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Emergency department usage and patient characteristics for guttate psoriasis

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Introduction

Guttate psoriasis (GP) is a distinct and less common form of psoriasis. GP typically presents with acute generalized lesions and can sometime be chronically severe, which may prompt evaluation and management in the emergency care setting. Yet, little is known about the prevalence, demographics, and cost of emergency care for patients with GP in the United States (US).

Methods

The study used data from the 2015-2019 Nationwide Emergency Department Sample (NEDS) provided by the Healthcare Cost and Utilization Project (HCUP) from the Agency for Healthcare Research and Quality. NEDS includes a representative cross-sectional sample of 20% of US emergency departments each year. To ensure accuracy, NEDS provided sample weights that allow for representative estimates of emergency department visits across the United States. Patient privacy was protected by de-identifying all data, and compliance with HCUP's data use agreement was maintained by all parties accessing NEDS. Primary or secondary diagnoses of GP were identified using the International Classification of Disease-10-Clinical Modification code L40.4, which was validated in a previous study [Ref 1].

Result

- Overall, **142,715,425** unweighted emergency department visits (weighted: 612,084,148) were included in NEDS from 2015 to 2019.
- Of these, there were **1,292** (weighted: 5,637) emergency department visits with a diagnosis of GP, including 570 (weighted: 2,525) primary and 722 (weighted: 3,112) secondary diagnoses.
- Most cases occurred in adults (83%) compared to children (age <18 years; 17%).
- The prevalence of emergency department visits with a primary diagnosis of GP increased significantly from 2015 to 2017, then decreased to 2019 (Rao-Scott Chi-Square test, $P < 0.0001$) (Figure 1). The prevalence of a secondary diagnosis of GP increased significantly over the 5-year period ($P < 0.0001$).

