is provided in Appendix 1, while supplementary file named *Summary of recommendations per question.xlsx* (Annex 1) details the proposed changes per NHES question prepared by the author.

3.1. Recommendations applicable to all NHES forms

The layout and content of the "Privacy Notice" shall be made consistent across forms and questionnaires (i.e. FI documentation forms, consent/assent forms, household composition questionnaire, MPC introduction form, and confidential patient checklist). This shall be further updated with DOH partners, contractors, and contact persons for Round 2.

For all NHES forms, headers shall include only the simplified title of the form and household or facility identification needed for linking modules. For instance, "Household ID", "Household Member ID", and/or "Visit ID" in HC data collection forms shall be added, whichever is applicable, to ease matching and coordination between HC and MPC data. Meanwhile, footers shall include the version number, version date, form title, and page numbers.

For example, as illustrated in Figure 2 for NHES-HC Form B5 top/header portion: "Annex" or "Section" labels are suggested to be revised to "Form"; The "Privacy Notice" reminder shall then be revised to "…PRIVACY NOTICE IN FORM B1". "Household Control Number" shall be updated to "Household ID"; "Respondent ID" shall be added; and form title shall be simplified to "Household (HH) member did not avail health care or medications." An instruction for field interviewers to write in block letters with no abbreviations is suggested, and data fields for "Respondent Name", "Respondent ID," "Date of Interview", "Time Started" and "Time Ended" shall be added. For the bottom/footer portion: questionnaire version number with date, along with condensed form title and page numbers shall be in place.

Figure 8. Recommended changes in headers and footers of NHES forms

(2A) Sample header and footer of old Form B5

5 - (Annex B-5_Section IV) - Not avail Health Care - 11 26 18 - Fieldwork Household Control Number: _____

THIS SECTION IS COVERED BY THE PRIVACY NOTICE IN SECTION I

ANNEX B-5 SECTION IV: OTHER HEALTH CONDITIONS BUT HH MEMBER DID NOT AVAIL HEALTH CARE OR MEDICATIONS IN THE LAST 6 MONTHS

Page **2** of **2**

(2B) Suggested header and footer of Form B5

NHES-HC Form B5 – HH Member Did Not Avail Health Care or Medications Household ID: _____ Respondent ID: _____

THIS SECTION IS COVERED BY THE PRIVACY NOTICE IN FORM B1

FORM B5 – HH MEMBER DID NOT AVAIL HEALTH CARE OR MEDICATIONS

Instruction to Field Interviewer: Write in BLOCK LETTERS. Do not abbreviate.

RESPONDENT NAME:	**RESPONDENT ID:**	
DATE OF INTERVIEW: *(e.g., January 02, 2020)*	**Time Started: __ __:__ __ (AM/PM)**	**Time Ended: __ __:__ __ (AM/PM)**

Version 3; March 6, 2022 NHES-HC Form B5 Page **1** of **3**

Source: Author's compilation.

Instructions, questions, skip pattern, and structure in NHES questionnaires shall be enhanced accordingly. That is, to clarify questions, such questions shall be reworded or revised; and instructions and skip patterns shall be put in place. Answer options must be revised as well, and answer codes shall be standardized, if applicable.

For instance, to prevent recording errors, date format from "mm/dd/yy" is proposed to be modified to full date "month name/dd/yyyy"; "Don't know" answer shall be updated from "998" to "999999999", while "Refused to answer" from "997" to "999999997". Figure 3 illustrates NHES-HC Form C1 (Outpatient Care Utilization) question OP1 (Date of Visit) as an example on how to clarify questions by adding instructions and standardized codes.

Figure 9. Sample recommendation on questions with instructions and standardized codes

(2A) Old Form C1 question OP1

NO.	QUESTION	ANSWER
OP1	Indicate the date of visit for outpatient care in the **LAST 6 MONTHS**. ***Ano po ang petsa ng pagpunta bilang outpatient NITONG NAKARAANG ANIM NA BUWAN?***	MMM/DD/YYYY: ___ ___ ___ /___ ___ /___ ___ ___ ___ *[ILAGAY ANG PETSA NG PAGPUNTA BILANG OUTPATIENT NITONG NAKARAANG ANIM NA BUWAN]*

(2B) Proposed Form C1 question OP1

NO.	QUESTION	ANSWER
OP1	Indicate the date of visit for outpatient care in the **LAST 6 MONTHS.** *Ano po ang petsa ng pagpunta bilang outpatient NITONG NAKARAANG ANIM NA BUWAN?* ***Instruction to FI: Please check dates provided in Annex B2: FACILITY MATRIX: SOURCES OF HEALTH CARE SERVICES BY THE HOUSEHOLD. The date of visit for each C module should match with those listed in B2. If the dates do not match, clarify with the respondent.***	MONTH NAME/DD/YYYY: _____/___ ___/ ___ ___ ___ ___ *Example: January 02, 2020* *[ILAGAY ANG PETSA NG PAGPUNTA BILANG OUTPATIENT NITONG NAKARAANG ANIM NA BUWAN]* ***Note to FI: In case respondent cannot recall the exact day and could only provide the week when the facility visit occurred (e.g., "first week of July 2019"), use codes to differentiate between first week, second week, etc. So, instead of using 99999999999999 ("Don't know"), use the following codes:*** ***999999991 - First Week*** ***999999992 - Second Week*** ***999999993 - Third Week*** ***999999994 - Fourth Week*** ***999999995 - Last Week*** ***Example: January 999999991, 2020***

Source: Author's compilation.

For rewording of questions and adding skip pattern, examples would be from NHES-HC Form B8 (Primary care, health status, risky behavior, and patient satisfaction) questions RB8 (Average number of sticks smoked per day) and RB9 (Ever drink alcoholic beverage) shown in Figures 4 and 5, respectively.

Figure 10. Sample recommendation on rewording questions

(3A) Old Form B8 question RB8

RB8	**AVERAGE NUMBER OF STICKS PER DAY** At present, how many sticks of cigarettes/cigar/pipe PER DAY, on average, were you smoking? ***Sa kasalukuyan, ilang stick ng sigarilyo/tabako/pipa ang kadalasan mong sinisigarilyo SA ISANG ARAW?***

(3B) Proposed Form B8 question RB8

RB8	**AVERAGE NUMBER OF STICKS PER DAY** Currently, how many sticks of cigarettes/cigar/pipe on the average were you smoking per day? ***Sa kasalukuyan, ilang stick ng sigarilyo/tabako/pipa ang kadalasan mong sinisigarilyo SA ISANG ARAW?***

Source: Author's compilation

Figure 11. Sample recommendation on adding skip patterns

(5A) Old Form B8 question RB9

RB9	**[SHOW CARD] EVER DRINK ALCOHOLIC BEVERAGE** Have you ever drank any alcoholic beverage at least once? ***Naka-inom na po ba kayo ng mga inuming nakakalasing simula't sapul kahit isang beses lamang?***	**CODES FOR RB9** Code — Answer 1 — Yes *Oo* 2 — No *Hindi* 997 — Refused to answer *Ayaw sumagot*

(5B) Proposed Form B8 question RB9

RB9	**[SHOW CARD] EVER DRINK ALCOHOLIC BEVERAGE** Have you ever drank any alcoholic beverage at least once? ***Naka-inom na po ba kayo ng mga inuming nakakalasing simula't sapul kahit isang beses lamang?***	**CODES FOR RB9** Code — Answer 1 — Yes *Oo* 2 — No *Hindi* → **SKIP to Section (4) PATIENT SATISFACTION** 999999997 — Refused to answer *Ayaw sumagot*

Source: Author's compilation

To enhance the structure of the questionnaire and the flow of interview, questions shall be rearranged. For example, as shown in Figure 6, NHES-HC Form C1 (Outpatient care utilization) question OP3 (Type of healthcare services received) and question OP4 (Signs and symptoms/reasons for visit) are proposed to be interchanged, before asking OP5 (Diagnosis). Answer options are also proposed to be revised based on responses during Round 1 survey.

Figure 12. Sample recommendation on rearranging questions

(6A) Old Form C1 questions OP3, OP4, OP5

OP3	**[SHOW CARD]** Please look at this card and tell me which category describes the care you/ (HH member's name) received during this visit? Please select all that apply and identify the main reason or care received for this outpatient visit. ***Pakibasa ang card na ito at pakisabi sa akin kung alin dito ang natanggap ninyong/ni (HH member's name) serbisyong pangkalusugan sa pagbisitang ito. Pakipili ang lahat ng naaakma at pakisabi ang pangunahing serbisyo o pangangalagang natanggap para sa pagbisitang ito bilang outpatient.***	*Write all codes:* Main Reason: Code 1: _____ Other Reason/s: Code 2: _____ Code 3: _____ Code 4: _____ If not sure, record verbatim answer: _____ _____
OP4	**NOTE: DO NOT ASK OP4 IF TYPE OF CARE (OP3) IS IMMUNIZATION, PREGNANCY-RELATED OR WORK/SCHOOL CLEARANCE.** What are the SIGNS AND SYMPTOMS OR REASONS which led to this visit? PROBE: Any other reasons? *Record verbatim answer* ***Anu-ano ang mga PALATANDAAN, SINTOMAS O DAHILAN ng pagbisitang ito?*** ***PROBE: May iba pa bang dahilan?***	Reason 1 _____ Reason 2 _____ [ ] 997 - Refused to answer [ ] 998 - Don't know
OP5	**NOTE: DO NOT ASK OP5 IF TYPE OF CARE (OP3) IS IMMUNIZATION.** What was the FINAL DIAGNOSIS during this visit? ***Ano po ang sinabi ng doctor na sakit po ninyo/ni (HH member's name)?***	[ ] Write Diagnosis: _____ [ ] 997 - Refused to answer [ ] 998 - Don't know

(6B) Proposed Form C1 questions OP3, OP4, OP5

OP3	What were the SIGNS AND SYMPTOMS OR REASONS which led to this visit? PROBE: Any other reasons? Write verbatim answer. *Anu-ano ang mga PALATANDAAN, SINTOMAS O DAHILAN ng pagbisitang ito?* *PROBE: May iba pa bang dahilan?*	Sign and Symptom / Reason 1: _____ Sign and Symptom / Reason 2: _____ Sign and Symptom / Reason 3: _____ Sign and Symptom / Reason 4: _____ Others, specify: _____ [ ] 999 No symptoms/routine visit only [ ] 999999997 Refused to answer [ ] 999999999 Don't know
OP4	**[SHOW CARD]** Please look at this card and tell me which category describes the care you/ (HH member's name) received during this visit? Please select a MAXIMUM OF 4 TYPES OF CARE RECEIVED. *1. General Check-up* *2. Immunization/Vaccination* *3. Pregnancy-related (e.g. prenatal, postnatal)* *4. Family planning-related* *5. Walk-in outpatient care services (e.g. BP taking, wound cleaning)* *6. Work/School clearance* *7. Counseling, specify* *8. Tuberculosis-related diagnosis and treatment* *9. HIV/AIDS-related diagnosis and treatment* *10. All other diagnosis and treatment* *11. Emergency care/First-aid (e.g. for accident or for injury)* *12. Psychotherapy or mental health* *13. Follow-up check-up post treatment* *14. Follow-up check-up post operation* *15. Vision exam* *16. Dialysis* *17. Eye surgery, specify type_____* *18. General surgery* *19. Pediatric surgery* *20. Oral and maxilla-facial surgery* *21. Plastic and reconstructive surgery* *22. Orthopedic surgery* *23. Other, specify: _____* *999999997. Refused to answer* *999999999. Don't know* *Pakibasa ang card na ito at pakisabi sa akin kung alin dito ang natanggap ninyong/ni (HH member's name) serbisyong pangkalusugan sa pagbisitang ito. Pakipili ang naaakmang serbisyo o pangangalagang natanggap para sa pagbisitang ito bilang outpatient na hindi hihigit sa apat na uri ng serbisyong natanggap.*	*Write all codes: /* Main Reason: Code 1: _____ Other Reason/s: Code 2: _____ Code 3: _____ Code 4: _____ If not sure, record verbatim answer: _____ _____
OP5	**NOTE: DO NOT ASK OP5 IF TYPE OF CARE RECEIVED (OP4) IS IMMUNIZATION.** What was the FINAL DIAGNOSIS during this visit? Write verbatim answer. *Ano po ang sinabi ng doctor na sakit po ninyo/ni (HH member's name)?*	[ ] Write Diagnosis: _____ [ ] 999999997 - Refused to answer [ ] 999999999 - Don't know

Source: Author's compilation.

