

Burden of Guillain-Barré Syndrome in the United States in 2025

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Introduction

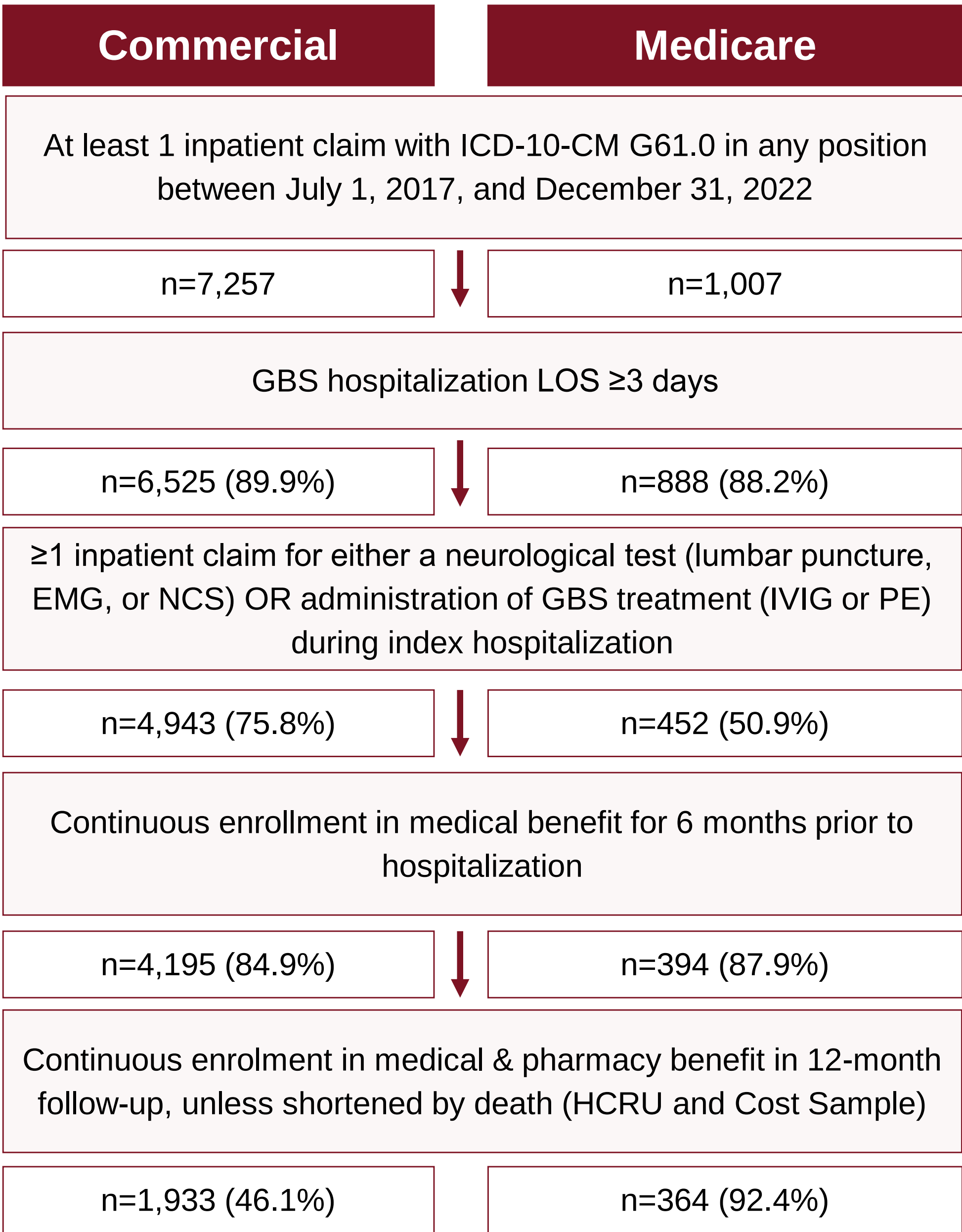
- Guillain-Barré Syndrome (GBS) is a rare, immune-mediated peripheral neuropathy characterised by acute flaccid paralysis and variable autonomic dysfunction
- Patients often require intensive medical management and prolonged rehabilitation, imposing a substantial economic burden that extends well beyond the initial hospitalization.
- Evidence of real-world burden of GBS is lacking; existing studies have not evaluated the continuum of care in large, nationally representative populations
- Understanding the true burden of GBS is necessary to inform clinical decision-making and health care planning and policy
- We conducted a retrospective study to characterise real-world GBS incidence, healthcare resource utilization (HCRU), and direct medical costs in the US for index hospitalizations and 12-months post discharge

