

Prevalence and Incidence of Vitiligo in the United States: A Real-World Analysis

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BACKGROUND

- Vitiligo is an autoimmune disease characterized by areas of skin depigmentation.¹
- Depigmented skin lesions result from the immune system targeting melanocytes,^{2,3} cells responsible for skin pigmentation.
- Onset of the disease can occur at any age, although it is often in the mid-twenties⁴ and is associated with adverse psychosocial effects.^{5,6}
- Published data on the incidence of vitiligo are scant; estimates of point prevalence vary across published sources, with estimates of 0.05% (claims), 0.2% (population-based studies), and 1.8% (hospital-based studies).^{7,8}

OBJECTIVE

- Estimate the annual prevalence and incidence rates of vitiligo among the employer-sponsored insurance (ESI) population in the United States.

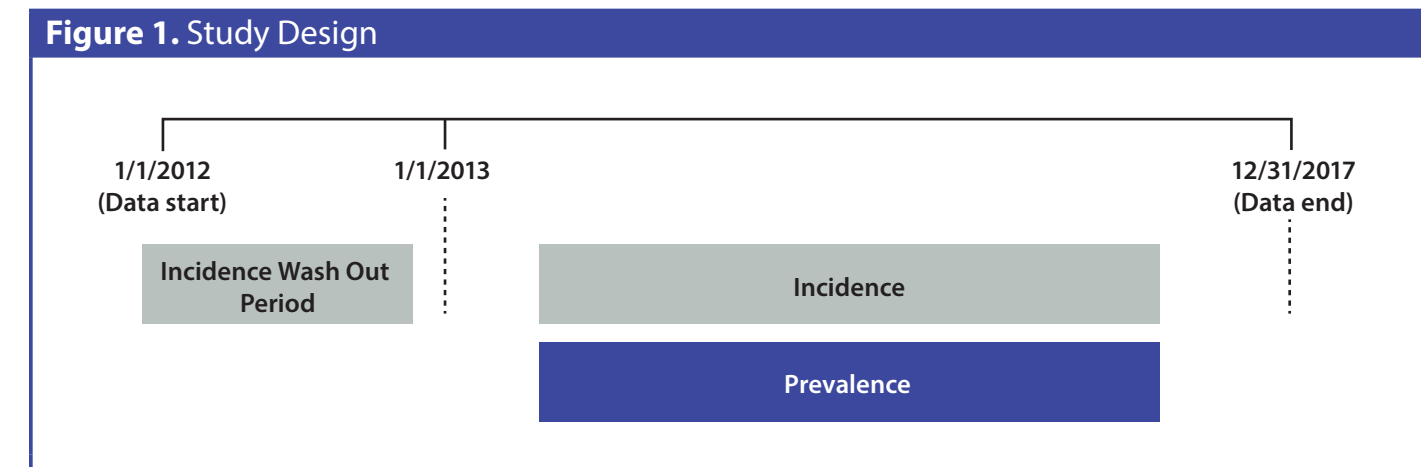
METHODS

Data Source

- This was a retrospective database study using the IBM MarketScan Commercial and Medicare Supplemental database, which contain fully adjudicated health plan claims.

Study Design and Sample Selection

- Vitiligo incidence and prevalence was calculated from January 1, 2013 through December 31, 2017 (Figure 1).



Prevalent cases

- Prevalent cases of vitiligo were identified as patients with ≥1 inpatient or outpatient claim for vitiligo (ICD-9/10-CM: 709.01, 374.53, L80, H02.731-H02.739) between 2013 and 2017. Continuous health enrollment was assessed annually and patients with vitiligo from prior calendar years were carried over to the current calendar year if enrollment criteria were met (Numerator).
- Prevalence was assessed among patients with continuous enrollment in each calendar year (Denominator).

Incidence cases

- Incident cases of vitiligo were identified as patients with ≥1 inpatient or outpatient claim for vitiligo between 2013 and 2017. Continuous health enrollment was assessed annually and patients had no evidence of vitiligo in the previous 12 months (Numerator).
- Incidence was assessed among patients with continuous enrollment in each calendar year without evidence of vitiligo in the previous 12 months (Denominator).

Annual estimates

- Annual estimates of prevalence and incidence were calculated for the total cohort and were stratified for adult (aged ≥18 years) and pediatric (aged <18 years) patients.