Most questionnaires shall be renumbered, and answer boxes/matrices modified due to addition and/or deletion of questions, or to cater more responses. For example, in NHES-HC Form B4 (Individual module of household members with medication), questions on reasons for use of medicine and medical supplies/equipment are proposed to be added before MS1 (Name of medicines/vitamins/supplements) and MS5 (Name of medical supplies/equipment), thus the rest of the questions shall be renumbered accordingly (see Section 3.2 for the rationale behind adding the questions). On the other hand, illustrated in Figure 7 is an example of restructuring the answer matrix for questions MS4 (which shall be renumbered to MS5) and MS8 (which shall be renumbered to MS10).

Another example is in NHES-HC Form B3 (Household members with medication) where the answer matrix for question OC4 (Name of medications, medical equipment, and/or medical supplies) is proposed to be adjusted from 6 to 9 data entry fields, to cater more responses.

Figure 13. Sample form with renumbered questions and modified answer boxes

(7A) Old Form B4

THIS SECTION IS COVERED BY THE PRIVACY NOTICE IN SECTION I Household Member Line Number: _____ Household Control Number: _____

ANNEX B-4 SECTION III (2): INDIVIDUAL MODULE FOR HOUSEHOLD MEMBERS WITH MEDICATION, MEDICAL EQUIPMENT, AND/OR MEDICAL SUPPLY IN THE LAST 6 MONTHS

HH MEMBER NAME:	REASON/HEALTH CONDITION:

INSTRUCTION: See answer in OC4. If there are MAINTENANCE DRUGS, MEDICINES, VITAMINS OR SUPPLEMENTS listed, answer MS1-MS4. Otherwise, see instructions for MS5

MS1	MS2	MS3	MS4
Copy the Name of medicines / vitamins / supplements listed in OC4) for the reason/health condition in OC3 Use another sheet if needed. Check box if with additional form. ***[ ] With additional questionnaire form used for this section***	Is the (medicines / vitamins / supplements listed in MS1) prescribed by a physician? And is this for maintenance? ***Ito bang (medicines / vitamins / supplements na nakalista sa MS1) ay nireseta ng doktor? Ito ba ay pang-maintenance?***	How many units *(medicines / vitamins / supplements listed in MS1)* in total were obtained or purchased in the LAST 6 MONTHS? ***Ilang piraso ng (medicines / vitamins / supplements listed in MS1) lahat-lahat ang nakuha o binili NITONG NAKARAANG ANIM NA BUWAN?***	Where did you obtain the *(medicines/ vitamins /supplements listed in MS1)*? What is the name of the usual source used in the LAST 6 MONTHS and where is it located? ***Saan ninyo nakuha ang (medicines/ vitamins /supplements listed in MS1)? Ano ang pangalan ng pinanggalingan ng usual ninyong pinagkukuhanan NITONG NAKARAANG ANIM NA BUWAN at saan ito nakukuha?*** ***NOTE**: List all mentioned pharmacies/ sources*

Name of medications	Prescribed?	For Maintenance?	Number of Units Obtained	Unit type (e.g. bottle, tablets)	Name of Source/s	Location of Source
(1)	[ ]1 - Yes [ ]2 - No	[ ]1 - Yes [ ]2 - No			Source 1:_____ Source 2:_____	Source 1:_____ Source 2:_____
(2)	[ ]1 - Yes [ ]2 - No	[ ]1 - Yes [ ]2 - No			Source 1:_____ Source 2:_____	Source 1:_____ Source 2:_____
(3)	[ ]1 - Yes [ ]2 - No	[ ]1 - Yes [ ]2 - No			Source 1:_____ Source 2:_____	Source 1:_____ Source 2:_____

(7B) Proposed Form B4

NHES-HC Form B4 – Individual Module HH Members with Medication Household ID: _____ Household Member ID: _____ Respondent ID: _____

THIS SECTION IS COVERED BY THE PRIVACY NOTICE IN FORM B1.

FORM B4 – INDIVIDUAL MODULE HH MEMBERS WITH MEDICATION

Instruction to Field Interviewer: Write in BLOCK LETTERS. Do not abbreviate.

HH MEMBER NAME:	**HH MEMBER ID:**	
DATE OF INTERVIEW: *(e.g., January 02, 2020)*	**Time Started:** __ __:__ __ (AM/PM)	**Time Ended:** __ __:__ __ (AM/PM)

INSTRUCTION: See answer in OC4. If there are MAINTENANCE DRUGS, MEDICINES, VITAMINS OR SUPPLEMENTS listed, answer MS1-MS5. Otherwise, see instructions for MS6

MS1 What is/are the reason(s) or health condition(s) leading to use of (MENTION NAME OF ITEM IN MS2) **INSTRUCTION:** Copy reason/health condition VERBATIM from Form B3, OC3. Use another sheet if needed. Check box if with additional form. ***[ ] With additional questionnaire form used for this section***	**MS2** Copy the Name of medicines / vitamins / supplements listed in OC4) for the reason/health condition in OC3	**MS3** Is the (medicines / vitamins / supplements listed in MS2) prescribed by a physician? And is this for maintenance, meaning, used to treat chronic conditions and is taken as instructed by a physician? ***Ito bang (medicines / vitamins / supplements na nakalista sa MS1) ay nireseta ng doktor? Ito ba ay pang-maintenance? Ibig sabihin, ginagamit ng regular upang gamutin ang mga sakit ayon sa reseta ng doktor?***		**MS4** How many units *(medicines / vitamins / supplements listed in MS2)* in total were obtained or purchased in the LAST 6 MONTHS? ***Ilang piraso ng (medicines / vitamins / supplements listed in MS1) lahat-lahat ang nakuha o binili NITONG NAKARAANG ANIM NA BUWAN?***		**MS5** In the LAST 6 MONTHS, where did you buy or obtain the (medicines / vitamins / supplements listed in MS2)? Please indicate the NAME OF THE FACILITY / STORE and its respective ADDRESS. ***NITONG NAKARAANG ANIM NA BUWAN, saan ninyo binili o nakuha ang (medicines/ vitamins /supplements listed in MS2)? Ano ang pangalan ng pinanggalingan ng usual ninyong pinagkukuhanan at saan ito nakukuha?*** ***NOTE:*** • *List all mentioned pharmacies/ sources* • *Provide barangay-level address (barangay + municipality + province) for facilities located in NCR.* • *Provide municipality-level address (municipality + province) for facilities located outside NCR.*		
Reasons for use of medications	**Name of medications**	**Prescribed?**	**For Maintenance?**	**Number of Units Obtained**	**Unit type** (e.g. bottle, tablets)	**Name of Source/s**	**Address of Source**		
	(1)	[ ] 1 - Yes [ ] 2 - No	[ ] 1 - Yes [ ] 2 - No			Source 1:	Street Number:	Street Name:	Barangay:
							District:	Municipality/City:	Province:
						Source 2:	Street Number:	Street Name:	Barangay:
							District:	Municipality/City:	Province:
	(2)	[ ] 1 - Yes [ ] 2 - No	[ ] 1 - Yes [ ] 2 - No			Source 1:	Street Number:	Street Name:	Barangay:
							District:	Municipality/City:	Province:
						Source 2:	Street Number:	Street Name:	Barangay:
							District:	Municipality/City:	Province:

Note: In the proposed form, MS1 shall now refer to the reason leading to the use of medication listed in MS2 (formerly MS1). In MS5 (formerly MS4), the "Location of Source" is modified to "Address of Source" with detailed data entry for street number, street name, barangay, district, municipality/city, and province.
Source: Author's compilation

3.2. Highlights of recommendations on NHES-HC forms

In terms of number of questions per NHES-HC questionnaire, 12 forms shall have an increase number of questions, 2 forms proposed to have a decrease in questions, and 3 forms shall retain their number of questions.

Round 1 questions for deletion are as follows:

1. Children under 21 years old (in Form B1 question HC5)
2. Presence of deceased HH member (in Form B1 question HC16)
3. Relationship of deceased to HH head (in Form B1 question HC17)
4. Sex of deceased HH member (in Form B1 question HC18)
5. Household member with health insurance or health care plan (in Form B6 question HI1)
6. With other private health plan (in Form B6 question HI4)
7. Name of other private health plan (in Form B6 question HI5)
8. Who pays for the private insurance (in Form B6 question HI8)
9. Whether charged among those received (in C modules except C6 and C7)
10. Whether paid among those charged (in C modules except C6 and C7)
11. Number of sessions/visits (in Form C6 and C7)
12. Discounted price of medicines (in C modules except C6 and C7)
13. Discounted price of medical equipment/supplies (in C modules except C4, C6 and C7)
14. Discounted price of take-home medicines (in Form C3)

While questions proposed to be added for Round 2 are:

1. Estimated age (in Form B1 as question HC7.2)
2. Date of visit for each service obtained (in Form B2 as question FU10)
3. Reason(s) or health condition(s) leading to use of medicine (in Form B4 as question MS1)
4. Reason(s) or health condition(s) leading to use of medical supplies/equipment (in Form B4 as question MS6)
5. Name and address of usual primary care provider (in Form B8 as question PC5)
6. Referral from other facility (in all C modules except C9)
7. Date of onset of symptoms (in all C modules)
8. Reason why IP visit is more than 2 days the date of onset of symptoms (in Form C3)
9. Amount charged per component (in all C modules except C6, C7)
10. Amount paid per component (in all C modules except C6, C7)
11. Recap of charges and payments (in Forms C6 and C7)
12. Reasons why total payment and total charge are not equal (in all C modules)
13. How much professional fee (in all C modules except C3, C6, C7, C9)
14. Additional payments per source (in all C modules except C6, C7)
15. Source of financing for other expenses (in all C modules)
16. Referral to other facility (in all C modules)

Exact questions (applicable to specified forms) and sample questions (applicable to multiple forms) for deletion and addition, are provided in Appendix 2.