Methods

- We analysed 2017–2023 data from a US commercial closed claims database and Medicare Fee-for-Service 5% sample
- Patients with GBS were identified using a modified version of a validated claims-based algorithm: Patients had to have an inpatient stay with ICD-10-CM code G61.0, length of stay (LOS) ≥3 days, and a neurological test or evidence of GBS treatment during the hospitalization
- Patients had to have 6-months of continuous enrolment prior to admission to assess baseline characteristics and 12-months of continuous enrolment after hospitalization (unless shortened by death) to assess follow-up HCRU and payer costs
- Annual incidence was estimated from patients with admissions 2018-2022 without enrolment criteria applied. Incidence was projected to the 2025 US population, adjusting for age and sex
- HCRU and costs were measured during the index hospitalization and for the 12-months following. GBS-related HCRU and costs were defined by ICD-10-CM code G61.0 in any position on the claim
- Direct medical costs are the amounts paid to healthcare providers from payers and patients and were reported in 2025 US dollars using the medical component of the Consumer Price Index with confidence intervals derived from 1,000 bootstrapped samples

Results

Figure 1: Case Selection and Study Attrition



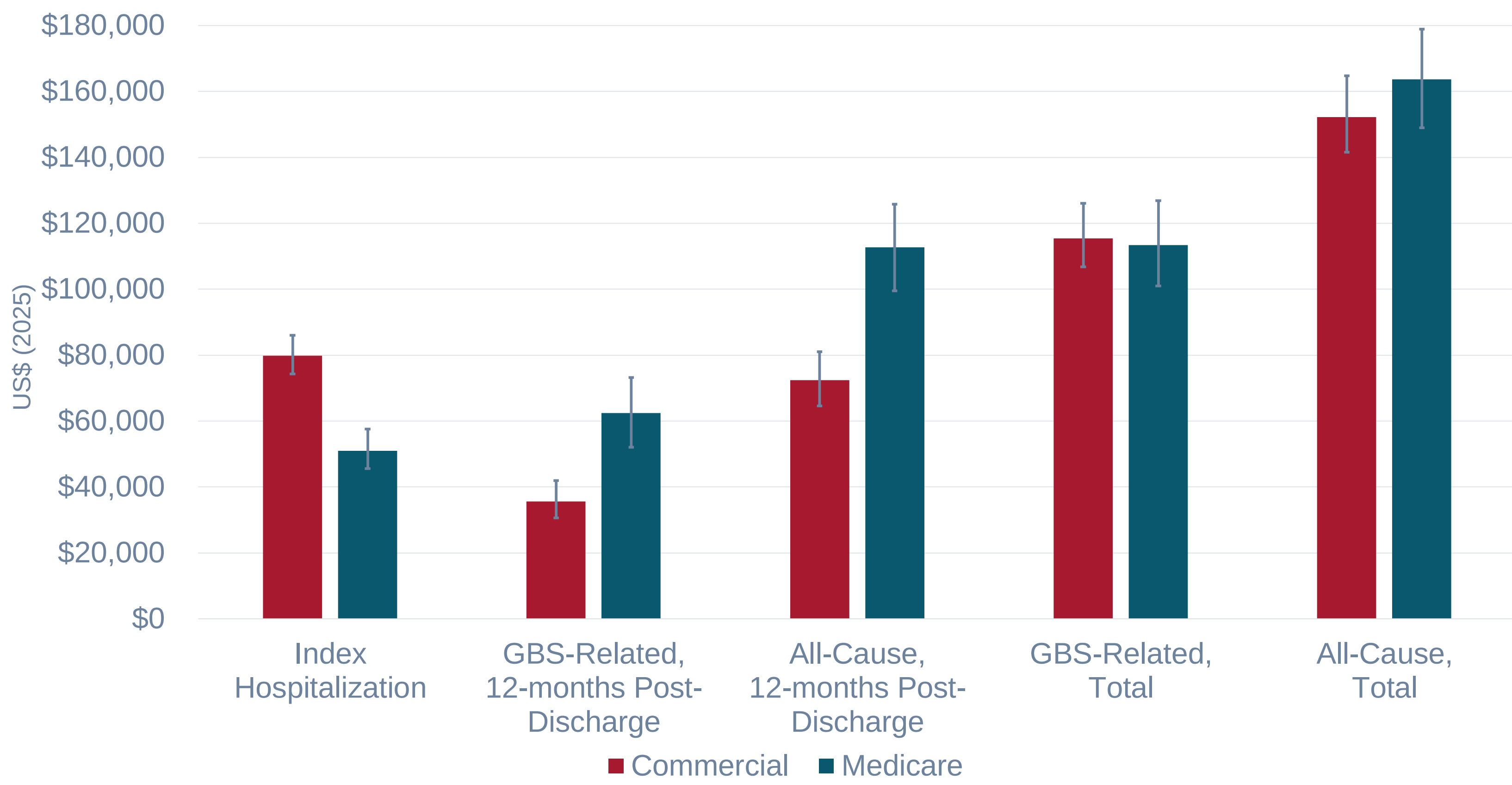
Electromyography (EMG); Nerve Conduction Studies (NCS); intravenous immunoglobulin (IVIg); plasma exchange (PE)

