The Cost of Inpatient Scabies Treatment in the Philippines: Secondary Data Analysis from the Philippine Health Insurance Corporation Database

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ABSTRACT

Background. While outpatient management for classic scabies is the standard, severe cases, such as infected scabies or crusted scabies in immunocompromised individuals, may require inpatient care, increasing the financial burden on healthcare systems.

Objective. This retrospective study of the cost of scabies inpatient cases from the Philippine Health Insurance Corporation (PhilHealth) database was undertaken to provide valuable insights for policy-making and resource allocation.

Methods. This retrospective secondary data analysis used the PhilHealth claims database for inpatient scabies treatment. We included inpatient claims for scabies (ICD-10: B86) from the inception of the database to 2021. Inclusion criteria were hospitalized patients with scabies as a primary or secondary diagnosis. Exclusion criteria included claims with missing cost data and unpaid claims. The primary outcome was the total claim amount. Other extracted variables included demographics, facility name, province, month and year of admission, hospital stay length, and total amount paid by PhilHealth. Descriptive statistics, comparative analysis, time trend analysis, and regression analysis were used to assess cost differences, trends, and predictors of higher hospitalization costs.

Results. There were 877 patients with scabies who filed for claims in the PhilHealth database from 2002 to 2013, which was the last year that scabies was covered. The bulk of the patients were pediatric age (n = 699, 68.7%), most of which belong to the 1- to 5-year-old age group (n = 323, 36.8%). A little more than half of the patients were males (n = 491, 56.0%). The region with the highest number of patients with scabies who filed for claims was Region X (n = 107, 12.2%). The median length of hospital stay was 3 days (IQR = 2, Range = 1 to 353). The median amount for actual claims for scabies was 4992 PhP (IQR, 6335.90) (range, 743.00 PhP to 222,175 Php), with PHIC paying a median percentage of 75.24% (IQR, 50.09, range 2.44 to 169.98) of the actual claim. Increasing length of hospital stay has a corresponding increase in actual cost of treatment, while regions

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outside NCR have lower costs, after controlling for all other factors. Similarly, increasing length of hospital stay had a corresponding decrease in percentage paid by PhilHealth, while regions outside NCR had higher PhilHealth reimbursements, after controlling for all other factors.

Conclusion. This study highlights the epidemiological and economic burden of inpatient scabies treatment in the Philippines based on insurance claims data. The majority of affected individuals were children aged 1–5 years, with a slightly higher prevalence among males. Region X had the highest number of claims, suggesting a regional disparity in disease burden or healthcare access. These findings emphasize the need for targeted interventions to improve scabies management and financial protection for affected patients.

Keywords: scabies, cost, economic burden, hospitalization, Philippines

INTRODUCTION

Scabies is a highly contagious parasitic skin disease that affects individuals worldwide, with a higher burden in resource-limited settings. A recent systematic review and meta-analysis (70 studies) showed that the pooled global prevalence is 11.9% (95% confidence interval [CI]: 9.60-14.7), with Southeast Asia having the 3rd highest prevalence (11.4%; 95% CI: 6.4%-19.5%).[1] In the Philippines, the prevalence of scabies ranged from 2.75% (1999 national prevalence survey) to 45% (2008 cross-sectional study, 3 orphanages).[2,3] Scabies ranked highest in prevalence and morbidity (127.14 disability-adjusted life years) among all skin diseases in the Philippines based on the Global Burden of Disease (GBD 2021).[4]

An economic evaluation of outpatient scabies treatment for a household of four in the Philippines in 2022 showed that a 2-dose course of permethrin lotion (5,260.77 PhP or 96.57 USD) costs more than a 2-dose course of oral ivermectin (200 mcg/kg) (4,221.46 PhP or 77.49 USD) or single dose combination or oral ivermectin and permethrin (4,240.99 PhP or 77.84 USD) (BSP exchange rate, 54.4778 PhP per USD, 2022).[5] Aside from the scabicide itself, direct medical costs also included symptomatic treatment (oral antihistamines, topical steroids), while direct nonmedical costs (transportation, laundry) and indirect costs (lost wages) were also considered. This was similar to the outpatient cost of treating scabies in the US was 95 USD in a 2005 study.[6] The cost was much lower in Fiji based on the big SHIFT study that showed the cost in a primary healthcare setting for scabies alone (US$17.7) and for a potentially scabies-related skin and soft tissue infection (SSTI) ($18.3).

While outpatient management is the standard, severe cases may require inpatient care, increasing the financial burden on healthcare systems. Scratching due to the severe itching in scabies may cause secondary bacterial infection (impetigo), which may lead to cellulitis and even sepsis or post-streptococcal immune sequelae involving the heart and kidney.[7,8]

The Philippine Health Insurance Corporation (PHIC) or PhilHealth was established in 1997 to "ensure affordable, acceptable, available and accessible health care services for all citizens of the Philippines."[9] In 2013, PhilHealth replaced the fee-for-service payment system with the All Case Rate scheme to improve efficiency and standardize inpatient care reimbursement. Scabies was not part of the covered diseases, and hospitalization for scabies ceased to be paid by PhilHealth.