Based on Round 1 experience, asking about household members who passed away in the last 12 months did not appear to be a sensitive question. In fact, during the survey, some respondents mentioned deceased household members when questions HC1 (Household Members) and HC2 (Relationship to HH head) were being asked in Form B1 (Household Composition). In some cases, Field Interviewers would later find out that a household member mentioned in the household roster is deceased when HC16 is asked, which leads to erasures in the household matrix. As per Round 1 survey, there is no need for a separate matrix for deceased household members thus, it is proposed to include deceased members in the household matrix. Questions HC16 (Presence of deceased HH member), HC17 (Relationship of deceased to HH head), and HC18 (Sex of deceased HH member) shall then be removed as a separate question. Question HC5 (Children under 21 years old) shall also be removed and together with deceased household members, shall be included in HC3 (Persons considered as members of the household) when checking for other household members that might have been missed out in the roster. Also, as a form of validation for age information, a question on "Estimation of age" is proposed to be added as HC7.2.

In a similar manner, "Date of visit for each service obtained" in Form B2 (Identification of facility visited) is recommended to be added as question FU10. This is for validation of reference period, matching of records during MPC data collection, and more importantly, as means to match and link Forms B2 and C modules (Health utilization forms) in data processing and analysis. Likewise, for Form B4, "Reason(s) or health condition(s) leading to use of medicine" (MS1) and "Reason(s) or health condition(s) leading to use of medical supplies/equipment" (MS6) are proposed to be added to match and link Forms B4 and B3.

Household-level questions shall be changed to be member-level responses. Thus, it is recommended to revise Form B1 question HC4 to ask about 4P beneficiary status per member, as well as to remove question HI1 in Form B6 (Health Insurance) as it filters health insurance status by household. Also in Form B6, the questions for deletion (HI4, HI5, HI8) are proposed since they are redundant with the already retained questions. Meanwhile, in Form B7 (Household Expenditures), examples to each expenditure type is suggested to prevent incorrect responses and overlap between categories.

In Form B8, questions RB4 (Weight) and RB5 (Height) are recommended to be dropped by HP+ due to complications in collection and their disuse in Round 1 analyses. They also noted that anthropometric data should not be included in an expenditure survey. However, these questions are proposed to be retained in the next NHES round subject to DOH's decision. According to DOH after presentation of NHES Round 1 results, they needed such data to correlate health status with the health expenditure.

Questions in Form B8 are also added/modified to assess primary care facilities. The first section explores if household members have a facility for primary care (PC1), whether they go first to such facility if sick (PC2), and if not, they are asked for reasons for not having a usual source of health care (PC3 and PC4). A question on "Name and address of usual primary care provider" (PC5) is proposed to be added as a follow up to question PC2. This intends to capture such providers and if also visited by any household member in the last 6 months as recorded in Form B2, a supplemental questionnaire at the facility-level (discussed further in Section 3.3) shall be conducted.
On the other hand, primary care facilities can also be assessed at the individual-level via the Patient Satisfaction section of Form B8. Illustrated in Figure 8, PS2 (Pleasant experience during facility visit) is recommended to be revised from open ended to categorical Yes/No questions

where probed experience options are based on "Competency Assessment Tool for the Primary Care Provider" by Yap et al. (2019), "Assessment Tool for Licensing a Primary Care Facility" by DOH-Health Facilities and Services Regulatory Bureau (HFSRB), as well as results of NHES Round 1. This is asked for the latest public and private facility visited for OP or ER care by each HH members who visited at least one health facility identified in Form B2.

Figure 14. Sample proposed matrix to address OOP by components

(8A) Old Form B8 question PS2

PS2 **[ASK AMONG THOSE HH MEMBERS WHO DID NOT ENCOUNTER ANY ISSUE DURING HEALTH FACILITY VISIT]**
PLEASANT EXPERIENCE DURING HEALTH FACILITY VISIT
Kindly describe your pleasant experience during your latest health facility visit in (Name of Facility).
Pakilarawan ang maganda ninyong karanasan sa pinakahuling pagpunta ninyo sa (Name of Facility).

(8B) Proposed Form B8 question PS2

PS2 **[ASK AMONG THOSE HH MEMBERS WHO DID NOT ENCOUNTER ANY ISSUE DURING HEALTH FACILITY VISIT]**
[SHOW CARD] PLEASANT EXPERIENCE DURING HEALTH FACILITY VISIT
Which of the following is true about your pleasant experience during your last health facility visit to (Name of Facility)? *ENCIRCLE CODE '1' FOR 'YES' IF APPLICABLE AND CODE '2' FOR 'NO' IF NOT. CHOOSE ALL THAT APPLY*
Alin sa mga sumusunod na magandang karanasan ang totoong nangyari sa inyo habang kayo ay nasa (Name of Facility)?

Note to FI: If answered "Just okay or no comment", probe if encountered issues or if the experience is pleasant. Clarify answer in PS1.

1	Staff (Doctors/nurses/others) introducing self to patient or greeting or showing gestures of approachability (e.g smiling)?	10	Health professionals conduct pertinent physical examination?
2	Staff (Doctors/nurses/others) establishing rapport with patients (e.g. friendly and courteous)?	11	Health professionals document visit/plan of management appropriate to the diagnosis of the patient in a patient's record?
3	Staff (Doctors/nurses/others) using appropriate language for the patient's context?	12	Accessible/facility is nearby?
4	Staff (Doctors/nurses/others) relating to patients and colleagues with professionalism?	13	Clean and/or good/well-equipped facility?
5	Health worker in records department or staff follow-up patients or families or patients?	14	Medicines are available and complete?
6	Health professionals inquiring on onset of symptoms?	15	Free/inexpensive services and/or medicines?
7	Health professionals inquiring on associated symptoms?	16	Immediately assisted/fast service/no long lines?
8	Health professionals inquiring on past medical history or family history?	17	With privileges and benefits available (i.e., priority lane)?
9	Health professionals taking vital signs and interpreting appropriately?	18	Others, please specify:

TABLE 4.2: PATIENT SATISFACTION ANSWER GRID FOR PS2

HH Member ID	Name of HH Member	Age	Name of Facility	Event Type	PS2 ENCIRCLE CODE '1' FOR 'YES' IF APPLICABLE AND CODE '2' FOR 'NO' IF NOT. CHOOSE ALL THAT APPLY															
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
			Public:		1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes, specify: _____ 2-No
			Private:		1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes, specify: _____ 2-No
			Public:		1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes 2-No	1-Yes, specify: _____ 2-No

Source: Author's compilation.

Options 1 to 5 in Figure 8B aims to evaluate the providers' ability to effectively communicate and obtain partnership with patients under the competency of "Providing first-contact care" derived from "Competency Assessment Tool for the Primary Care Provider" by Yap et al (2019). It is regarded as "Satisfactory" if 2 out of 5 criteria are observed; "Very Satisfactory" if 3-4 out of 5 are accomplished; and "Outstanding" if 5 out of 5 are accomplished.

Meanwhile, options 6 to 11 in Figure 8B are derived from DOH-HFSRB licensing assessment tool as annexed in Amendment to Administrative Order No. 2020-0047 entitled "Rules and Regulations Governing the licensure of Primary Care Facility in the Philippines." The added questions aim to evaluate the following:

- *Option 6* for the standard of upholding patient rights and organization ethics;
- *Option 7* for the standard in patient care;
- *Option 8* for the standard in leadership and management;
- *Option 9* for the standard in safe practice and environment;
- *Option 10* for the standard in physical facility; and
- *Option 11* for the standard in public access to price information.

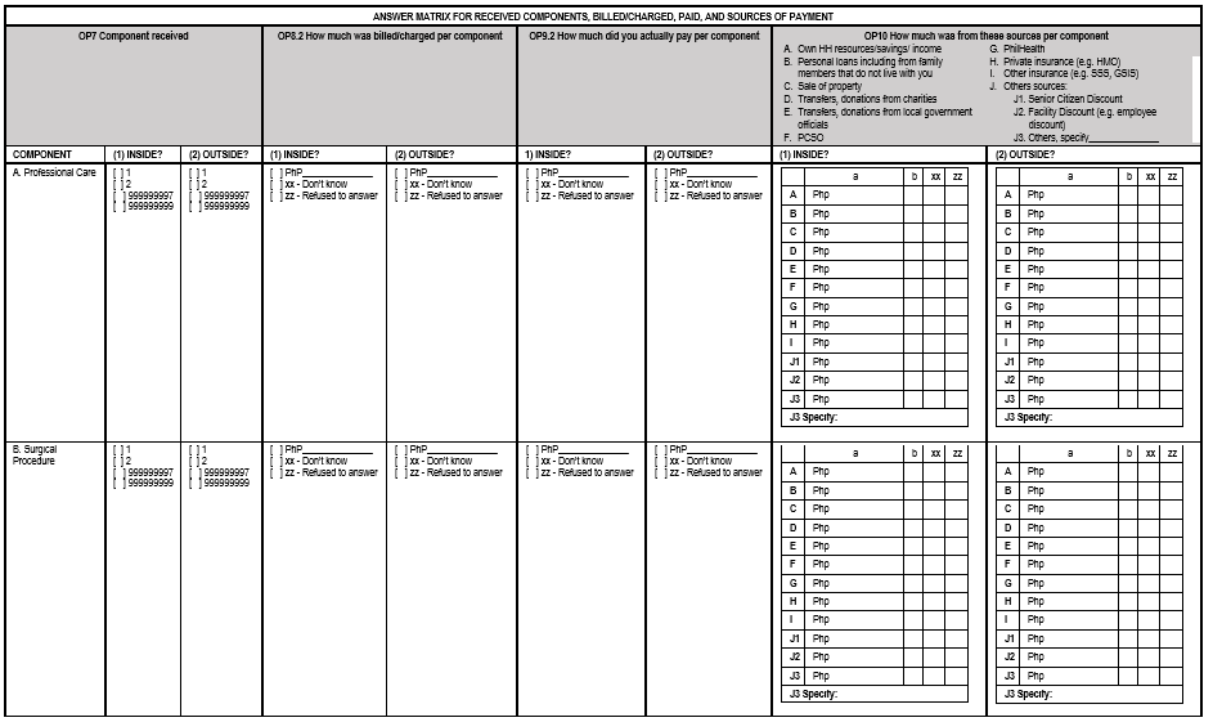
Lastly, options 12 to 17 in Figure 8B were the top positive patient experiences resulting from the analysis of NHES Round 1.

In Health utilization forms (i.e. C-modules), questions on billing and expenditure shall be revised to ensure that they are understood to be asking about all charges and payments made on behalf of the Household Member who received care. The questionnaire shall also be reorganized to ensure that information needed for services received "INSIDE" and "OUTSIDE" facilities are properly collected.

For questions proposed to be deleted in C-modules, "Whether charged among those received" and "Whether paid among those charged" are already implied when respondents answer the retained questions on "Amount charged/billed (total/by components)" and "Amount paid (total/by components)". Meanwhile, questions on "Discounted price of medicines, medical equipment/supplies, and take-home meds" have not been examined deeply using Round 1 results, thus, are suggested to be analyzed further first before deciding to continue collection of such information. Questions on "Whether payments made during or after visits" are also recommended by HP+ to be added. However, due to space constraints and consideration for respondent fatigue in general, they can be disregarded in the meantime to give way for other proposed questions, discussed in the succeeding texts.

