4142

Healthcare Burden in Patients with Hidradenitis Suppurativa: A Systematic Review

Kiruthika Umapathi, Pharm D,[1] Nagalakshmi Yedduri, Mpharm,[1] Ahiwale Raj, PhD,[1] Immaculate Nevis MBBS, MSc, MBA, PhD[2]
[1]ICON plc, Bangalore, India; [2]ICON plc, Blue bell, USA

Introduction

Hidradenitis Suppurativa (HS) is a chronic inflammatory skin disease also known as acne inverse, which is characterized by small painful lesions under the skin. Usually develops in the area where skin rubs such as armpits, groin etc.

The estimated prevalence of HS ranges from 0.1% to 4% worldwide. Women tend to be affected more compared to men. The ratio of women to men in Western nations is roughly 3:1. The etiology of HS is unknown, but may be influenced by genetic, immunological, or other lifestyle factors.

The Hurley staging method is frequently used to classify the severity of HS, and therapy is tailored to each case. Disease severity substantially correlates with pain intensity, healthcare utilization and quality of life.

Objectives

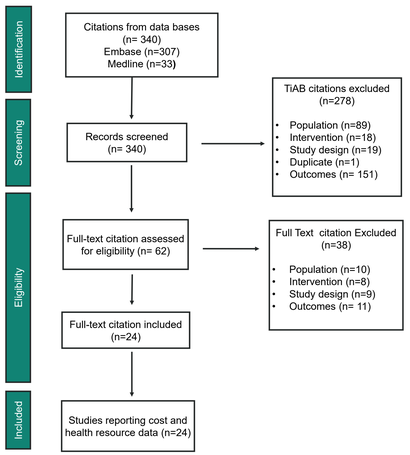
Conduct a systematic review to identify published evidence on resource use and costs (direct and indirect) in patients with Hidradenitis Suppurativa (HS) who are treated with non-biologics, biologics and/or JAK inhibitors

Methods

Literature search was conducted using Medline and EMBASE from January 2015 to October 2025. This review included real world evidence studies reporting costs or resource use in adults (≥18 years) diagnosed with Hidradenitis Suppurativa.

Prisma

Figure 1: Prisma flow chart



Results

Table 1: Direct Economic Costs Associated with Hidradenitis Suppurativa

Author, year	Population	Sample size	Total direct cost, Mean (SD) USD	Total indirect cost Mean (SD) USD	Other medical cost, Mean (SD) USD
Balato, 2025a	Moderate to severe HS	27	4,100 (6,050)	3,287 (7,051)	--
	Overall	48	2,570 (4,270)	1,743 (4,760)	--
Balato, 2025b	Overall	48	1,900 (3,555)	1,740 (4,750)	--
Chopra, 2022†	Adults - 2007-2010	NR	32,267 (NR)	--	--
	Adults - 2015-2018	NR	55,236 (NR)	--	--
Desai, 2017	Overall	11,359	2,740 USD	--	--
Garg, 2023	2-year post-index	10,218	1,588.3 (7,340.7)	--	Inpatient: 101.5 (1,980.9) Outpatient: 876.9 (5,071.9)
	1-year post-index	10,218	1,118.4 (4,250.4)	--	Inpatient: 64.0 (1,334.3) Outpatient: 655.7 (2,675.3)
Gaspar, 2022	Overall	200	4,274 (3,371 - 5,291)*	4,241 (3,397 - 5,059)*	--
Hallock, 2021†	Adult	416	HS Inpatient cost: 23,760 (35,862.99)	--	--
Hopson, 2023	HS	40,655	Total All-cause costs: 10,344.88	--	--
Jessica Marvel, 2019	Commercial/ Medicare	11,325	--	--	Inpatient : 23,742 (33,780) Outpatient: 2,515 (5,799)
	Medicaid	5,164	--	--	Inpatient : 17,613 (34,139) Outpatient: 1,356 (3,029)
Ramos-Rodriguez, 2018§	IBD-HS	4,369	13,272 (NR)	--	--
	CD-HS	3,732	13,115 (NR)	--	--
	UC-HS	637	14,225 (NR)	--	--
Tzellos, 2019	General HS	1,204	NR	2,925 (6,160)	--
	Control	6,020	NR	1,483 (3,572)	--