Understanding the cost implications of inpatient scabies treatment in the Philippines can provide valuable insights for policy-making and resource allocation. In particular, reviving PhilHealth coverage for scabies in inpatient settings, and expanding the coverage to outpatient settings may help in controlling the morbidity and spread of this infestation.

This study aimed to analyze the cost of inpatient management of scabies based on the PhilHealth database.

METHODS

Study Design

This was a retrospective secondary data analysis utilizing the PhilHealth claims database conducted from June 30, 2025 to August 4, 2025.

Study Population and Data Source

Data were obtained from the PhilHealth database, focusing on inpatient claims for scabies (ICD-10 code: B86) from inception to 2023. We included PhilHealth claims for hospitalized patients diagnosed with scabies as a primary or secondary diagnosis. We excluded claims with missing or incomplete cost data.

Data Collection and Variables

The following variables were extracted: Patient demographics (age, sex, Philippine administrative region), Month and year of admission, Length of hospital stay, Total claim amount, and Total amount paid by PhilHealth.

Data Analysis

Descriptive statistics (mean, median, range) were used to summarize cost data. Comparative analysis was conducted to assess cost differences between regions. Time trend analysis was performed to identify changes in hospitalization costs over the years. Regression analysis was used to determine predictors of higher hospitalization costs, including age, sex, Philippine administrative region, length of hospital stay, year, and month of the year. We conducted sensitivity analysis excluding outliers with actual cost per patient over 60,000 Php, which accounted for only one patient per category.

Ethical Considerations

This study was registered with the University of the Philippines-Manila (RGAO-2025-0206) and exempted from ethics review (UPMREB 2025-0446-EX 30 June 2025). The study protocol is available upon request from the authors.

RESULTS

There were 877 patients with scabies who filed for PhilHealth claims in the PhilHealth database from 2002 to 2013, which was the last year that scabies was covered (Table 1). The bulk of the patients were pediatric age (n = 699, 68.65%), most of which belong to the 1-5 years age group (n = 323, 36.83%) (Figure 1). A little more than half of the patients were males (n = 491, 55.99%). The region with the highest number of patients with scabies who filed for claims was Region X (n = 107, 12.20%) and Region XII (n = 105, 11.97%) (Figure 2). The median length of hospital stay was 3 days (IQR = 2, Range = 1 to 353), with the majority of patients staying less than 3 days (584, 66.59%).

Table 1. Profile of Claims of Patients with Scabies who have Filed for PhilHealth Claims (N = 877)

	Median (IQR); Frequency (%)
Claim status	
Paid	858 (97.83%)
In-process	10 (1.14%)
Denied	4 (0.46%)
Return-to-hospital	5 (0.57%)
Actual claims, pesos	4992.00 (6635.90) (743.00 to 222,175)
Paid claims, pesos	3504.01 (3122.00) (405.00 to 15,743.00)
Percent paid by PhilHealth, %	75.24 (50.09)

There was an increasing number of patients with scabies who filed for PhilHealth claims from 2002 to 2013 (Figure 3).

The months with the highest number of claims were during the 3rd quarter (July and September) (Figure 4).

Almost all of these claims were paid (858, 97.83%) (Table 1). The median for actual claims for scabies was 4992 PhP (IQR, 6635.90) (range, 743.00 to 222,175), while the median (IQR) for paid claims was 3504.01 PhP (3122.00) (range, 405.00 to 15,743.00). The median percent paid claims by PhilHealth was 75.24% (IQR 50.09).

Relatively, there were similar treatment costs between age groups and sexes. There is a relatively higher cost of treatment in the NCR compared to other regions, and the cost decreases as the region is further away from the NCR (Figure 5). The regions with the lowest cost were ARMM and CAR.

As expected, the cost is directly proportional to the length of hospital stay and has been increasing from 2002 to 2013. The cost of treatment peaks in the middle of the year (June to July). Correspondingly, it was inversely proportional to the percent paid by PhilHealth. The percent paid by PhilHealth was lower in the NCR compared to other regions, and increased as the region is further away from the NCR.