To address determination of OOP per component, the former questions on "Amount charged/billed" and "Amount paid" are proposed to have separate questions each for "Total amount" and "Amounts by component." It is thus recommended to add questions on "Amount charged per component" and "Amount paid per component" in all C modules except C6, C7 (which already have such questions). Also, questions on "Total payment inside per source" and "Total payment outside per source" are recommended to be merged as one. Charges, payments, and sources of payments shall then be asked consecutively and answer matrix shall be reorganized to refer to the same identified components. See Figure 9 for illustration.

Figure 15. Sample proposed matrix to address OOP by components



ANSWER MATRIX FOR RECEIVED COMPONENTS, BILLED/CHARGED, PAID, AND SOURCES OF PAYMENT

OP7 Component received			OP8.2 How much was billed/charged per component		OP9.2 How much did you actually pay per component		OP10 How much was from these sources per component A. Own HH resources/savings/ income B. Personal loans including from family members that do not live with you C. Sale of property D. Transfers, donations from charities E. Transfers, donations from local government officials F. PCSO G. PhilHealth H. Private insurance (e.g. HMO) I. Other insurance (e.g. SSS, GSIS) J. Others sources: J1. Senior Citizen Discount J2. Facility Discount (e.g. employee discount) J3. Others, specify_____	
COMPONENT	(1) INSIDE?	(2) OUTSIDE?	(1) INSIDE?	(2) OUTSIDE?	1) INSIDE?	(2) OUTSIDE?	(1) INSIDE?	(2) OUTSIDE?
A. Professional Care	[ ] 1 [ ] 2 [ ] 999999997 [ ] 999999999	[ ] 1 [ ] 2 [ ] 999999997 [ ] 999999999	[ ] PhP_____ [ ] xx - Don't know [ ] zz - Refused to answer	[ ] PhP_____ [ ] xx - Don't know [ ] zz - Refused to answer	[ ] PhP_____ [ ] xx - Don't know [ ] zz - Refused to answer	[ ] PhP_____ [ ] xx - Don't know [ ] zz - Refused to answer	a / b / xx / zz A Php B Php C Php D Php E Php F Php G Php H Php I Php J1 Php J2 Php J3 Php J3 Specify:	a / b / xx / zz A Php B Php C Php D Php E Php F Php G Php H Php I Php J1 Php J2 Php J3 Php J3 Specify:
B. Surgical Procedure	[ ] 1 [ ] 2 [ ] 999999997 [ ] 999999999	[ ] 1 [ ] 2 [ ] 999999997 [ ] 999999999	[ ] PhP_____ [ ] xx - Don't know [ ] zz - Refused to answer	[ ] PhP_____ [ ] xx - Don't know [ ] zz - Refused to answer	[ ] PhP_____ [ ] xx - Don't know [ ] zz - Refused to answer	[ ] PhP_____ [ ] xx - Don't know [ ] zz - Refused to answer	a / b / xx / zz A Php B Php C Php D Php E Php F Php G Php H Php I Php J1 Php J2 Php J3 Php J3 Specify:	a / b / xx / zz A Php B Php C Php D Php E Php F Php G Php H Php I Php J1 Php J2 Php J3 Php J3 Specify:

Notes: In OP7, code 1 = Yes; 2 = No; 999999997 = Refused to answer; and 999999999 = Don't know. In OP10, answer code b = used as payment source but don't know amount; xx = don't know if used as payment source; zz = don't know. Code for sources are as follows: A = Own HH resources/savings/income); B = Personal loans including from family members that do not live with you; C = Sale of property; D = Transfers, donations from charities; E = Transfers, donations from local government officials; F = PCSO; G = PhilHealth; H = Private insurance (e.g. HMO); I = Other insurance (e.g. SSS, GSIS); J1 = Senior Citizen Discount; J2 = Facility Discount (e.g. employee discount); and J3 = Others, specify.
Source: Author's compilation

To assist future analysis on delays on health-seeking behavior, a question on "Onset of symptoms" is proposed to be added in all C modules where range of delay can be obtained. Delay in seeking outpatient health care can be defined as the number of days from onset of symptoms until visit to a clinic or provider (Capuno et al. 2017). For inpatient care, it can be defined as the total number of days between the onset of symptoms and admission to a hospital, where criterion for delay is more than two days before admission (Kraft et al. 2009). Therefore, in Form C3 (Inpatient Care), additional open-ended question on "Reasons for delay in IP visit" is proposed, if the provided onset of symptom is more than two days the date of admission. For succeeding rounds, responses can then be categorized based on results of NHES Round 2.

To explore health care referral system and continuum of care, questions on whether the respondent visited the facility as referral from other facility ("Referral from other facility") and if after the facility visit the respondent was referred to another facility ("Referral to other facility") are proposed to be asked in all C modules, except in C9 (Home Health Care) where "Referral from other facility" question is not applicable. The name and address of the referring and/or referral facility shall be collected. The mentioned facility, if visited in the last 6 months as recorded in Form B2, shall be included in the conduct of MPC supplemental questionnaire on primary care and referral. Aside from these individual-level questions in NHES-HC, referral questions at the facility-level are also proposed, to be discussed in Section 3.3.

Lastly, more details on financial information are suggested to be added in all C modules, such as questions on “Reasons why total payment and total charge are not equal”, “Source of financing for other expenses”, “Additional professional fee” (except in C3, C6, C7, C9), and “Additional payments per source (except in C6, C7). Meanwhile, question on “Recap of charges and payments” are proposed to be added in Forms C6 (Special Therapy) and C7 (Alternative Care) for consistency with the rest of C-modules.

3.3. Highlights of recommendations on NHES-MPC forms

For NHES-MPC questionnaire, 4 forms shall decrease in questions, while 5 forms shall retain their number of questions.

Round 1 questions for deletion are as follows:

1. Reasons why total payments were greater than the total bill (in Forms H2, H3, H4, H5)
2. Reasons why total payments were less than the total bill (in Form H5)
3. Additional payment sources (in Forms H2, H3, H4, H5)
4. Other charges (in Forms H8, H9, H10)
5. Other item charged (in Forms H8, H9, H10)
6. Price of other items (in Forms H8, H9, H10)
7. Discount in other items (in Forms H8, H9, H10)

While questions proposed to be added for Round 2 are:

1. Coding system used by the facility (in Forms H2, H3, H4)
2. Services included in the package and how much (in Form H2, H3, H4, H5)
3. Conduct of counselling (in proposed module H11 question MPC_SQ1)
4. Conduct of services (in proposed module H11 question MPC_SQ2)
5. Observed standards on primary care facilities (in proposed module H11 question MPC_SQ3)
6. Own or referral facility on lab tests for prenatal care (in proposed module H11 question MPC_SQ4)
7. Own or referral facility on ultrasound for prenatal care (in proposed module H11 question MPC_SQ5)
8. Source of blood supply (in proposed module H11 question MPC_SQ6)
9. Referral facility on birth delivery (in proposed module H11 question MPC_SQ7)
10. Referral of patients about to give birth (in proposed module H11 question MPC_SQ8)
11. Reasons for referring patients about to give birth (in proposed module H11 question MPC_SQ9)
12. Referral facility for patients about to give birth (in proposed module H11 question MPC_SQ10)
13. Number of physicians in the facility (in proposed module H11 question MPC_SQ11)
14. Number of nurses in the facility (in proposed module H11 question MPC_SQ12)
15. Number of midwives in the facility (in proposed module H11 question MPC_SQ13)
16. Number of dentist in the facility (in proposed module H11 question MPC_SQ14)
17. Number of sanitation inspector in the facility (in proposed module H11 question MPC_SQ15)
18. Number of information technology officer in the facility (in proposed module H11 question MPC_SQ16)
19. Number of records officer in the facility (in proposed module H11 question MPC_SQ17)

20. Number of administrative officer in the facility (in proposed module H11 question MPC_SQ18)
21. Number of utility worker in the facility (in proposed module H11 question MPC_SQ19)

Exact questions (applicable to specified forms) and sample questions (applicable to multiple forms) for deletion and addition, are provided in Appendix 2.

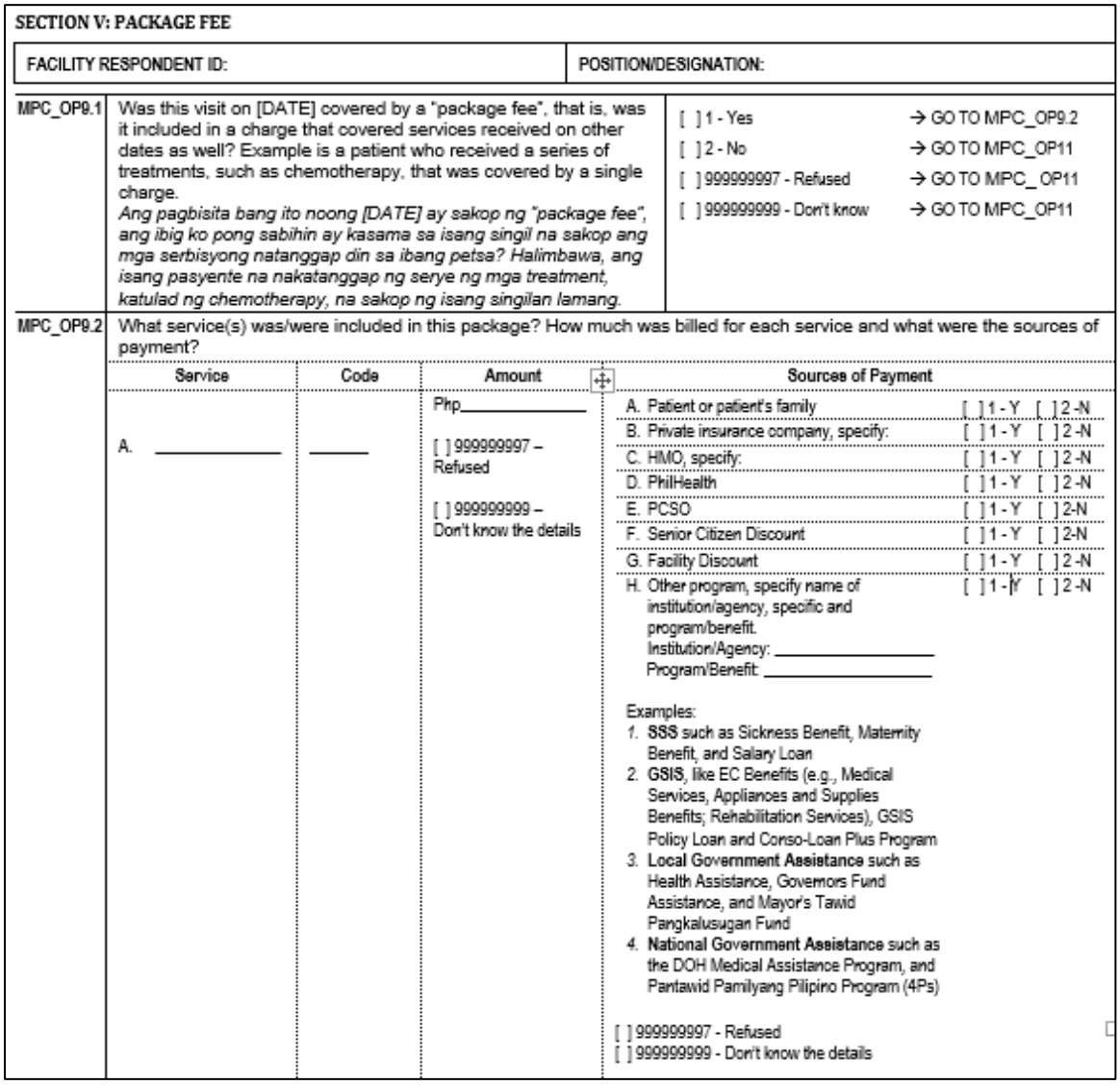
Questions proposed to be removed have minimal to no observations in Round 1. The question "Coding system used by the facility" is proposed to be added as follow-up to the question on "Codes of services provided," as illustrated in Figure 10. Question on "Services included in the package and how much" is proposed to be added as a follow-up to the question "Package Fee," as shown in Figure 11.