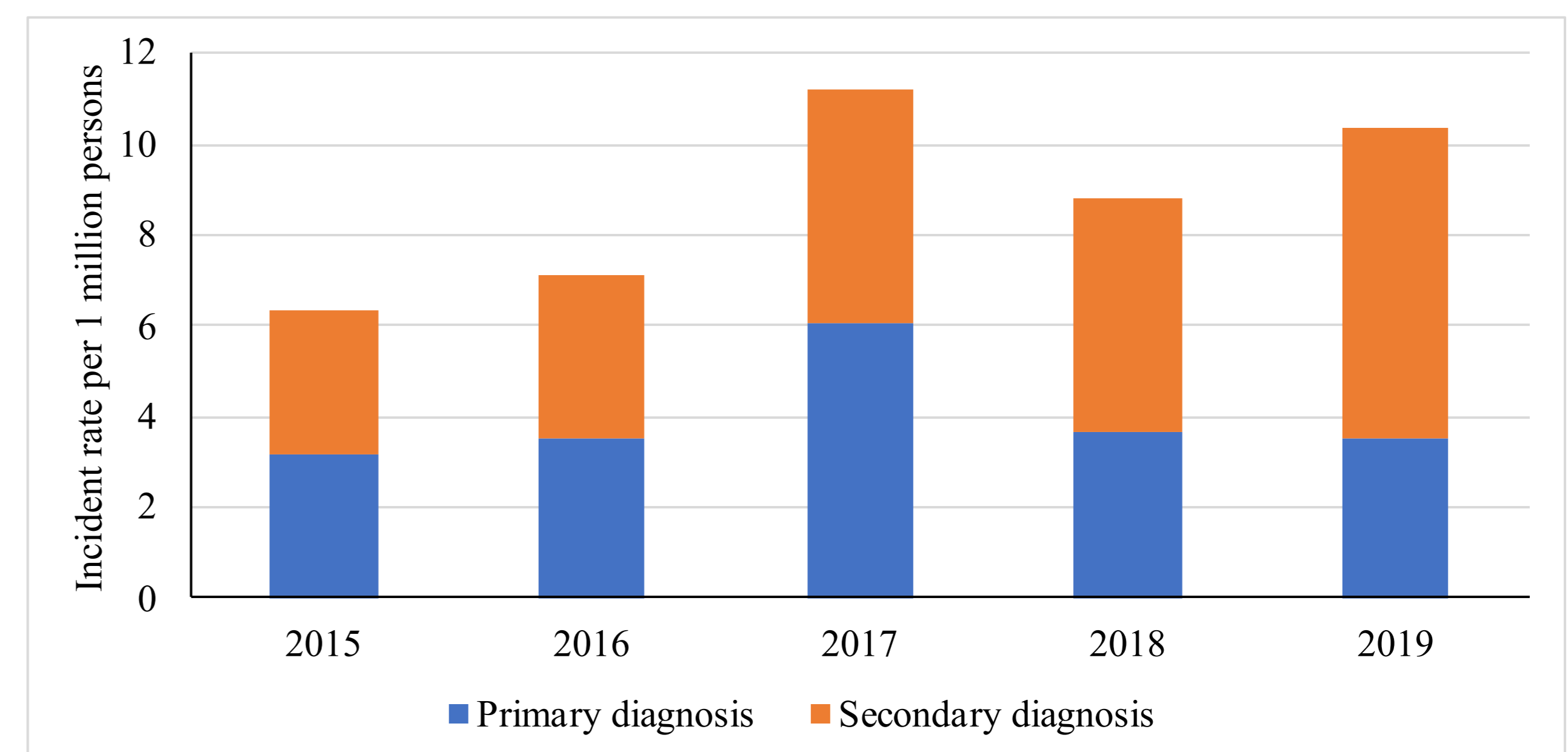


Figure 1. Yearly prevalence in patients with primary or secondary diagnosis of guttate psoriasis from 2015 to 2019.

Table 1. Demographics and socioeconomic characteristics of patients with a primary diagnosis of guttate psoriasis

Variable	Primary Diagnosis of Guttate Psoriasis				P value
	Yes		No		
	Weighted Frequency	Weighted Prevalence (95% CI)	Weighted Frequency	Weighted Prevalence (95% CI)	
Median Household Income					
Q1 (lowest)	745	29.99 [20.86-39.09]	212683515	35.35 [34.24-36.47]	0.01*
Q2	739	29.78 [25.47-34.08]	161698854	26.88 [26.04-27.72]	
Q3	729	29.34 [19.00-39.67]	128206970	21.31 [20.65-21.98]	
Q4 (highest)	271	10.90 [8.44-13.36]	98999412	16.46 [15.52-17.40]	
Season					
Winter	611	25.95 [17.68-34.22]	130421215	23.86 [23.72-24.00]	0.89
Spring	473	20.07 [13.45-26.69]	128059035	23.43 [23.30-23.56]	
Summer	595	25.27 [9.54-41.01]	129566729	23.70 [23.58-23.83]	
Fall	676	28.71 [24.23-33.19]	158565254	29.01 [28.65-29.37]	
Weekend Visit	499	19.75 [13.93-25.56]	169190059	27.64 [27.59-27.70]	0.0092*
Gender					
Male	1221	48.37 [44.10-52.65]	273547264	44.70 [44.53-44.86]	0.04*
Female	1303	51.63 [47.35-55.90]	338471958	55.30 [55.14-55.47]	
Disposition of the patient at discharge from ED					
Routine discharge	2417	95.72 [93.66-97.78]	512845028	83.79 [83.49-84.08]	<0.0001*
Admitted as inpatient	96	3.79 [1.89-5.69]	84445225	13.80 [13.54-14.06]	
Other	<10	0.48 [0-1.17]	14791370	2.42 [2.27-2.57]	
Insurance					
Public	1284	50.98 [46.61-55.35]	340586044	55.73 [55.15-56.31]	<0.0001*
Private	563	22.33 [18.83-25.84]	172477441	28.22 [27.72-28.72]	
No insurance	672	26.68 [22.75-30.62]	98068337	16.05 [15.60-16.50]	
Age Group (yrs)					
<18	427	16.90 [11.29-22.50]	117465345	19.19 [18.21-20.17]	0.06
18-39	1045	41.37 [32.22-50.52]	192407973	31.44 [31.00-31.87]	
40-59	647	25.62 [21.55-29.68]	146417402	23.92 [23.60-24.25]	
>60	407	16.11 [5.15-27.08]	155767374	25.45 [25.03-25.87]	
		Average (95CI%)		Average (95CI%)	
Total ED charge (average \$)	N/A	\$1,163 [839-1,488]	N/A	\$4,052 [3,944-4,163]	<0.0001*
Age (average yrs)	N/A	36.76 [30.90-42.62]	N/A	40.83 [40.38-41.28]	>0.05