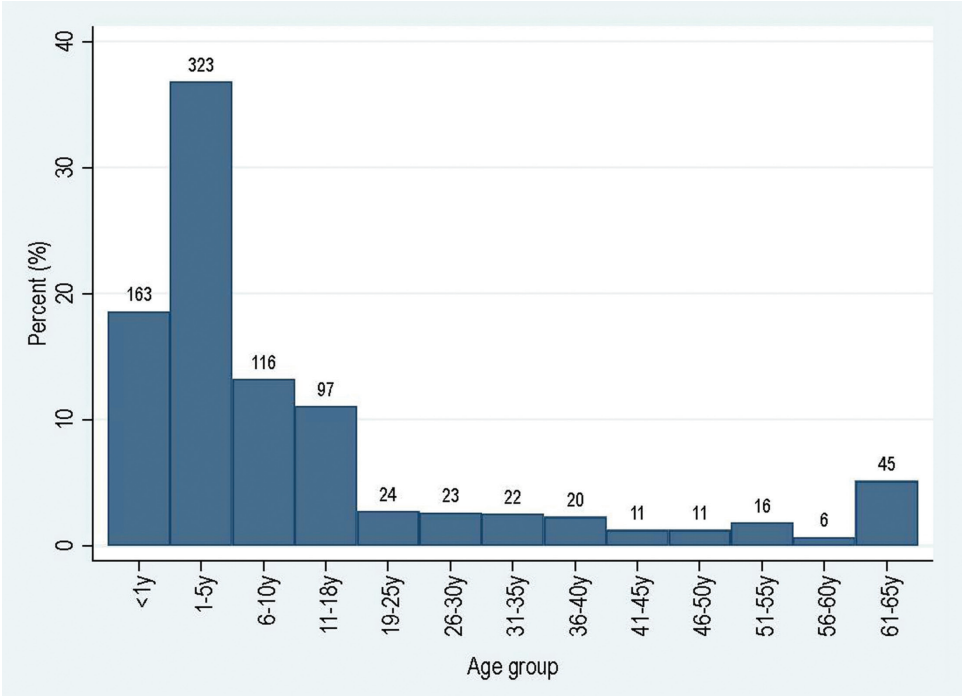

Figure 1. Number of patients with scabies who filed for PhilHealth claims across the age groups (n = 877).

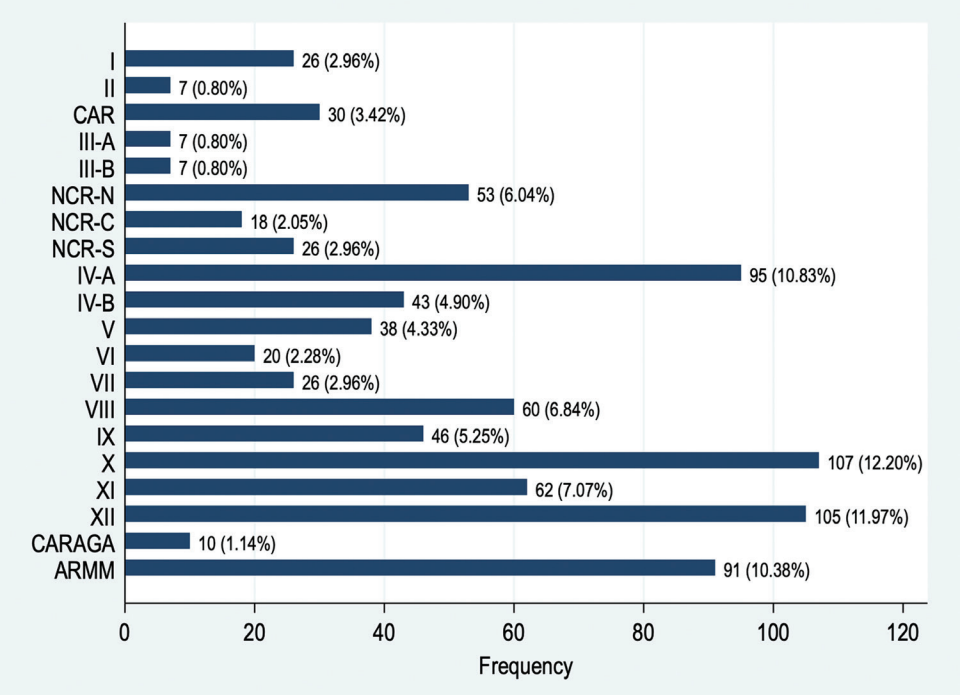

Figure 2. Number of patients with scabies who filed for PhilHealth claims across the different administrative regions (2002-2013) (N=877).