Sensitivity Analysis

- A sensitivity analysis for both prevalence and incidence was completed to account for potential misdiagnosis of vitiligo. Prevalent and incident cases of vitiligo were identified as patients with ≥1 inpatient or ≥2 outpatient claims for vitiligo ≥30 days apart or a claim for phototherapy ≤30 days from the first claim.
- The proportion of patients with their first diagnosing claim from a primary care provider or dermatologist was examined.
- The results were projected to the US national population covered by ESI using weights obtained from the MarketScan database.
- All statistical analyses were conducted using SAS v9.4 software.

RESULTS

Vitiligo Prevalence

- In 2017, there were approximately 107,612 vitiligo patients within the ESI US population (Table 1).
- Vitiligo prevalence increased from 0.009% to 0.076% within a span of 5 years (Table 2).
- When stratified by age, similar trends were seen for patients in the ≥18- and <18-years-old groups over the same 5-year span (2013–2017) (Figure 2).

Table 1. National Estimates of Vitiligo Prevalence Among Individuals With ESI in the USA

Prevalence Using National ESI Estimates, n	Year				
	2013	2014	2015	2016	2017
Numerator National Estimates for Each Year					
Vitiligo case patients: ≥1 inpatient claim or ≥1 outpatient claim during each calendar year	19,294	31,168	77,198	161,602	253,590
Patients meeting vitiligo definition (previous row) by each calendar year and continuously enrolled in a health plan during that year	11,239	16,091	51,048	98,697	107,612
Denominator National Estimates for Each Year					
Patients with continuous health plan enrollment in specific year	119,443,347	118,266,837	125,870,232	128,795,066	140,998,102

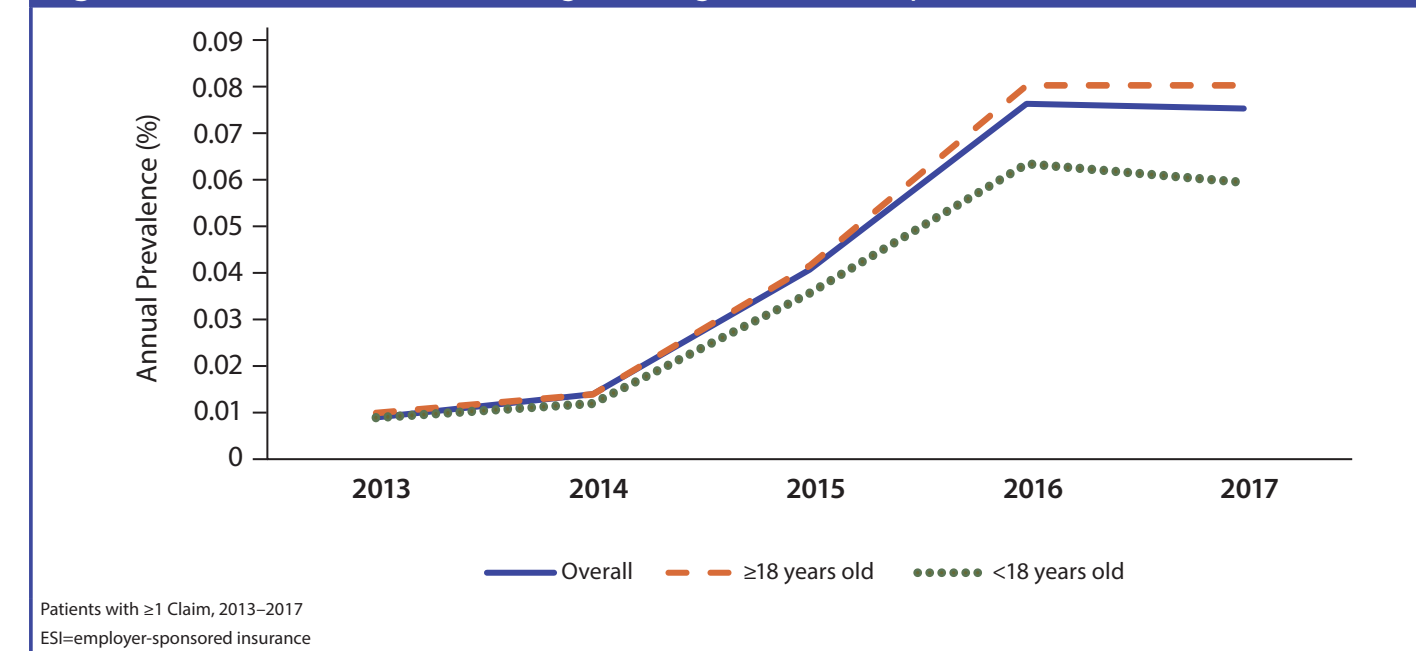
ESI=employer-sponsored insurance

Table 2. Annual Prevalence of Vitiligo Among Individuals With ESI in the USA

Annual Prevalence, %	Year				
	2013	2014	2015	2016	2017
Total (all ages)	0.009	0.014	0.041	0.077	0.076
Age ≥18 y	0.010	0.014	0.042	0.081	0.081
Age <18 y	0.009	0.012	0.036	0.064	0.060