Figure 16. Sample "Coding system used by facility" question

SECTION II: SERVICES AND PROVIDERS	
FACILITY RESPONDENT ID:	**POSITION/DESIGNATION:**
MPC_OP2.1	**[CODE BOOK]** What service/s was/were provided in this facility on [DATE] for [EVENT TYPE/MEDICAL CONDITION]?
MPC_OP2.2	What is the corresponding code (i.e., CPT-4 or RVS code) for [SERVICE IN MPC_OP2.1]? **NOTE TO FI: If facility does not use a code system, check box for "Facility is not using specific codes for services provided".** Code: _____ [ ] Facility is not using specific codes for services provided
MPC_OP2.3	What coding system is being used by the facility? [ ] 1 - CPT-4 [ ] 2 - RVS [ ] 3 - Others, specify: _____

Note: For illustration purposes, sample question shown above is for MPC Form H2(MPC_OP2.3), but is also applicable to Forms H3, H4, and H5.
Source: Author's compilation

Figure 17. Sample "Services included in the package and how much" question



SECTION V: PACKAGE FEE

FACILITY RESPONDENT ID: | POSITION/DESIGNATION:

MPC_OP9.1 Was this visit on [DATE] covered by a "package fee", that is, was it included in a charge that covered services received on other dates as well? Example is a patient who received a series of treatments, such as chemotherapy, that was covered by a single charge.
Ang pagbisita bang ito noong [DATE] ay sakop ng "package fee", ang ibig ko pong sabihin ay kasama sa isang singil na sakop ang mga serbisyong natanggap din sa ibang petsa? Halimbawa, ang isang pasyente na nakatanggap ng serye ng mga treatment, katulad ng chemotherapy, na sakop ng isang singilan lamang.

[ ] 1 - Yes → GO TO MPC_OP9.2
[ ] 2 - No → GO TO MPC_OP11
[ ] 999999997 - Refused → GO TO MPC_ OP11
[ ] 999999999 - Don't know → GO TO MPC_OP11

MPC_OP9.2 What service(s) was/were included in this package? How much was billed for each service and what were the sources of payment?

Service	Code	Amount	Sources of Payment
A. _____	_____	Php_____ [ ] 999999997 – Refused [ ] 999999999 – Don't know the details	A. Patient or patient's family [ ] 1 - Y [ ] 2 -N B. Private insurance company, specify: [ ] 1 - Y [ ] 2 -N C. HMO, specify: [ ] 1 - Y [ ] 2 -N D. PhilHealth [ ] 1 - Y [ ] 2 -N E. PCSO [ ] 1 - Y [ ] 2-N F. Senior Citizen Discount [ ] 1 - Y [ ] 2-N G. Facility Discount [ ] 1 - Y [ ] 2 -N H. Other program, specify name of institution/agency, specific and program/benefit. [ ] 1 - Y [ ] 2 -N Institution/Agency: _____ Program/Benefit: _____ Examples: 1. **SSS** such as Sickness Benefit, Maternity Benefit, and Salary Loan 2. **GSIS**, like EC Benefits (e.g., Medical Services, Appliances and Supplies Benefits; Rehabilitation Services), GSIS Policy Loan and Conso-Loan Plus Program 3. **Local Government Assistance** such as Health Assistance, Governors Fund Assistance, and Mayor's Tawid Pangkalusugan Fund 4. **National Government Assistance** such as the DOH Medical Assistance Program, and Pantawid Pamilyang Pilipino Program (4Ps) [ ] 999999997 - Refused [ ] 999999999 - Don't know the details

Note: For illustration purposes, sample question shown above is for MPC Form H2(MPC_OP9.2), but is also applicable to Forms H3, H4, and H5.
Source: Author's compilation

Additionally, the following are suggested based on data collection in Round 1: creation of a separate assent and consent forms for MPC data collection; addition of MPC show cards for types of services based on Round 1 responses; and clarification that question on "Sources of payments" shall be skipped if identified services are covered in a package fee, applicable to forms H2 (Outpatient), H3 (Emergency), H4 (Inpatient), and H5 (Dental). On the other hand, while MPC modules on Special Therapy (H8) and Alternative Care (H9) are recommended to be dropped by HP+ due to few observed responses in Round 1, it is suggested to retain such modules for Round 2, to capture more information on these health events. In addition, it is recommended to streamline both questionnaires to remove latter questions on other charges.

To address questions on assessing primary health care providers and referral system, a supplementary section is recommended to be added as Form H11. This additional module shall be accomplished for facilities identified by household respondents as their usual source of primary care captured in NHES-HC Form B8, and referring/referral facilities captured in

NHES-HC C-modules. The identified facilities must be visited in the last 6 months with a health care event as recorded in NHES-HC Form B2.

The MPC supplemental questionnaire is composed of three sections: (i) Competencies of Primary Care Services; (ii) Referral on prenatal care and facility-based deliveries; and (iii) Facility Staffing. The first section consists of three Yes/No questions (MPC_SQ1 to MPC_SQ3) to assess primary health care at the facility-level based on the "Competency Assessment Tool for the Primary Care Provider" by Yap et al. (2019) and "Assessment Tool for Licensing a Primary Care Facility" by DOH-HFSRB (2020).

The first question on primary care section (Figure 12) evaluates the providers' ability to provide counseling services[8] with nine criteria on sub-competency "Counsels patients on general disease prevention and health promotion, including household remedies".

Figure 18. "Conduct of counselling" question in proposed NHES-MPC Form H11

MPC_SQ1	Do you conduct counselling on the following:	Yes	No	Refused	Don't Know
	A. Completion of vaccinations?	[ ] 1	[ ] 2	[ ] 999999997	[ ] 999999999
	B. Breastfeeding?	[ ] 1	[ ] 2	[ ] 999999997	[ ] 999999999
	C. Prenatal care?	[ ] 1	[ ] 2	[ ] 999999997	[ ] 999999999
	D. Proper nutrition?	[ ] 1	[ ] 2	[ ] 999999997	[ ] 999999999
	E. Safe water and sanitation?	[ ] 1	[ ] 2	[ ] 999999997	[ ] 999999999
	F. Physical activity?	[ ] 1	[ ] 2	[ ] 999999997	[ ] 999999999
	G. Smoking cessation?	[ ] 1	[ ] 2	[ ] 999999997	[ ] 999999999
	H. Safe sex?	[ ] 1	[ ] 2	[ ] 999999997	[ ] 999999999
	I. Supplementation, if necessary?	[ ] 1	[ ] 2	[ ] 999999997	[ ] 999999999

Source: Author's compilation.

The second question (Figure 13) evaluates the providers' ability to provide individual and population health care[9] with seven criteria on sub-competency "Implements individual and population healthcare including health screening, diagnostic, therapeutic, and preventive measures within the scope of the profession." All of are under the competency of "Providing comprehensive care" (Yap et al. 2019). Additional component I on the other hand is based on "Assessment Tool for Licensing a Primary Care Facility" by DOH-HFSRB (2020) which evaluates standard on "Patient Care."

[8] It is regarded as "Satisfactory" if less than or equal to 3, out of 9 criteria is/are accomplished; "Very Satisfactory" if 4-7 out of 9 are accomplished; and "Outstanding" if 8 or more, out of 9 are accomplished (Yap et al. 2019).
[9] It is regarded as "Satisfactory" if less than or equal to 2, out of 7 criteria; "Very Satisfactory" if 3-5, out of 7 are accomplished; and "Outstanding" if 6 or more, out of 7 are accomplished (Yap et al. 2019).

Figure 19. "Conduct of services" question in proposed NHES-MPC Form H11

MPC_SQ2	Do you conduct the following services in this facility:	Yes	No	Refused	Don't Know
	A. Vaccinations? If yes, what vaccinations are available?	[ ] 1 – check all applicable [ ] BCG [ ] Hepatitis B [ ] DPT-HepB-HiB (Pentavalent) [ ] Oral Polio Vaccine (OPV) [ ] Inactivated Polio Vaccine (IPV) [ ] Pneumococcal Conjugate Vaccine (PCV) [ ] Rotavirus [ ] Measles [ ] Measles, Mumps, Rubella (MMR) [ ] Vitamin A [ ] Others: specify: _____	[ ] 2	[ ] 999999997	[ ] 999999999
	B. Assessment on child's health status such as height and weight?	[ ] 1	[ ] 2	[ ] 999999997	[ ] 999999999
	C. Pap smear **or** Visual Inspection With Acetic Acid (VIA)?	[ ] 1	[ ] 2	[ ] 999999997	[ ] 999999999
	D. Risk assessment for non-communicable diseases such as cardiovascular conditions (hypertension, stroke), diabetes mellitus, lung/chronic respiratory diseases and cancers?	[ ] 1	[ ] 2	[ ] 999999997	[ ] 999999999
	E. Prenatal checkups **and** assessment of high-risk pregnancies?	[ ] 1	[ ] 2	[ ] 999999997	[ ] 999999999
	F. TB **and** HIV screening? G. If no, which screening is not available?	[ ] 1	[ ] 2.1 – No TB [ ] 2.2 – No HIV [ ] 2.2 – No Both	[ ] 999999997	[ ] 999999999
	H. Procedures on management of primary care services such as hydration, wound cleaning, suturing, NSD etc.?	[ ] 1	[ ] 2	[ ] 999999997	[ ] 999999999

Source: Author's compilation.

The third question (Figure 14) contains components that evaluates various competencies from "Assessment Tool for Licensing a Primary Care Facility" by DOH-HFSRB (2020) such as standard of upholding patient rights and organization ethics; standard in patient care; standard in leadership and management; standard in information management; standard in safe practice and environment; standard in physical facility; and standard in public access to price information.

The second section in the proposed MPC supplemental questionnaire consists of three questions for referral on prenatal care (MPC_SQ3, MPC_SQ4, and MPC_SQ6); and four questions for referral on facility-based deliveries (MPC_SQ5, MPC_SQ7, MPC_SQ8, and MPC_SQ9). These questions can aid in future analysis on facility-level competencies in coordinating health care and continuum of care, particularly on maternal care health events.