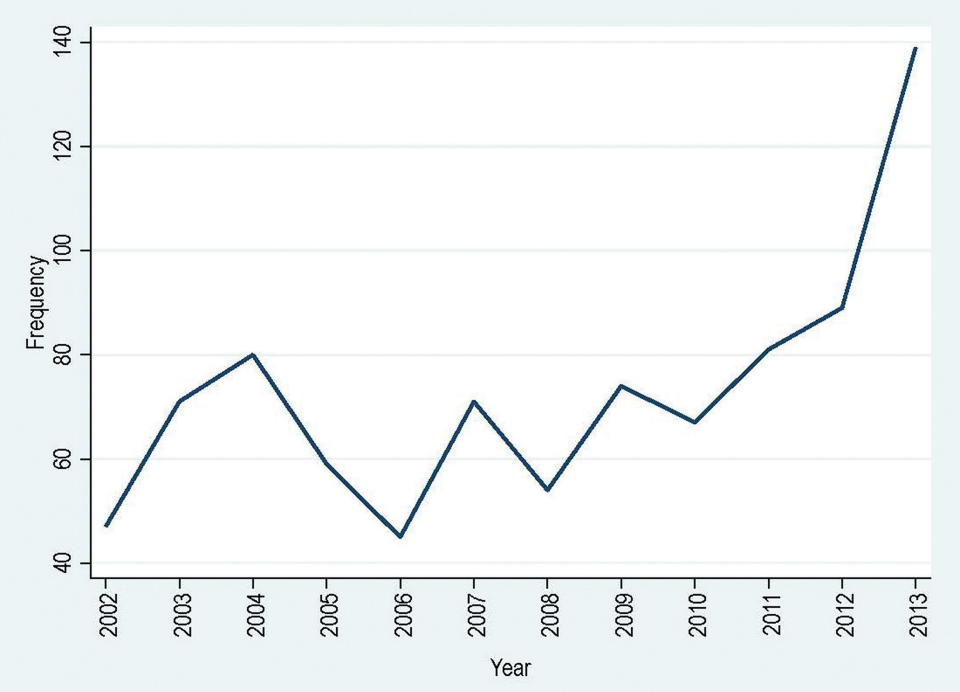

Figure 3. Graph showing the number of patients with scabies who filed for PhilHealth claims from 2002 to 2013 (N = 877).

Note: PhilHealth coverage for the diagnosis of scabies was discontinued after 2013 when the case rate packages were introduced.

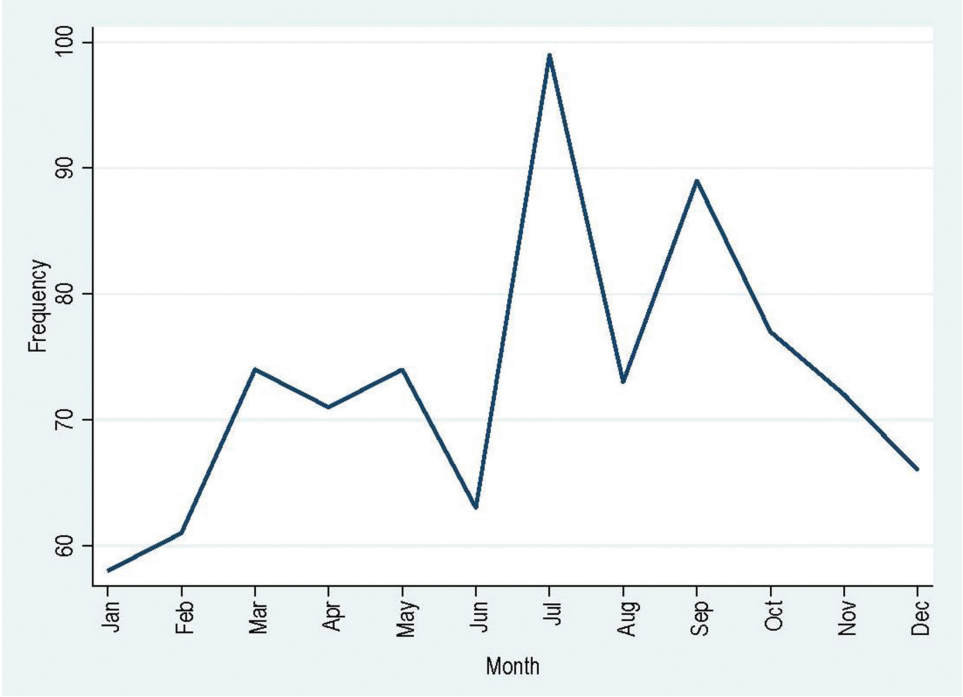

Figure 4. Graph showing the number of patients with scabies who filed for PhilHealth claims by month of the year (N = 877).