- ED visits with vs. without a primary diagnosis of GP were associated with **lower median household income quartile** ($P=0.01$), **no insurance** ($P < 0.0001$), being **male** ($P=0.04$).
- Only **3.8%** of emergency department patients with GP were admitted as inpatients compared with 13.8% of patients without GP (Rao-Scott Chi-square, $P < 0.0001$).
- The geometric mean cost of ED care for patients with a primary diagnosis of GP was approximately one-fourth of the cost in patients without GP (\$1,163 vs. \$4,052). The total cost of ED care for patients with a primary diagnosis of GP was \$2,653,216 over the 5 year observation period. The excess cost of secondary GP compared to no GP is on average \$272 per patient.

Table 2. Top 20 primary diagnosis when guttate psoriasis is secondary diagnosis.

ICD10 Code	Diagnosis	Weighted Frequency	Weighted Percent (%)
A41.9	Sepsis, unspecified organism.	33.0	5.32
R21	Rash and other nonspecific skin eruption	17.7	2.86
R07.9	Chest pain, unspecified	16.0	2.57
N39.0	Urinary tract infection, site not specified	14.5	2.33
R55	yncope and collapse	12.7	2.04
R50.9	Fever, unspecified	12.5	2.01
L40.0	Psoriasis vulgaris	12.0	1.94
L03.116	Cellulitis of left lower limb	11.8	1.89
F10.239	Alcohol dependence with withdrawal, unspecified	11.1	1.79
J44.1	Chronic obstructive pulmonary disease with acute exacerbation, unspecified.	10.3	1.65
L40.1	Generalized pustular psoriasis	10.1	1.62
L03113	Cellulitis of right upper limb	10.0	1.61
M54.5	Low Back Pain	9.8	1.57
K50.012	Crohn's disease of small intestine with intestinal obstruction	9.7	1.57
T78.3XX A	Angioneurotic edema, initial encounter	8.9	1.43
A04.7	Enterocolitis due to Clostridium difficile	8.7	1.39
K85.2	Alcohol induced acute pancreatitis	8.6	1.39
J45.901	Unspecified asthma with (acute) exacerbation	8.3	1.34
F10.231	Alcohol dependence with withdrawal delirium	8.2	1.32
R51	Headache	7.6	1.23