The last section in the proposed MPC supplemental questionnaire consists of nine questions on health facility staffing (MPC_SQ11 to MPC_SQC19) which evaluates primary care facility in terms of standards in human resource management where there should be adequate number of competent staff derived from DOH-HFSRB assessment tool.

Figure 20. "Observed standards on primary care services" question in proposed NHES-MPC Form H11

Note to FI: Observe the facility for the listed categories below. If applicable, test or probe the facility staff.

MPC_SQ3	Does the facility has the following:	Yes	No	Refused	Don't Know
	A. Patients' rights posted in conspicuous places?	[ ]1	[ ]2	[ ]999999997	[ ]999999999
	B. List of services and schedule of operation posted in a conspicuous area?	[ ]1	[ ]2	[ ]999999997	[ ]999999999
	C. DOH LTO (updated, valid and original) posted in a conspicuous area?	[ ]1	[ ]2	[ ]999999997	[ ]999999999
	D. Organizational structure/chart is posted in a conspicuous area?	[ ]1	[ ]2	[ ]999999997	[ ]999999999
	E. Mission and vision is posted in a conspicuous area?	[ ]1	[ ]2	[ ]999999997	[ ]999999999
	F. Proper storage of records? **Note to FI**: Ask staff to retrieve any patient record or probe if patient records are easily retrievable within 10-15 minutes	[ ]1	[ ]2	[ ]999999997	[ ]999999999
	G. Security measures where protection of patients and staff are assured? **Note to FI**: Probe staff if there is a designated person in charge of security or ask staff on policies on security	[ ]1	[ ]2	[ ]999999997	[ ]999999999
	H. Working faucets, water closets, emergency lights, and generators (if available)	[ ]1	[ ]2	[ ]999999997	[ ]999999999
	I. Proper waste disposal (e.g. use of color coded garbage plastic/bins, proper labelling of waste receptacles)	[ ]1	[ ]2	[ ]999999997	[ ]999999999
	J. Sink/lavatories or designated areas for handwashing or dispenser for sanitizers	[ ]1	[ ]2	[ ]999999997	[ ]999999999
	K. Use of gloves, surgical masks, PPE, as needed	[ ]1	[ ]2	[ ]999999997	[ ]999999999
	L. Entrances and exits are accessible and free from any obstruction	[ ]1	[ ]2	[ ]999999997	[ ]999999999
	M. Directional signs, entrance and exit signs are prominently posted	[ ]1	[ ]2	[ ]999999997	[ ]999999999
	N. Ramps for patients with special needs are prominently marked and free from obstruction	[ ]1	[ ]2	[ ]999999997	[ ]999999999
	O. Availability of price list in a conspicuous area such as but not limited to the lobby, reception area, information kiosk, business office. **Note to FI**: Pricelist may be presented in any form such as but not limited to printed handout, menu booklet, interactive digital form, posters/tarpaulins	[ ]1	[ ]2	[ ]999999997	[ ]999999999

3.4. Recommendations on Sampling and Survey Design

One of the objectives of redesigning NHES for the next round is to revise the sampling design to provide regional estimates and consider panel survey, if ascertained by DOH. In order to update the sampling design, the following data shall be used, with corresponding status on availability as of March 2022:

1. *Latest PhilHealth claims and membership databases.* These databases shall be used to compute for the required number of respondent households for the NHES. The sample size calculations shall be calibrated to capture, as much as possible, the more commonly used health care services (i.e., top medical and surgical procedures). Note however that PhilHealth data is bound to be an underestimate of the unobserved general population health care utilizations rates since PhilHealth coverage is less than universal and thus may not provide a perfect approximation of health care utilization rates for the general population. Still, such approximation is the best available and that the calculated sample size using PhilHealth data based on health care utilization rates should at least

overestimate the required sample size. For NHES Round 1, PhilHealth claims and membership database used were as of year 2015. Currently however, no updated data yet has been provided by PhilHealth, particularly the regional/provincial-level data needed for estimation of the regional/provincial sampling design.

2. *Latest Philippine Health Statistics (PHS).* This data source shall be used to obtain other top morbidity conditions for the estimation of proportions or use rates needed to compute for the NHES sample size. These additional morbidity conditions shall be included in the sampling considerations to account for the common conditions that were not usually captured by the PhilHealth claims database due to non-filing of benefit claims. For NHES Round 1, reference PHS publication used was for year 2015. To date, the most recent PHS from the DOH website (https://doh.gov.ph) is for the year 2019.
3. *Lastest National Demographic Health Survey (NDHS)*. This dataset shall be used to approximate the health care utilization of household members. Since households shall be sampled instead of individuals, the computed sample size shall be divided by the number of household members satisfying certain household characteristics derived from the NDHS. For NHES Round 1, NDHS data used was for year 2013. Currently, the latest NDHS data is for year 2017, available from the Demographic and Health Surveys website (https://dhsprogram.com/).
4. *PSA Master Sample Design*. This data source shall be used as reference in the determination of sampling domains. For NHES Round 1, reference PHS publication used was for year 2013. Currently, the latest master sample design available from the PSA website (https://psa.gov.ph/) is still for the year 2013.
5. *Latest Census of the Population Housing (CPH)*. This dataset shall be used to determine the number of sample households in each enumeration area or the sampling measure of size (MOS). This data source shall be obtained from PSA. For NHES Round 1, the census data used was for year 2015. To date, only the 2020 counts of individual population is published by PSA and none for counts of household by province and independent cities. Historically, household size decreases by census years (PSA, 2016). It would be difficult to use proxy data for average household size to get the number of households for the year 2020.

In line with the abovementioned lack of data and for the purpose of this study, the sampling design of NHES Round 1 is proposed to be used for NHES Round 2. Change in demographics is not much of a sampling concern, but rather the possible change in the epidemiological profile, which is a requirement to compute for the NHES sample size. In Round 1, the sample size was calculated based on the expectation on health service utilization rates which are likely affected by the epidemiological profile. To obtain an approximation of condition and illness specific utilization rates, 2015 PhilHealth claims and membership databases were used to determine top medical or surgical procedures, together with 2015 Philippine Health Statistics for the top morbidity conditions (Box 1). Details on the NHES round 1 sampling methodology can be found in the supplementary file named *NHES Finalized Survey Design and Sampling Requirements* (Annex 2) sourced from EU-PHSRC.

Box 1. Health Conditions Considered in NHES Round 1

Top 21 Medical or Surgical Procedures from 2015 PhilHealth Claims and Membership Databases

1. Kidney problems
2. Pneumonia
3. Newborn packages
4. Acute Gastroenteritis
5. Urinary tract infections
6. Facility-based delivery, caesarian section
7. Hypertension
8. Dengue
9. Cataract
10. Cancer (further disaggregated into malignant neoplasm, benign neoplasm, and neoplasm of unknown behavior)
11. Facility-based delivery, normal procedure
12. Asthma
13. Sepsis, newborn
14. Acute gastritis
15. Typhoid fever
16. Dilation and curettage
17. Stroke
18. Sepsis, non-newborn
19. Animal bite
20. Amoebiasis
21. Appendectomy

Top Morbidity Conditions from 2015 Philippine Health Statistics not in Top Medical Conditions by PhilHealth

1. Certain conditions originating in the perinatal period
2. Chronic lower respiratory diseases
3. Ischemic heart diseases/coronary artery diseases
4. Diseases of the vascular system
5. Diabetes mellitus
6. Tuberculosis, all forms
7. Acute lower respiratory tract infection
8. Influenza
9. Accidents

Source: Javier et al. (2018).

Analysis of NHES Round 1 results showed that the medical conditions considered during sampling are captured by the survey, specifically: hypertension; facility-based delivery (normal procedure); asthma; diabetes; and flu/influenza, as highlighted in Figure 15. Given this information and since there is still no data and literatures yet on the effect of the Covid-19 pandemic on these top health conditions, it can be safely assumed that the identified conditions can still be considered for the next round. Nonetheless, sampling can be updated once pertinent data on how the pandemic affected health care utilization becomes available.

Figure 15. Top health conditions

Table 4.1. Top Health Conditions for Which Individuals Sought Care in the Last Six Months

Condition/Health Services Sought	Proportion of Individuals Who Experienced in the Last 6 Months
Upper respiratory infection	11.6
Hypertension	10.7
Immunization	8.2
Supervision of normal pregnancy	5.7
Flu	5.5
Fever	5.2
Checkup	5.2
Fibromyalgia and muscle pain*	4.4
Asthma	4.2
Diabetes	2.7

* Category includes other unspecified soft tissue complaints, such as joint and muscle pain, as well as fatigue in various parts of the body not elsewhere classified.

Source: Javier et al (2021)

Therefore, NHES Round 2 is proposed to be statistically viable at the national level, with a sample size of 12,500. Similar with Round 1, stratified sampling strategy can be adopted to try to get some spread across provinces even though the sample is only representative at the national level. Within the provincial subdomain, randomization can be done either through simple random sampling or sampling relative to population size or some size measure.

At this point and given the data limitations, one can only estimate with regards to allowance for attrition rates for non-response and refusals. Note however, that attrition will always depend on the proper management of the survey. The sample size of 12,500 can also be increased up to 15,625. The additional 25 percent accounts for the panel survey design, as well as possible attrition in the next round given that NHES Round 1 yielded 12.1 percent refusal rate in the household component and 42.7 percent in the medical provider component (Javier et al 2021). Also, if DOH pursues NHES as a panel survey, the frequency and interval between rounds will determine if there are sections/subsections/questions that can be omitted in some rounds; the tracking information gathered in NHES-HC Form B1 will be put to use; and collection of GPS coordinates with consent from the respondents can be explored.

4. Conclusion

The first round of NHES yielded rich information on health-seeking behavior and utilization, healthcare billing, healthcare expenditure, financial protection, and quality of care. As intended to be conducted on a regular basis to inform decision making, monitoring, and evaluation of health sector reforms, NHES tools shall be updated once again to further assess the effectiveness of UHC reforms, particularly with focus on primary care and integration of health facilities. The NHES for its second round shall be adjusted accordingly, incorporating the recommendations, lessons learned, and analysis results from the first round of the survey.

As part of this study, series of discussions with DOH-NHES, DOH-UHC core group and DOH-UHC Monitoring & Evaluation team to discuss NHES Round 2 priority specifications and indicators are supposed to be conducted. However, as of March 2021, no meeting has been conducted yet with DOH and stakeholders, and the recommended Technical Working Group on NHES has not been created. Thus, all recommended questions detailed in Section 3 are subject to change pending decision and review, as well as additional inputs and requests from DOH and attached agencies.

To summarize, prior recommendations of HP+ are valid and sufficient as enhancements for the next round of NHES. The health utilization, expenditure, and financial information that can be collected by NHES are adequate and warrants further analyses. In NHES-HC, questions on referral and continuum of care; primary health care competencies; components of OOP; and delay in health-seeking behavior are proposed to be added to aid in future analyses. Health facilities visited by respondents for primary care, as well as referring and/or referral facilities identified in NHES-HC with health care events in the last 6 months is recommended to be subject for conduct of the recommended NHES-MPC Supplemental questionnaire.