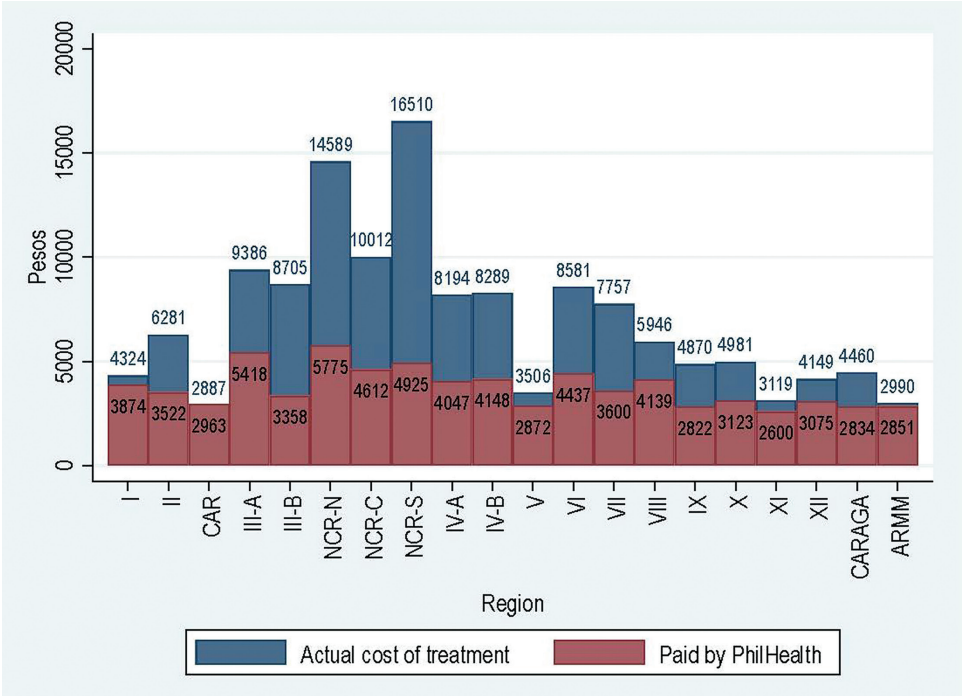

Figure 5. Treatment cost and amount paid by PhilHealth according to Philippine administrative region (N = 877).

The region with the highest percent paid by PhilHealth was ARMM and CAR. Likewise, the percent paid by PhilHealth is indirectly proportional to the length of hospital stay and has been decreasing from 2002 to the latter years, and lowest in the middle of the year (Table 2).

Formal statistical analysis using multivariable linear regression confirms that increasing length of hospital stay has a corresponding increase in actual cost of treatment, as well as regions outside NCR having lower costs, after controlling for all other factors. Similarly, it was confirmed that increasing length of hospital stay has a corresponding decrease in percent paid by PhilHealth, as well as regions outside NCR having higher PhilHealth reimbursements, after controlling for all other factors (Table 3; Figure 6).

Sensitivity analysis excluding 14 outliers (1.6% of 877 patients) with actual cost above 60,000 PhP showed no significant difference in findings from the main analysis (median actual cost, 4884.50 PhP (range, 743.00, 54945.10). There was also no change in the results of the regression analysis, where the administrative region and length of hospital stay influenced the cost. Thus, we decided to retain the main analysis with 877 patients.

Summary of Findings

There were 877 patients with scabies who filed for PhilHealth claims in the PhilHealth database from 2002 to 2013, which was the last year that scabies was covered. The bulk of the patients were pediatric age, mostly in the 1-5

Table 2. The Distribution of the Number of Claims and the Median Cost of Treatment Stratified to Different Variables of Interest (N = 877)

Characteristics	Number of claims		Cost of treatment			Percent paid by PhilHealth		
	Frequency	Percentage (%)	Median	Min	Max	Median	Min	Max*
Age (years)								
<1	163	18.59	4855.70	1000.00	39961.41	82.43	12.03	168.74
1-5	323	36.83	4981.00	743.00	50300.00	76.21	9.35	140.79
6-10	116	13.23	5658.58	988.00	51099.20	71.56	3.19	107.20
11-18	97	11.06	4291.00	783.00	91248.25	83.23	11.07	169.98
19-64	143	16.31	5210.93	895.80	222175.00	58.91	2.44	165.00
≥65	35	3.99	5156.00	1687.50	44734.40	71.08	18.92	169.94
Sex								
Male	491	55.99	5055.60	743.00	222175.00	74.90	2.44	169.98
Female	386	44.01	4925.26	895.80	70497.05	75.95	3.19	169.94
Region								
I	26	2.96	4324.50	1530.00	17659.00	97.78	37.29	138.15
II	7	0.80	6281.00	2853.50	8726.66	72.40	19.88	92.83
CAR	30	3.42	2886.94	1089.50	22325.88	97.88	18.65	169.98
III-A	7	0.80	9386.50	1432.00	91248.25	41.22	11.07	100.00
III-B	7	0.80	8705.00	3761.00	20316.59	38.31	31.54	98.85
NCR-N	53	6.04	14589.00	2059.00	222175.00	36.14	2.44	100.00
NCR-C	18	2.05	10011.63	1874.85	19901.25	71.35	22.61	100.00
NCR-S	26	2.96	16509.85	4258.75	70497.05	29.12	12.03	108.33
IV-A	95	10.83	8194.25	1236.00	54945.10	46.65	15.23	100.00
IV-B	43	4.90	8289.00	1550.00	31529.35	53.61	9.35	104.36
V	38	4.33	3505.50	900.00	8986.80	94.96	32.30	117.16
VI	20	2.28	8581.35	1687.50	21362.47	61.34	27.65	165.00
VII	26	2.96	7756.68	1400.00	37133.80	57.32	3.19	119.78
VIII	60	6.84	5946.00	988.00	27434.97	81.07	6.87	169.94
IX	46	5.25	4869.55	1650.00	32270.00	63.00	7.76	168.74
X	107	12.2	4981.00	1300.00	23614.00	73.29	15.65	118.06
XI	62	7.07	3119.03	1059.00	18006.68	81.87	37.23	100.00
XII	105	11.97	4149.49	1098.50	16944.00	80.93	24.86	117.30
CARAGA	10	1.14	4459.70	895.80	16093.28	73.31	23.05	100.00
ARMM	91	10.38	2990.00	743.00	9095.00	99.92	22.04	100.00
Length of hospital stay (days)								
≤3	584	66.59	3847.00	743.00	31896.50	80.81	9.18	165.00
4-7	229	26.11	8457.00	1701.00	54945.10	63.79	3.19	169.98
8-30	44	5.02	10848.31	2683.00	91248.25	59.01	6.87	119.78
>30	20	2.28	68234.00	15996.60	222175.00	7.82	2.44	24.52