Abbreviations: CD, Crohn's disease; HS, Hidradenitis Suppurativa; IBD, Inflammatory bowel disease; UC, Ulcerative colitis
- * 95% CI
- † Represents total sample cost; all other values are mean per patient
- § HS along with comorbid conditions

Table 2: Medical Resource Use Among Patients with Hidradenitis Suppurative

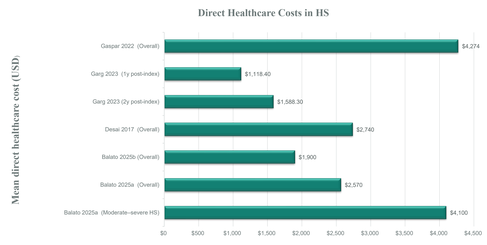
Author, year	Population	Sample size	Inpatient, %	Outpatient visit, %	LOS in days, Mean (SD)	ED visit, %
Atayeva, 2023	Weekday admission	12360	-	-	6.40 (NR)	-
	Weekend admission	NR	-	-	4.94 (NR)	-
Basurto, 2025	Biologics	NR	-	-	1.9 (5.1)	-
	Non biologics				1.5 (5.5)	
	No treatment				0.5 (2.8)	
Bechara, 2023	Overall	1986	15.20	-	-	-
Wang, 2022	HS Patients	20269	-	Within 30 days: 2.4	-	100
			-	Within 180 days: 6.8	-	100
	Commercial	7455	-	Within 30 days: 5.3	-	100
			-	Within 180 days: 14.1	-	100
	Medicaid	12814	-	Within 30 days: 0.7	-	100
			-	Within 180 days: 2.5	-	100
Hallock, 2021	Overall	7633	-	-	6.5 (12.7)	-
Jassica marvel, 2019	Commercial/ Medicare	11325	4	100	-	9.20
	Medicaid	5164	4.80	99.90	-	33.90
Kimball, 2024	≥1 Adalimumab	2367	-	30.90	-	-
	≥2 Adalimumab	2367	-	29.50	-	-
Ramos-Rodriguez, 2018	IBD-HS	4369	-	-	5 (4-8)*	-
	CD-HS	3732	-	-	6 (3-8)*	-
	UC-HS	637	-	-	5 (2-8)*	-
Towfighi 2023	Overall	199	-	-	2.9 (4.7)	-

Abbreviations ED, Emergency department; LOS, Length of stay; SD, Standard deviation; SS: Sjogren's syndrome; pSS: Primary Sjogren's syndrome; sSS: Secondary Sjogren's syndrome; USA, United States of America;

* Median (Range)