ESI=employer-sponsored insurance

Figure 2. Annual Prevalence of Vitiligo Among the ESI US Population



Vitiligo Incidence

- In 2017, there were approximately 85,821 newly diagnosed cases of vitiligo within the ESI US population (Table 3).
- Vitiligo incidence increased from 0.007% to 0.061% over the 5-year time frame (2013–2017) (Table 4).
- Nearly 50% of the first vitiligo diagnosis claims were initiated by a dermatologist (Table 4).
- When stratified by age, those aged ≥18 years and <18 years had similar incidence trends when compared with the total cohort (Figure 3).

Table 3. National Estimates of Vitiligo Incidence Among Individuals With ESI in the USA

Incidence Using National ESI Estimates, n	Year				
	2013	2014	2015	2016	2017
Numerator National Estimates for Each Year					
Vitiligo case patients: ≥1 inpatient claim or ≥1 outpatient claim during each calendar year	13,935	19,487	58,949	120,713	131,947
Patients meeting vitiligo definition (previous row) by each calendar year and continuously enrolled in a health plan during that year	11,239	16,091	51,048	98,697	107,612
No evidence of diagnosis of vitiligo (ICD 9/10 code) in the 12-month prior period	8,319	11,896	39,940	78,834	85,821
Denominator National Estimates for Each Year					
Patients with continuous health plan enrollment in specific year without evidence of vitiligo diagnosis in the prior calendar year	119,434,412	118,255,211	125,842,664	127,844,265	140,901,558

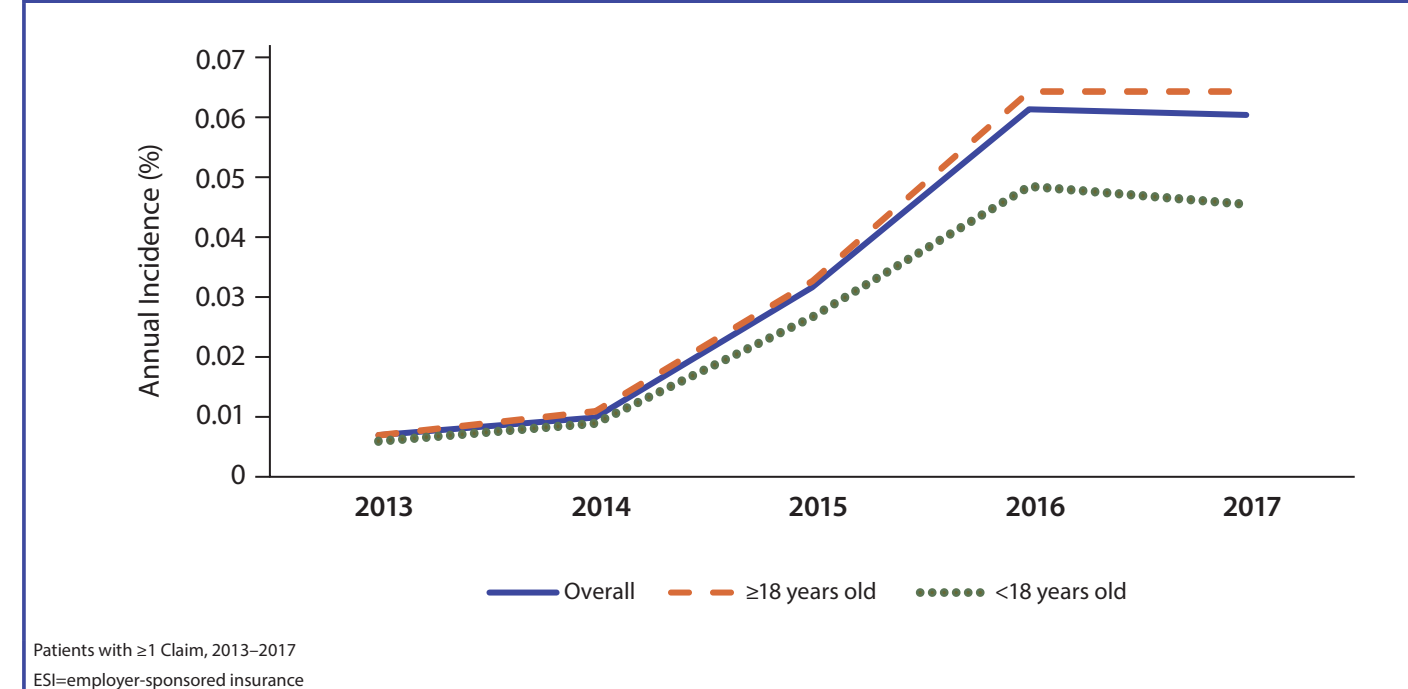
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Table 4. Annual Incidence and Source of First Vitiligo Diagnosis Among Individuals With ESI in the USA