Table 2. The Distribution of the Number of Claims and the Median Cost of Treatment Stratified to Different Variables of Interest (N = 877) *(continued)*

Characteristics	Number of claims		Cost of treatment			Percent paid by PhilHealth		
	Frequency	Percentage (%)	Median	Min	Max	Median	Min	Max*
Year								
2002	47	5.36	3233.91	783.00	19269.75	82.77	32.01	138.15
2003	71	8.10	2969.00	743.00	26823.00	87.74	26.18	169.98
2004	80	9.12	3136.10	1080.00	82686.10	82.13	3.19	168.74
2005	59	6.73	3634.00	1059.00	99473.52	78.43	8.15	118.06
2006	45	5.13	4473.25	988.00	24992.00	72.65	18.65	169.94
2007	71	8.10	4553.00	895.80	68234.00	78.26	2.93	119.78
2008	54	6.16	5350.00	1823.00	165209.20	73.07	3.63	100.00
2009	74	8.44	5003.88	1472.00	149845.00	67.46	4.15	100.00
2010	67	7.64	6216.50	2156.00	45324.58	67.48	9.35	100.00
2011	81	9.24	7965.00	1236.00	196598.00	66.05	2.44	100.00
2012	89	10.15	7937.27	1295.00	222175.00	60.22	3.15	100.00
2013	139	15.85	6083.40	900.00	70497.05	80.00	9.18	100.00
Month of the year								
January	58	6.61	3821.13	743.00	31896.50	80.81	18.92	149.38
February	61	6.96	5532.05	900.00	205789.00	68.69	5.01	115.63
March	74	8.44	4601.25	783.00	68234.00	75.20	2.93	116.44
April	71	8.10	5832.15	1089.50	222175.00	66.50	3.15	119.78
May	74	8.44	4278.05	1233.70	30463.59	87.28	6.87	165.00
June	63	7.18	5479.00	1293.00	149845.00	55.27	4.15	129.48
July	99	11.29	6088.71	1319.00	196598.00	64.71	2.44	140.79
August	73	8.32	4802.45	1237.00	131666.00	72.03	5.54	100.00
September	89	10.15	4986.80	1200.00	165209.20	77.49	3.63	169.94
October	77	8.78	4338.50	1126.00	51099.20	82.55	6.44	105.13
November	72	8.21	4864.75	1080.00	91248.25	81.59	3.19	169.98
December	66	7.53	4636.00	895.80	44734.40	77.51	9.18	100.00