- A total of 340 citations were screened, with 24 studies included. These studies were conducted across ten different countries with sample sizes ranging from 27 (*Balato 2025 a*) to 54,912 (*Sayed 2023*). Out of 24, 11 studies included in the SLR reported costs in various currencies. All costs were converted to USD and standardized to January 2026 values using inflation adjustments to ensure consistency and facilitate comparison across studies.
- .Direct costs ranged widely across studies, from the lowest in ~$1,118–$1,588 (*Garg 2023*) to the highest as ~$4,274 in (*Gaspar 2022)*) and *Balato 2025a* (~$4,100) in patients with moderate–severe HS. Overall, direct costs increase with disease severity and healthcare utilization intensity, particularly in moderate–severe HS populations.
- Indirect costs were consistently substantial where reported, ranging from ~$1,483 in controls (*Tzellos 2019*) to ~$4,241 in HS patients (Gaspar 2022). *Balato 2025a* also showed high indirect costs (~$1,743 to $3,287), often approaching or exceeding direct costs.
- Other medical costs in HS were primarily driven by inpatient and outpatient utilization, with *Garg 2023* showing relatively low outpatient-dominant costs (~$655 to $877) and *Jessica Marvel 2019* reporting substantially higher inpatient-driven costs (~$17,613 to $23,742). Overall, hospitalization was the main contributor to variability in non-direct medical expenditure across studies.
- *Chopra 2022 and Hallock 2021* reported total sample cost estimates rather than per-patient costs, limiting direct comparability with other studies. Chopra 2022 showed a marked increase in total healthcare expenditure over time, from $32,267 (2007–2010) to $55,236 (2015–2018), reflecting a rising overall economic burden of HS. Hallock 2021 reported very high total inpatient costs (> $12.8 million), with a mean HS inpatient cost of $23,760 (SD 35,862.99) among hospitalized patients, indicating substantial cost concentration in severe, admission-requiring cases.
- *Hopson 2023* reported mean total all-cause healthcare costs of $10,344.88 per patient among a large HS cohort.
- *Ramos-Rodriguez 2018* reported relatively high mean direct costs across HS patients with comorbid inflammatory bowel disease. Costs were $13,272 in IBD-HS overall, with subgroup estimates of $13,115 in Crohn's disease-associated HS (CD-HS) and $14,225 in ulcerative colitis-associated HS (UC-HS). These estimates include HS with significant comorbid conditions, they likely reflect a higher comorbidity-driven cost burden, limiting direct comparability with HS-only populations.
- Healthcare resource utilization (HRU) was reported across nine studies. Inpatient utilization was generally low, ranging from 4.0–4.8% in USA commercial vs Medicaid cohorts (Jassica marvel, 2019) to 15.2% in a German study (*Bechara, 2023*). Outpatient visits were consistently high when reported, with utilization rates nearing ~100% in insured U.S. populations (*Jassica marvel, 2019*), though lower short-term follow-up rates were observed in HS patients (*wang, 2022*). Emergency department (ED) varied widely, with higher rates among Medicaid patients (33.9%) compared to commercially insured groups (9.2%) (*Jassica marvel, 2019*), and some studies reporting universally high ED utilization depending on cohort definition (*Cynthia, 2022*). Length of stay (LOS) showed substantial variability, mean ranging from 2.9 to 6.5 days across studies (*Towfighi 2023; Hallock 2021*), with median LOS of 5–6 days in IBD-associated HS populations (Ramos-Rodriguez 2018). Treatment and admission factors influenced LOS, with shorter stays observed in untreated patients versus those receiving biologics (*Basurto, 2025*), and shorter LOS for weekend versus weekday admissions (*Atayeva, 2023*).

Figure 2: Studies reporting direct health care cost visual representation



Discussion

This systematic review demonstrates a substantial economic burden of hidradenitis suppurativa (HS) across 24 studies from ten countries. Direct costs varied widely but consistently increased with disease severity, particularly in moderate-to-severe HS. Indirect costs were also significant and, in several studies, were comparable to or exceeded direct medical costs, highlighting a major productivity loss burden. Hospitalization was the primary driver of cost variability despite generally low inpatient utilization rates. Emergency department and outpatient utilization showed marked variation across healthcare systems and insurance groups. Patients with comorbid conditions, especially inflammatory bowel disease, experienced higher costs, reflecting increased clinical complexity. Overall, HS imposes a growing and multidimensional economic burden, emphasizing the need for earlier intervention and optimized disease management.

Conclusion

Hidradenitis suppurativa is associated with a substantial and variable economic burden, driven by direct medical costs, productivity loss, and hospitalization. Overall costs increase with disease severity and comorbid conditions, highlighting the need for improved long-term management strategies.