- For inpatient hospitalization, commercial (Medicare) patients had a mean LOS of 12.4 days (13.3 days), 28.0% (34.9%) required ICU care, mean ICU LOS was 7.8 days (9.1 days) (Table 2)
- In the 12-months post-discharge, the percent of patients in commercial (Medicare) with any GBS-related HCRU was 78.3% (77.5%), 16.5% (26.1%) with an inpatient hospitalization; and 33.7% (51.4%) using any IRF, SNF or LTC (Table 2)

Table 1: Characteristics of Hospitalized Patients with GBS	Commercial (N=1,933)		Medicare (N=364)	
Age at index, years				
Mean, SD	45.4	15.7	70.8	9.7
Median, Q1-Q3	49	35-58	71	67-76
Male Sex	1,023	52.9%	221	60.7%
Quan Charlson Comorbidity Index				
Mean, SD	1.3	1.8	2.5	2.5
Median, Q1-Q3	0	0-2	2	0-4
Kim Frailty Index				
Robust	393	20.3%	74	22.0%
Pre-frail	1,247	64.5%	189	56.1%
Mild frailty	258	13.4%	60	17.8%
Moderate-to-severe frailty	35	1.8%	14	4.2%
Total LOS, days				
Mean, SD	12.4	14.2	13.3	11.4
Median, Q1-Q3	8	5-14	10	6-17
ICU stay				
Any ICU stay	541	28.0%	127	34.9%
Mean, SD ICU LOS (days)	7.8	14.2	9.1	13.3
Median, Q1-Q3	2	0-10	5	0-12

Table 2: GBS-Related HCRU, 12-months Post-Discharge	Commercial (N=1,933)		Medicare (N=364)	
	N	%	N	%
Any GBS-Related HCRU	1,513	78.3%	282	77.5%
Inpatient Hospitalization	319	16.5%	95	26.1%
Mean (SD) Visits	1.4	0.9	1.5	0.9
Emergency Department	71	3.7%	11	3.0%
Mean (SD) Visits	1.2	0.5	1.4	0.67
Outpatient Hospital Visit	813	42.1%	159	43.7%
Mean (SD) Visits	5.5	8.7	4.1	3.3
Outpatient Office Visit	1,265	65.4%	190	52.2%
Mean (SD) Visits	7.7	11.7	6.2	8.2
Outpatient Rehabilitation	707	36.6%	91	25.0%
Mean (SD) Visits	11.59	15.8	7.6	9.8
Home Health	525	27.2%	65	17.9%
Mean (SD) Visits	7.5	9.33	28.4	31.0
Any Rehabilitation	949	49.1%	160	44.0%
Outpatient	707	36.6%	91	25.0%
Inpatient (IRF)	562	29.1%	119	32.7%
Skilled Nursing Facility (SNF)	106	5.5%	73	20.1%
Long-Term Care Facility (LTCF)	76	3.9%	29	8.0%
Any IRF, SNF, or LTCF	652	33.7%	187	51.4%

Figure 2: Mean Direct Medical Costs of Index Hospitalization and 12-months Post-Discharge



- Mean direct medical costs are presented in Figure 2 and Table 3
- For the index GBS hospitalization, costs were \$77,096 (95% CI \$70,908 - \$83,647) and \$50,429 (95%CI \$44,154 - \$57,550) for commercial and Medicare patients, respectively
- In the 12-months following discharge, GBS-related direct medical costs were \$32,786 (95% CI \$27,894 - \$38,430) and \$62,322 (95%CI \$50,766 - \$74,239) for commercial and Medicare patients, respectively
- Total costs, inclusive of the index GBS hospitalization and care 12-months post discharge, are similar for patients with GBS in commercial and Medicare (Table 3)

Table 3: Mean Direct Medical costs (2025 US\$)	Commercial (N=1,933)		Medicare (N=364)	
	Mean	95% CI	Mean	95% CI
Index Hospitalizations	\$77,096	\$70,906 – \$83,647	\$50,429	\$44,154 – \$57,550
Medical Costs, 12-month follow-up period				
GBS-Related	\$32,786	\$27,894 – \$38,430	\$62,322	\$50,766 – \$74,239
All-Cause	\$67,822	\$60,239 – \$75,951	\$104,919	\$91,258 – \$118,462
Total Medical Costs (Index Hospitalizations and 12-month follow-up period)				
GBS-Related	\$109,883	\$100,619 – \$119,838	\$112,751	\$99,086 – \$126,978
All-Cause	\$144,918	\$133,030 – \$157,078	\$155,347	\$139,593 – \$170,825

Conclusions

- GBS-related and all-cause costs are roughly equivalent between commercially-insured and Medicare GBS patients over their index hospitalization and first year of follow-up
- Compared to commercial insurance, Medicare payments are lower during index hospitalization but higher post-discharge Elevated post-discharge costs for Medicare are driven by increased utilization of inpatient rehabilitation, skilled nursing, and long-term care facilities
- GBS places a significant clinical and economic burden on patients and payers, persisting well beyond the initial hospitalization
- The lasting impact on resource use and payer costs underscores a critical need for more effective treatment strategies

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