**Note: There are 24 claims with higher PhilHealth payment compared to the actual treatment cost.*

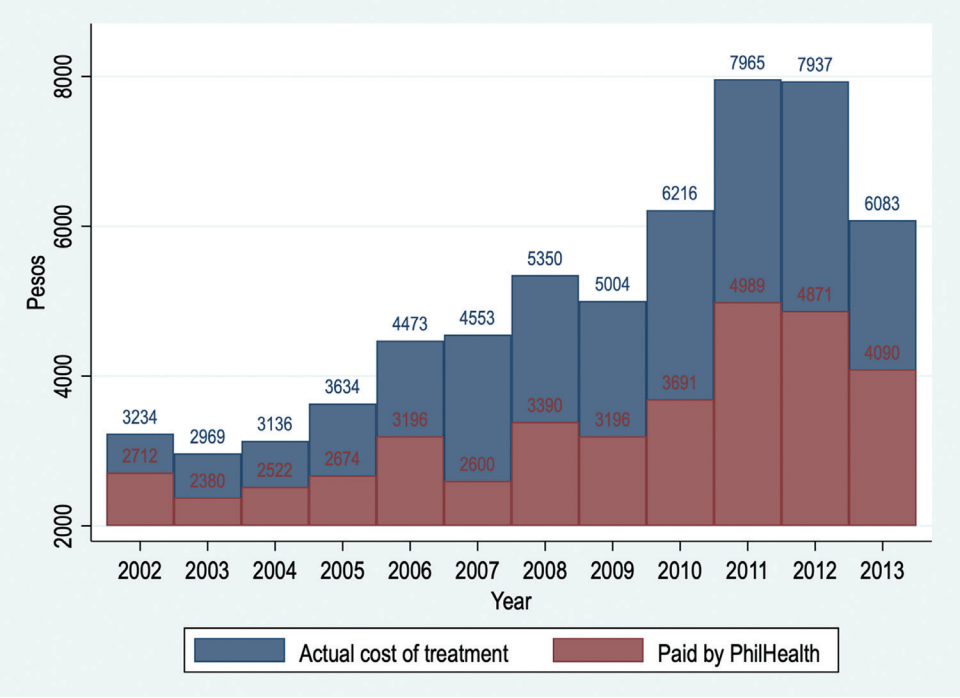

Figure 6. Actual cost of treatment of scabies and amount paid by PhilHealth from 2002-2013.

Table 3. Multivariable Linear Regression Analysis of Factors Associated with Actual Cost of Treating Scabies and the Percent Paid by PhilHealth (N = 877)

Factors	Actual cost			Percent paid by PhilHealth		
	Beta coefficient	95% CI	*p*-value	Beta coefficient	95% CI	*p*-value
Region						
I	-12586.47	-18947.6, -6225.33	<0.001	51.60	38.22, 64.98	<0.001
II	-14141.77	-23932.88, -4350.65	0.005	31.25	10.78, 51.72	0.003
CAR	-14060.89	-20316.24, -7805.55	<0.001	53.57	40.42, 66.72	<0.001
III-A	2131.11	-7896.92, 12159.13	0.677	8.67	-12.29, 29.64	0.417
III-B	-8737.60	-18558.64, 1083.43	0.081	10.49	-10.05, 31.02	0.316
NCR-N	-3963.38	-9775.53, 1848.77	0.181	21.61	9.22, 34	0.001
NCR-C	-9063.72	-16343.87, -1783.57	0.015	27.88	12.61, 43.14	<0.001
NCR-S	Reference			Reference		
IV-A	-6466.64	-11563.68, -1369.59	0.013	19.74	8.94, 30.53	<0.001
IV-B	-8925.96	-14627.21, -3224.7	0.002	19.50	7.38, 31.62	0.002
V	-13555.14	-19414.02, -7696.26	<0.001	46.16	33.83, 58.49	<0.001
VI	-10896.87	-17724.82, -4068.92	0.002	34.80	20.45, 49.15	<0.001
VII	-9987.65	-16386.06, -3589.23	0.002	23.26	9.81, 36.72	0.001
VIII	-12087.02	-17513.65, -6660.38	<0.001	39.22	27.77, 50.67	<0.001
IX	-15760.48	-21410.07, -10110.9	<0.001	31.10	19.13, 43.06	<0.001
X	-11011.86	-16087.08, -5936.64	<0.001	30.42	19.7, 41.14	<0.001
XI	-12150.47	-17587.99, -6712.95	<0.001	39.86	28.38, 51.34	<0.001
XII	-10930.18	-16089.49, -5770.88	<0.001	32.18	21.3, 43.07	<0.001
CARAGA	-10474.52	-19069.41, -1879.63	0.017	25.13	6.44, 43.81	0.008
ARMM	-13384.51	-18591.63, -8177.39	<0.001	52.06	41.02, 63.11	<0.001
Length of hospital stay (days)						
≤3	Reference			Reference		
4-7	5233.34	3345.09, 7121.6	<0.001	-5.66	-9.62, -1.69	0.005
8-30	11055.48	7316.66, 14794.29	<0.001	-11.01	-18.94, -3.09	0.007
>30	80837.19	74286.25, 87388.12	<0.001	-47.04	-61.07, -33.02	<0.001

**Note: Variables in bold font denote statistically significant association.*

years age group, and more than half were males. Region X had the highest number of patients with scabies who filed claims. The median length of hospital stay was 3 days. The median amount for actual claims for scabies was 4992 Php, with PHIC paying a median percentage of 75.24% of the actual claim. Longer hospital stay, and regions around NCR were associated with higher claim amount and lower percent paid by PhilHealth.