Also, deleted questions for the next round does not necessarily mean discontinued questions, but could be collected intermittently or for certain rounds, particularly if NHES will be implemented as a panel survey. If so, the frequency and interval between rounds shall determine if there are sections, subsections, or questions that can be omitted in some rounds. In the meantime, some questions are proposed to be removed due to space constraints and consideration for respondent fatigue in general, in lieu of other proposed questions to be explored.

In terms of NHES sampling methodology, the latest available claims and membership databases needed to revise the sampling design to regional estimates are still not provided by PhilHealth. Thus, for NHES Round 2, it is proposed to use the same Round 1 sampling design with 12,500 sample size or up to 15,625 sample size, if interested to conduct NHES as panel design. The additional 25 percent accounts for possible attrition in the next round.

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6. Appendices

Appendix 1. Overview of recommendations on NHES Forms

Module	Section	Recommendations
NHES-HC Questionnaire		
B1	Household Composition	Update headers, footers, form name, introduction and privacy notice. Streamline instructions, questions, coding, and answer options. Merge matrices for living and deceased household members into one household matrix and adjust to cater more responses. Remove question on *Relationship of deceased to household head* (old HC17) and *Sex of deceased household member* (old HC18) as it will be asked together with the living household members. Question on *Children under 21 years old* (old HC5) and *Presence of deceased HH member* (old HC16) shall be removed and instead included as options for the question *Persons considered as members of the household* (HC3). A question on *Estimated age* (HC7.2) shall be added. Overall, questions shall be renumbered accordingly from 22 questions to 19.
B2	Identification of Facility Visited	Headers, footers, form name, and introduction shall be updated. Instructions, coding, and answer options shall be streamlined. Facility matrix shall be updated to include facility ID; event ID; facility name and address as claimed by the respondent; and validated facility name and address. A question on *Date of visit for each service obtained* shall be added as FU10 hereby increasing questions from 9 to 10.
C1	*Outpatient Care*	Headers, footers, form name, and introduction shall be updated. Instructions, questions, coding, and answer options shall be streamlined. Answer matrices (e.g. on questions for diagnostic procedures, medications) shall be reformatted into a table such that column is the question and row is item (e.g. procedure/tests) where separate columns for inside and outside shall be provided, if applicable. Amount billed/charged as well as payment amount shall be split into two questions: total and per component. For every billing/payment information, records used as reference by the respondent are to be recorded. Questions on billing and expenditures shall be emphasized to pertain to all charges and payments made on behalf of the household member who received care. It shall be highlighted that charge and payment amounts shall not be deducted yet with discounts, adjustments or payments from other sources. Questions on *Referral, Date of onset, Reasons why total payment and total charge are not equal*; *How much professional fee; Additional payments per source;* and *Source of financing for other expenses* shall be added.
C2	*Emergency Care*	
C3	*Inpatient Care*	
C4	*Dental Care*	
C5	*Other Facility Visits*	
C6	*Special Therapy Visits*	
C7	*Alternative Medical Care*	
C8	*Outreach/Medical Missions*	
C9	*Home Health Care*	

Module	Section	Recommendations
		Thus, questions shall be renumbered accordingly and number of questions in all C module increased.
B3	Household Members with Medication	Headers, footers, form name, and introduction shall be updated. Answer matrix shall be adjusted to cater more responses.
B4	Individual Module of Household Members with Medication	Headers, footers, form name, and introduction shall be updated. Instructions, questions, coding, and answer options shall be streamlined. Questions *Reason(s) or health condition(s) leading to use of medicine* (MS1) and *Reason(s) or health condition(s) leading to use of medical supplies/equipment* (MS6) shall be added. Questions shall be renumbered accordingly from 15 questions to 17.
B5	Household Member Did Not Avail Health Care or Medications	Headers, footers, form name, and introduction shall be updated. Instructions, coding, and answer options shall be streamlined. No change in number of questions.
B6	Health Insurance	Headers, footers, form name, and introduction shall be updated. Instructions, coding, and answer options shall be streamlined. Questions *Household member with health insurance or health care plan* (old HI1), *With other private health plan* (old HI4), and *Name of other private health plan* (old HI5), and *Who pays for the private insurance* (old HI8) shall be removed. Questions shall be renumbered accordingly from 16 questions down to 12. Answer matrix for HI1 shall be restructured so that each type of insurance is answerable by yes or no; answer matrix for HI2 to HI9 shall be reorganized as household member roster.
B7	Household Expenditures	Headers, footers, form name, and introduction shall be updated. Instructions, coding, and answer options shall be streamlined. Examples for each expenditure type shall be added for emphasis. No change in number of questions.
B8	Primary Care, Health Status, Risky Behavior, and Patient Satisfaction	Headers, footers, form name, and introduction shall be updated. Instructions, questions, coding, and answer options shall be streamlined; and answer matrices shall be reorganized. Anthropometric questions *Weight* (RB4) and *Height* (RB5) are recommended to be retained. *Name and Address of usual primary care provider* shall be added. Patient satisfaction question on *Pleasant experience during facility visit* shall be revised to capture primary care competency tool. No change in number of questions.
B9	Closing	Headers, footers, form name, and introduction shall be updated. A summary table for *TOTAL number of health care events* and *Number of health care events to be validated via price inquiry*, *facility visit*, and those *not requiring validation* shall be added, as well as summary for facilities to be included in the MPC supplemental questionnaire.

Other NHES-HC Forms		
	Assent	Headers, footers, and introduction shall be updated. Form shall be simplified by removing 'Field Use Box' section, further instructions added, and section titles updated. Form copy for the facility and respondent shall be added.
	Consent	Headers, footers, privacy notice, and certificate of consent shall be updated. Another copy for the survey firm shall be added, plus for the facility and respondent.
	Top Sheet	Headers, footers, form name, and introduction shall be updated. Field format for time, interview length, and date shall be standardized.
Form A	Field Interviewers' Documentation Form A	Headers, footers, form name, introduction and privacy notice shall be updated. Added option of barangay level of courtesy call. Field format for time and date shall be standardized.
B10	Field Interviewers' Record Form	Headers, footers, form name, and introduction shall be updated. Field format for date, time, duration shall be standardized.
B11	Field Interviewers' Interview Observations Form	Headers, footers, form name, and introduction shall be updated.
B12-A	Show Card	Contents shall be updated according to revisions in the NHES-HC questionnaires; headers, footers, and form name shall be also updated.
B12-B	Strips for Form B5 Question OD6	Headers, footers, and form name shall be updated.
B13	Refusal Report Form for the Supervisor	Headers, footers, and form name shall be updated. Field format for date and time shall be standardized.
NHES-MPC Questionnaire		
H1	Part I Introduction	Headers, footers, form name, introduction, instructions, and privacy notice shall be updated. Field format for time and date shall be standardized. Labels in *Table 1: Summary of health events* shall be updated for clarity (e.g. *Total number of visits* changed to *Total number of patient visits to the facility*); instructions shall be added to shade module applicable to the facility. Table 2 shall be updated as *Interview record for the facility respondent* where instructions shall be provided. It shall be also restructured by patient roster per visit date where fields for *Household ID, Household Member ID,* and *Event ID* shall be added.
H2 H3 H4	Part II-A Outpatient Care Part II-B Emergency Care Part II-C Inpatient Care	Question number format changed to 'MPC_XXy.y' where 'XX' is the 2-digit code of the form (e.g. OP for outpatient, IP for inpatient) and 'y.y' is the item number (e.g. MPC_OP1.1, MPC_OP1.2). Headers, footers, form name, and introduction shall be updated. Instructions, questions, coding, and answer options shall be streamlined. Field format for time and date shall be standardized. Answer matrices shall be

		reorganized based on rearrangement and addition of questions (e.g. OP3 question on *Services provided by the physician* became MPC_OP2.1, OP7 question *Services provided codes* became MPC_OP2.2). Questions *Coding system used by the facility* and *Services included in the package and how much* shall be added while questions *Reasons why total payments shall be greater than the total bill* and *Additional payment sources* shall be removed. Questions shall be renumbered accordingly but number of questions remained the same.
H5	Part II-D Dental Care	Headers, footers, form name, and introduction shall be updated. Instructions, questions, coding, answer options and answer matrices shall be streamlined. Field format for time and date shall be standardized. Question *Services included in the package and how much* shall be added as MPC_DN6.2 while questions *Reasons why total payments shall be greater than the total bill, Reasons why total payments shall be less than the total bill,* and *Additional payment sources* shall be removed. Questions shall be renumbered to MPC_DNx.x where 'x.x' is the item number (e.g. MPC_DN6.1). Questions decreased from 13 to 11.
H6	Part III-A Eye Clinic Price Inquiry	Headers, footers, form name, and introduction shall be updated. Instructions, questions, coding, answer options and answer matrices shall be streamlined (e.g. for the *Discount* question, discount type, discount amount and discount percentage shall be specified). Field format for time and date shall be standardized. Question number format changed to 'MPC_XXy' where 'XX' is the 2-digit code of the form (i.e. EC for eye clinic, IL for independent laboratory) and 'y' is the item number (e.g. MPC_EC1). Number of questions remained the same.
H7	Part III-B independent Lab Price Inquiry	
H8	Part III-C Special Therapy Price Inquiry	Headers, footers, form name, and introduction shall be updated. Instructions, questions, coding, answer options and answer matrices shall be streamlined. Field format for time and date shall be standardized. Questions on *Other charges, Other item charged, Other item price, and Other item discount* shall be removed. Questions shall be renumbered to MPC_XXy where 'y' is the item number (e.g. MPC_AC1). Questions decreased from 7 to 3.
H9	Part III-D Alternative Care Price Inquiry	
H10	Part III-E Pharmacy, Supplies Price Inquiry	Headers, footers, form name, and introduction shall be updated. Instructions, questions, coding, answer options and answer matrices shall be streamlined (e.g. for the *Price* question*,* dosage, number of units, and unit price must be specified; also for the *Discount* question, discount type, discount amount and discount percentage shall be identified). Field format for time and date shall be standardized.

		Questions on *Other charges, Other item charged, Other item price, and Other item discount* for medicines and equipment/supplies shall be removed. Questions shall be renumbered to MPC_PHx (for medicines) and MPC_MSx (for equipment/supplies) where 'x' is the item number (e.g. MPC_PH1). Questions decreased from 14 to 6.
H11	Supplemental questionnaire	Added with nine questions on: • Conduct of counselling • Conduct of services • Own or referral facility on lab tests for prenatal care • Own or referral facility on ultrasound for prenatal care • Source of blood supply • Referral facility on birth delivery • Referral of patients about to give birth • Reasons for referring patients about to give birth • Referral facility for patients about to give birth
Other NHES-MPC Forms		
	Assent Form	Added
	Consent Form	Added
	Field Index Sheet	Headers, footers, and form name shall be updated. Field format for date and forms shall be standardized.
	Show Card	Added
Form G	Confidential Patient Checklist	Headers, footers, form name, privacy notice, as well as notes and information shall be updated Reference information matrix shall be updated in terms of patient information; columns for *Event ID, Event with laboratory/surgery procedures based on HH survey, Event date/date of facility visit based on patient's facility record, Additional record, Date of interview,* and *Reference timeframe* shall be added. Last page of the form shall be organized into two sections: *Facility Point Person Directory* and *Return Date Schedule for Postponed or Partially Completed Survey.*

Source: Author's compilation.