Annual incidence, %	Year				
	2013	2014	2015	2016	2017
Total (all ages)	0.007	0.010	0.032	0.062	0.061
Age ≥18 y	0.007	0.011	0.033	0.065	0.065
Age <18 y	0.006	0.009	0.027	0.049	0.046
Prescriber initiating first vitiligo claim, %					
First diagnosis from dermatologist (all ages)	51	51	48	49	49
First diagnosis from primary care physician (all ages)	9	10	10	12	12

ESI=employer-sponsored insurance

Figure 3. Annual Incidence of Vitiligo Among the ESI US Population



Sensitivity Analysis

- Sensitivity results were consistent in terms of trends over time, demonstrating an increase in both prevalence and incidence rates for the total cohort as well as in the subgroup populations (≥18 and <18 years old) (Tables 5, 6).

Table 5. Annual Prevalence of Vitiligo (Utilizing Restricted Criteria) Among Individuals With ESI in the USA

Annual Prevalence, %	Year				
	2013	2014	2015	2016	2017
Total (all ages)	0.0036	0.0053	0.0150	0.0220	0.0226
Age ≥18 y	0.0035	0.0050	0.0145	0.0221	0.0231
Age <18 y	0.0039	0.0060	0.0166	0.0220	0.0211

ESI=employer-sponsored insurance

Table 6. Annual Incidence of Vitiligo (Utilizing Restricted Criteria) Among Individuals With ESI in the USA

Annual Incidence, %	Year				
	2013	2014	2015	2016	2017
Total (all ages)	0.0020	0.0030	0.0092	0.0136	0.0145
Age ≥18 y	0.0019	0.0028	0.0089	0.0137	0.0148
Age <18 y	0.0022	0.0035	0.0104	0.0133	0.0135

ESI=employer-sponsored insurance

Limitations

- This was a retrospective observational study; consequently, the data may be subject to selection bias and confounding.
- Claims data are collected for the purpose of payment and may have certain inherent limitations for research.
- This study may underestimate the real-world prevalence and incidence of vitiligo due to minimal or absent healthcare-seeking behavior for some vitiligo patients.
- The data are limited to patients included in the ESI US population. Therefore, results may not be generalizable to different patient populations, such as government, state, and/or uninsured patient populations.
- There is the potential for inaccurate classification of diagnosis when utilizing data obtained from a single insurance claim; however, trends were consistent in sensitivity analyses.
- The study includes a wash-out period of 12 months with no diagnosis for incident cases, but it is possible that some of the cases identified may have had a claim that pre-dated the observation period.

CONCLUSIONS

- Annual vitiligo prevalence estimates are within range of previous reports for claims data.⁷
- In 2017, there were ~107,612 patients with vitiligo and nearly 85,821 newly diagnosed cases within the ESI US population.
- Both annual vitiligo prevalence and incidence increased >5-fold in the 5-year period between 2013 and 2017. This exponential increase in vitiligo warrants further investigation.

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DISCLOSURES

Kavita Gandhi and Markqayne Ray are employees of and own stock in Pfizer. Keshia Maughn, Ila Sruti, and Lang Xu are employed by STATinMED Research, which received payment from Pfizer for participation in this research. Amit Pandya has served as an investigator for Aclaris Therapeutics, Incyte Corporation, and Pfizer; consultant for Avita Medical, Immune Tolerance Network, Incyte Corporation, Pfizer, Villarix, and Viela Bio; and holds stock options for Clarify Medical and Tara Medical.

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