DISCUSSION

Interpretation of Findings/Comparison with Previous Studies

Our study showed the median amount claimed for inpatient scabies cases was 4992 PhP or 117.61 USD (exchange rate of 42.4462 PhP per US dollar, BSP 2013).[10] This amount was 1/3 of the average cost per hospital admission for a potentially scabies-related skin and soft tissue infection (SSTI) case ($439) in Fiji, and that of an emergency department visit for scabies in the US (750.91 USD).[11,12] However, this is three times higher than the estimated cost per inpatient bed day for a primary hospital (without drugs) in the Philippines in 2010, at 41.83 USD (SD 18.2, upper limit 83.57, lower limit 17.21) by the WHO-CHOICE.[11]

The median amount of 4992 PhP is 93.1% of the per capita health expenditure of PhP 5,360.00 in 2013. With only 75% coverage by PhilHealth, this meant that patients bore substantial out-of-pocket costs despite being insured.[12] Moreover, the removal of scabies coverage after 2013 likely imposed a considerable financial burden on Filipinos seeking treatment for a condition that should be manageable in outpatient settings. With the Filipino household shouldering 56.3% out of pocket for their health expenses in 2013, this is a significant financial burden to a low-middle-income country.[13] The challenge of health financing in the Philippines still boils down to the four Ps: "'pagtitiis' (enduring the illness), 'pangungutang' (borrowing the money), 'pagmamakaawa' (soliciting help from the government and non-government channels), and PhilHealth—the State-owned national insurance agency—whose (non-)role figures prominently in catastrophic expenditure." [14] Although PhilHealth paid for 75% of the claims for inpatients with scabies up to 2013 in our study, this was not the case anymore when the new case rate packages were introduced in 2013, which did not include scabies coverage. This reflects the health financing

landscape in Southeast Asia, where incongruity between insurance benefits and people's needs and rising healthcare costs are just two of five challenges in health financing identified by a systematic review.[15]

In this study, we found the predictors of a higher cost of claim to be longer hospital stay and admission in regions around NCR. However, the median stay of 3 days is much shorter than the average of 11.6 days among patients with crusted scabies in Aboriginal communities in the Northern Territory of Australia.[16] It was more similar to the Australian national average hospital stay of 4.1 days for a common skin-related hospital stay. The higher cost in the regions around NCR is compatible with 2023 data showing the National Capital Region (NCR) accounting for the highest current health spending in the Philippines, around 405.1 million Php, compared to the BARMM region (12.3 million Php) in the same year.[17] This is a reflection of the higher cost of living. The inverse relationship between the cost of treatment and the percent PhilHealth reimbursement may be due to a fixed ceiling for the different costs. Thus, more expensive hospitalization costs would tend to overshoot these ceiling limits and result in lower percentage coverage.

In the US study by Tripathi et al., predictors for greater cost of care among inpatient scabies admissions (1.1% of total emergency department scabies visits) were increased age ($p < 0.0001$) and higher income ($p = 0.02$), Medicare coverage (compared to Medicaid and private insurance, $p < 0.0001$), and admission to Level I/II Trauma Centers at metropolitan non-teaching hospitals ($p < 0.0001$).[12]

Limitations of the Study

We included patients with a secondary diagnosis of scabies, which means that we may have included those with other systemic diseases or immune compromise. Thus, the cost may have been overestimated. The scabies diagnosis was not further subclassified into classic and crusted, as well as whether there were any comorbidities (e.g., secondary bacterial infection) that required treatments other than scabicides and symptomatic itch treatment. We only collected data from government insurance and did not include private hospital admissions. Since our data only reached up to the year 2013, the actual cost for the past 10 years is not reflected in this study. We did not break down the different cost components (e.g., professional fees, room and board, medications). We also did not include the indirect non-medical costs such as transportation, food for caregivers, and lost productivity. The cost of treating long-term post-infectious complications, such as cardiac or renal disease, was not included.

Implications for Practice, Policy, and Research

The economic burden of scabies inpatient treatment in the Philippines highlights the need for increased surveillance and control of epidemic outbreaks. Prompt and adequate outpatient management of scabies must also be institutionalized in the PhilHealth Konsulta benefits to prevent scabies complications that lead to hospitalizations. A comprehensive public health approach that treats not only the index case but also the close contacts addresses the household-level nature of scabies transmission. To avoid significant out-of-pocket expenditures for hospitalization, the Philippine government must also include the treatment of this prevalent disease in its inpatient drug coverage. Traditional herbal medicine that has proven scabicidal efficacy and safety should be developed and marketed to avoid reliance on imported drugs.

CONCLUSION AND RECOMMENDATIONS

This study highlights the epidemiological and economic burden of inpatient scabies treatment in the Philippines based on insurance claims data. The majority of affected individuals were children aged 1–5 years. Region X had the highest number of claims, suggesting a regional disparity in disease burden or healthcare access. These findings emphasize the need for targeted interventions to improve scabies management and prompt outpatient management to prevent hospitalizations, to reduce the cost of inpatient scabies treatment, and provide financial protection for affected patients.

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Statement of Authorship

Both authors certified fulfillment of ICMJE authorship criteria.

Author Disclosure

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