Appendix 2. List of questions recommended to be removed

Form	Old Question No.	Question Name	Question
B1	HC5	Children under 21 years old	Are there any children or young people under 21 years old related to household head and who usually lives here but are currently living away from home, never married and going to school?
B1	HC16	Presence of deceased HH member	Are there any household members who passed away in the last 12 months?
B1	HC17	Relationship of deceased to HH head	What is the relationship of the deceased household member to the HH head?
B1	HC18	Sex of deceased HH member	Is (deceased HH member's name) male or female?
B6	HI1	Household member with health insurance or health care plan	Are you/Is anyone in the household covered by ANY KIND of health insurance or some other kind of health care plan?
B6	HI4	With other private health plan	Are there any more private health insurance plan?
B6	HI5	Name of other private health plan	What is the COMPLETE name of the other private insurance plan/s?
B6	HI8	Who pays for the private insurance	Who pays for this health insurance plan?
All C modules except C6 & C7	OP7, ER7, IP9, DN7, OF7, MM7, HH7	Whether charged among those received	Among those services or items that were received or bought, were you/(HH member's name) CHARGED OR BILLED of any amount?
	OP9, ER9, IP11, DN9, OF9, MM9, HH7	Whether paid among those charged	Among those services or items that were billed, did you/ (HH member's name) PAY any amount?
C6, C7	ST3, AC4	Number of sessions/visits	How many sessions of (type) did you/ (HH member's name) have in the LAST 6 MONTHS?
All C modules except C6 & C7	OP22.2, ER22.2, IP26.2, DN18.2, OF22.2, MM21.2, HH19.2	Discounted price of medicines	Were (medicine listed in ___) from (name and address of pharmacy) bought at a discounted price? If yes, specify type of discount and how much?
All C modules except C4, C6 & C7	OP25.5, ER25.2, IP29.2, OF25.2, MM24.2, HH22.2	Discounted price of medical equipment/supplies	Were (medical equipment/supplies in ___) from (name and address of pharmacy in IP29.1) bought at a discounted price? If yes, specify type of discount and how much?

Form	Old Question No.	Question Name	Question
C3	IP39.2	Discounted price of take-home medicines	Were medicines in ___ paid at a discounted price? If yes, specify type of discount and how much?
H2, H3, H4, H5	OP15, ER15, IP15, DN11	Reasons why total payments were greater than the total bill	It appears that the total payments were GREATER THAN the total bill. Why? Record verbatim answer.
H5	DN12	Reasons why total payments were less than the total bill	It appears that the total payments were LESS THAN the total bill. Why? Record verbatim answer.
H2, H3, H4, H5	OP17, ER17, IP17, DN13	Additional payment sources	Are you expecting additional payment from (Read options)? If YES, how much? A. Patient or patient's family, specify amount: B. Private insurance company, specify amount: C. HMO, specify amount: D. SSS, specify benefit availed and amount E. GSIS, specify benefit availed and amount F. PhilHealth, specify amount: G. PCSO, specify amount: H. Local Government Assistance, specify program and amount I. National Government Assistance, specify program and amount J. Other program, specify program and amount K. TOTAL ADDITIONAL PAYMENT:
H8, H9, H10	ST3, AC3, PH3, MS3	Other charges	Do you have any other charges for the services you offer like for the use of equipment, use of therapy paraphernalia and others? If YES, for what is this and how much?
H8, H9, H10	ST4, AC4, PH4, MS4	Other item charged	What are these other charges?
H8, H9, H10	ST5, AC5, PH5, MS5	Price of other items	How much do you charge for (Mention item in ___)?
H8, H9, H10	ST6, AC6, PH6, MS6	Discount in other items	Do you offer any discount for (Mention Item in ___) If YES, specify type of discount and how much?

Source: Author's compilation.

Appendix 3. List of questions recommended to be added

Form	New Question No.	Question Name	Question
B1	HC7.2	Estimated age	Is the provided age an estimate only?
B2	FU10	Date of visit for each service obtained	What was the date of visit for each service obtained?
B4	MS1	Reason(s) or health condition(s) leading to use of medicine	What is/are the reason(s) or health condition(s) leading to use of (MENTION NAME OF ITEM IN MS2)
B4	MS6	Reason(s) or health condition(s) leading to use of medical supplies/equipment	What is/are the reason(s) or health condition(s) leading to use of (MENTION NAME OF ITEM IN MS7)
B8	PC5	Name and address of usual primary care provider	Please specify the name and address of the particular doctor's office, clinic, health center, or other place that you usually go if you are sick or need advice about your health?
In all C modules except C9	OP3, ER3, IP4, DN3, OF3,ST2, AC2, MM3,	Referral from other facility	Did this visit of you/ (HH member's name) a referral from another facility? If yes, ask the name and address of the referral facility.
In all C modules	OP4.2, ER4.2, IP5.2, DN4.2, OF4.2, ST5.2, AC5.2,MM4.2, HH2.2	Date of onset of symptoms	Indicate the first date of onset of any symptoms listed in ___.
C3	IP5.3	Reason why IP visit is more than 2 days the date of onset of symptoms	If date of onset of symptoms in IP5.2 and admission date in IP1 is more than 2 days, ask: Why did you/(HH member's name) delay your admission to a health facility?
All C modules except C6 & C7	OP8.2, ER8.2, IP10.2, DN8.2, OF8.2, MM8.2, HH5.2	Amount charged per component	For each charged or billed component received identified in ___, how much was the amount breakdown billed for you/ (HH member's name) for services or items that were received or bought INSIDE or OUTSIDE the facility? Please include discounts or adjustments such as insurance benefits like PhilHealth, or any assistance from other sources.
	OP9.2, ER9.2, IP11.2, DN9.2,	Amount paid per component	For each paid component identified in ___, how much was

Form	New Question No.	Question Name	Question
	OF9.2, MM9.2, HH6.2		the component amount paid for services or items that were received or bought INSIDE or OUTSIDE the facility by you/ (HH member's name)? Please include amount discounted or adjustments such as insurance benefits like PhilHealth, or any assistance from other sources.
C6, C7	ST14.1, AC13.1	Recap of charges and payments	I have recorded here that for this visit, the TOTAL CHARGE is (Mention amount), is this correct? And the TOTAL PAYMENT is (Mention amount), is this correct?
All C modules	OP12.2, ER12.2, IP14.2, DN12.2, OF12.2, ST14.2, AC13.2, MM12.2, HH9.2	Reasons why total payment and total charge are not equal	Based on your answer, the TOTAL PAYMENT is not equal with the TOTAL CHARGE/TOTAL BILL. Looking at this card, what are the reasons why total payment and total charge are not equal? Select all that apply. [ ] Discount by the facility [ ] Discount due health card from the Provincial Government [ ] Discounts offered by Municipal/City Government [ ] Paid down payment only [ ] GSIS Package bills [ ] Insurance financial assistance [ ] PCSO financial aid [ ] PhilHealth benefits [ ] Persons with disabilities (PWD) discount [ ] Quantified Free Service [ ] Senior Citizen Discount [ ] Social Services discount (SWA) [ ] Sponsorship from company [ ] UNICEF discount [ ] Others, specify: _____
All C modules except C3, C6, C7, C9	OP14.2, ER14.2, DN13.2, OF14.2, MM14.2	How much professional fee	Aside from the professional fees included in the total bill you/ (HH member's name) paid to the facility if any, were there additional payments made

Form	New Question No.	Question Name	Question
			directly to the physician or to his/her staff which you know are NOT PART of the total bill presented in the facility bill?
All C modules except C6 & C7	OP14.3, ER14.3, DN13.3, OF14.3, MM14.3, HH11.2	Additional payments per source	Of the amount paid for additional payments in ___, how much was from these sources listed in this card? (Read category) A. Own HH resources/savings/ income B. Personal loans including from family members that do not live with you C. Sale of property D. Transfers, donations from charities E. Transfers, donations from local government officials F. Others sources F1. Others, specify_____ F2. Others, specify_____
In all C modules	OP30, ER30, IP41, DN22, OF30, ST17, AC16, MM29, HH24	Source of financing for other expenses	Of the expenses for (read category), how much was from these sources listed in this card? A. Travel B. Food C. Accommodation D. Other expenses, Specify:
In all C modules	OP31, ER31, IP42, DN23, OF31, ST18, AC17, MM30, HH25	Referral to other facility	After this visit, were you/ (HH member's name) referred to another facility? If yes, ask the name and address of the referred facility.
H2, H3, H4	MPC_OP2.3, MPC_2.3, MPC_IP2.3	Coding system used by the facility	What coding system is being used by the facility?
H2, H3, H4, H5	MPC_OP9.2, MPC_ER9.2, MPC_IP9.2, MPC_DN6.2	Services included in the package and how much	Was this visit on [DATE] covered by a "package fee", that is, was it included in a charge that covered services received on other dates as well? Example is a patient who received a series of treatments, such as

Form	New Question No.	Question Name	Question
			chemotherapy, that was covered by a single charge.
H11	MPC_SQ1	Conduct of counselling	Do you conduct counselling on the following: A. Completion of vaccinations? B. Breastfeeding? C. Prenatal care? D. Proper nutrition? E. Safe water and sanitation? F. Physical activity? G. Smoking cessation? H. Safe sex? I. Supplementation, if necessary?
H11	MPC_SQ2	Conduct of services	Do you conduct the following services in this facility: A. Vaccinations? If yes, what vaccinations are available? B. Assessment on child's health status such as height and weight? C. Pap smear or Visual Inspection With Acetic Acid (VIA)? D. Risk assessment for non-communicable diseases such as cardiovascular conditions (hypertension, stroke), diabetes mellitus, lung/chronic respiratory diseases and cancers? E. Prenatal checkups and assessment of high-risk pregnancies? F. TB and HIV screening? G. If no, which screening is not available? H. H. Procedures on management of primary care services such as hydration, wound cleaning, suturing, NSD etc.?
H11	MPC_SQ3	Own or referral facility on lab tests for prenatal care	Does this facility have its own facilities or referral facilities for

Form	New Question No.	Question Name	Question
			lab tests needed for prenatal care such as urinalysis, blood tests?
H11	MPC_SQ4	Own or referral facility on ultrasound for prenatal care	Does this facility have its own facilities or referral facilities for ultrasound needed for prenatal care?
H11	MPC_SQ5	Source of blood supply	Where do you get your blood supply when needed?
H11	MPC_SQ6	Referral facility on birth delivery	Where do you refer patients who availed of prenatal care for their delivery?
H11	MPC_SQ7	Referral of patients about to give birth	Do you refer patients who are about to give birth to other clinics or hospitals?
H11	MPC_SQ8	Reasons for referring patients about to give birth	What are the main reasons why this facility refers patients who are about to give birth to other clinics or hospitals?
H11	MPC_SQ9	Referral facility for patients about to give birth	Where do you refer the patients who are about to give birth?