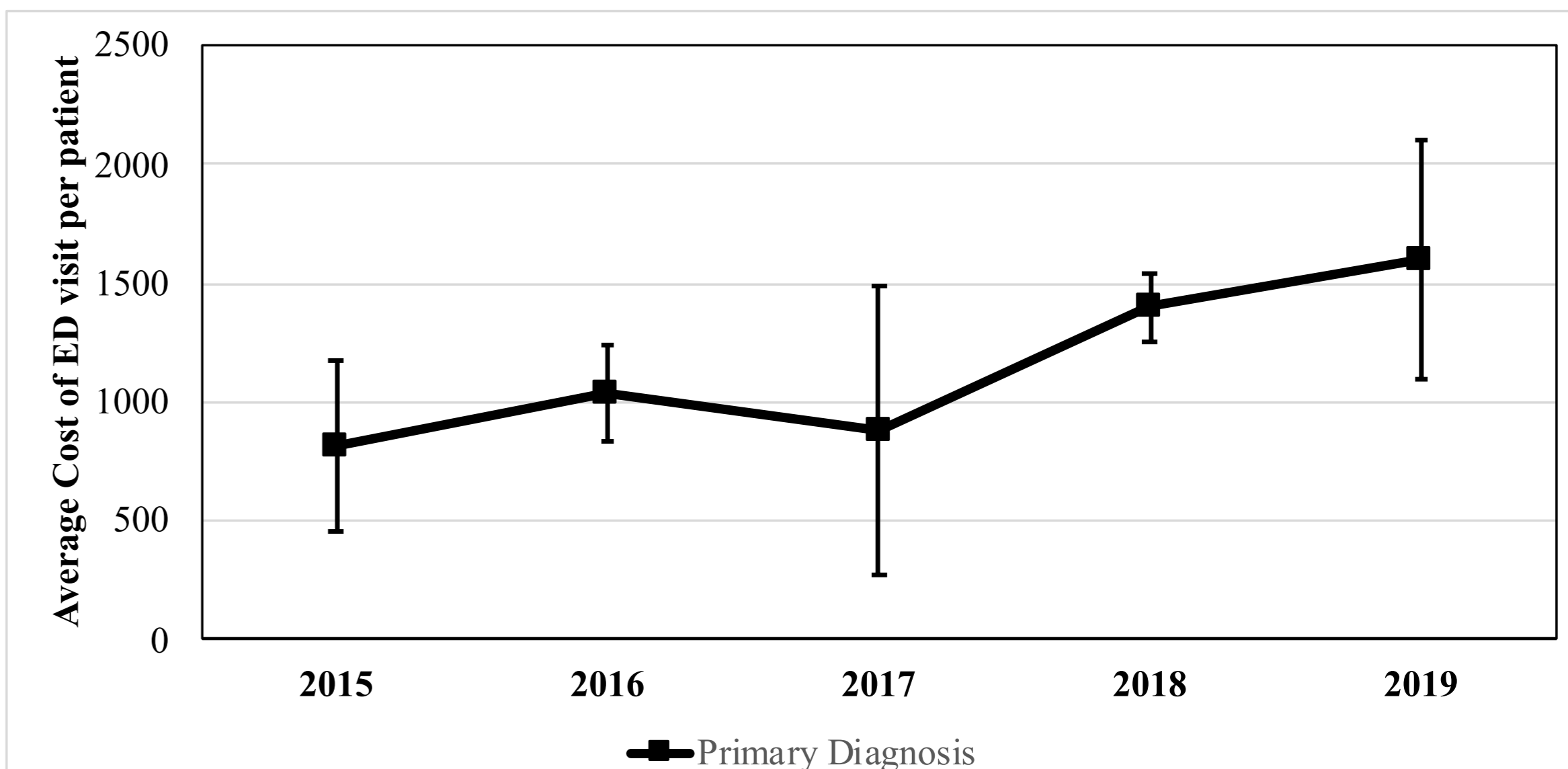


Figure 2. Average cost of ED visit in patients with primary diagnosis of guttate psoriasis from 2015 to 2019. Error bars indicate 95% confident interval.

Conclusion

- GP is a generally rare cause of emergency department visits in the United States, but still led to substantial and rising healthcare costs. Most cases of GP that presented to the emergency department did not result in inpatient hospitalization.

Reference:

1. Löfvendahl, S., Theander, E., Svensson, A., Carlsson, K. S., Englund, M., & Petersson, I. F. (2014). Validity of diagnostic codes and prevalence of physician-diagnosed psoriasis and psoriatic arthritis in southern Sweden—a population-based register study. *PLoS one*, 9(5), e98024.