References

- Atayeva, [Initials]. (2023). Weekend admission for patients with hidradenitis suppurativa have better outcomes than weekday admission. *Journal of Burns Care & Research*. https://doi.org/10.1093/jbcr/irad045.116
- Balato, A. (2025a). An innovative real-world data linkage approach to evaluate the disease burden of hidradenitis suppurativa in Italy: Initial findings from the HIDRAS study. Value in Health, 27(12), S49. https://doi.org/10.1016/j.jval.2024.10.262
- Balato, A. (2025b). Management and burden of hidradenitis suppurativa: An Italian hybrid real-world study. Dermatology and Therapy. https://doi.org/10.1007/s13555-025-01407-0
- Bechara, F. G. (2023). Healthcare resource utilization and economic burden of hidradenitis suppurativa in German patients. Value in Health. https://doi.org/10.1016/j.jval.2023.09.525
- Basurto, C. (2025). A retrospective study of hospitalization rates in hidradenitis suppurativa patients.
- Chopra, R. (2022). Recent trends in healthcare utilization and costs for adults and children with hidradenitis suppurativa. Journal of Investigative Dermatology. https://doi.org/10.1016/j.jid.2022.05.352
- Wang, C. X., Buss, J. L., Keller, M., & Anadkat, M. J. (2022).Factors associated with dermatologic follow-up vs emergency department return in patients with hidradenitis suppurativa after an initial emergency department visit. JAMA Dermatology, 158(12), 1378–1386. https://doi.org/10.1001/jamadermatol.2022.4610
- Desai, N. (2017). High burden of hospital resource utilization in patients with hidradenitis suppurativa in England: A retrospective cohort study using hospital episode statistics. British Journal of Dermatology. https://doi.org/10.1111/bjd.14976
- Garg, A. (2023). Disease burden and treatment patterns among US patients with hidradenitis suppurativa: A retrospective cohort study. American Journal of Clinical Dermatology. https://doi.org/10.1007/s40257-023-00796-2
- Gaspar, K. (2022). Resource utilization, work productivity, and costs in patients with hidradenitis suppurativa: A cost-of-illness study. Expert Review of Pharmacoeconomics & Outcomes Research. https://doi.org/10.1080/14737167.2021.1895753
- Hallock, K. (2021). Differences between children and adults with hidradenitis suppurativa. JAMA Dermatology. https://doi.org/10.1001/jamadermatol.2021.2865
- Hopson, S. (2023). Treatment patterns and healthcare resource utilization among newly diagnosed patients with inflammatory conditions including hidradenitis suppurativa: A retrospective cohort analysis of claims data in the United States. Conference abstract.
- Marvel, J., Prens, E. P., Rodriguez, R. S., & et al. (2019).Disease burden and cost of hidradenitis suppurativa: A retrospective examination of US administrative claims data. Journal of the American Academy of Dermatology.
- Ramos-Rodriguez, G. (2018). The in-hospital burden of hidradenitis suppurativa in patients with inflammatory bowel disease: A decade nationwide analysis from 2004 to 2014. International Journal of Dermatology.Sayed (2023)
- Kimball, A. B. (2024). Residual burden in adalimumab-treated patients with hidradenitis suppurativa. Value in Health. https://doi.org/10.1016/j.jval.2024.03.701
- Towfighi, [Initials]. (2023). Financial toxicity of hidradenitis suppurativa: A single-center experience at an urban wound-care clinic. Journal of Dermatology. https://doi.org/10.1111/1346-8138.16868
- Tzellos, T. (2019). Impact of hidradenitis suppurativa on work loss, indirect costs and income. British Journal of Dermatology. https://doi.org/10.1111/bjd.17101

Disclosure and Acknowledgements

I would like to express my sincere gratitude to the organisation for its invaluable guidance and continuous support throughout this research.

Presented at ISPOR, Pennsylvania convention center, Philadelphia, PA, USA, May 17-20, 2026