

Supplementary Table 1. Psoriasis Patient Characteristics^a

Characteristic	Number (%) N=4,096
Age, mean (SD)	70.2 (12.2)
Age (category)	
<65	804 (19.6)
65–69	898 (21.9)
70–74	904 (22.1)
75–79	659 (16.1)
≥80	831 (20.3)
Sex, male	1,720 (42.0)
Race	
White	3,688 (90.0)
Black	185 (4.5)
Latino	66 (1.6)
Other/Unknown	157 (3.8)
Census Region	
Northeast	923 (22.5)
Midwest	945 (23.1)
South	1,523 (37.2)
West	688 (16.8)
County-Level Characteristics	
Income, per capita/10,000, mean (SD)	4.1 (1.3)
County poverty rate, ^b mean (SD)	15.1 (5.1)
Residence in Urban County	3355 (82.4)
Residence in County with Low Educational Level ^c	452 (11.1)
Number of primary care providers ^d per 10,000 residents, mean (SD)	6.5 (3.0)
Number of dermatologists per 100,000 residents, mean (SD)	4.0 (3.7)
Medicare eligibility	
Aged	2,952 (72.1)
Disabled	804 (19.6)
Aged plus disabled	340 (8.3)
Low-income subsidy (LIS) status	
Full	1,207 (29.5)
Partial	36 (0.88)
None	2,821 (68.9)
Mixed	32 (0.78)
Comorbidities	
AIDS/HIV	12 (0.29)
Autoimmune disease	
Ankylosing spondylitis	60 (1.5)
Inflammatory bowel disease	44 (1.1)
Rheumatoid arthritis	175 (4.3)

Rheumatologic disease	246 (6.0)
Cardiometabolic disease	
Cerebrovascular disease	370 (9.0)
Congestive heart failure	373 (9.1)
Diabetes	1,285 (31.4)
Dyslipidemia	2,571 (62.8)
Hypertension	2,707 (66.1)
Myocardial infarction	103 (2.5)
Obesity	262 (6.4)
Peripheral vascular disease	517 (12.6)
Atherosclerotic outcomes (aggregate of cerebrovascular disease, myocardial infarction, and peripheral vascular disease)	852 (20.8)
Hemiplegia or paraplegia	38 (0.93)
Liver disease	
Mild liver disease	165 (4.0)
Moderate to severe liver disease	18 (0.44)
Malignant disease	
Cancer	519 (12.7)
Metastatic solid tumor	26 (0.63)
Neuropsychiatric disease	
Dementia	64 (1.6)
Depression	524 (12.8)
Peptic ulcer disease	39 (1.0)
Psoriatic arthritis	255 (6.2)
Pulmonary disease, chronic	816 (19.9)
Renal disease	346 (8.4)
Non-Psoriasis Medications	
Number of 30-day supply equivalent prescriptions for non-psoriasis medications, mean (SD)	4.5 (3.3)
Type of Medicare Part D Plan^e	
Basic	2,923 (71.4)
Enhanced Alternative	862 (21.0)
Unknown	311 (7.6)
RxHCC score, mean (SD)	0.89 (0.54)

AIDS, acquired immune deficiency syndrome; HIV, human immunodeficiency virus; LIS, low-income subsidy; RxHCC, prescription drug hierarchical condition category risk score; SD, standard deviation.

^aPsoriasis is defined by at least one inpatient or outpatient claim for psoriasis (ICD-9-CM 696.1) by a dermatologist.

^bCounty poverty rate is defined as the percentage of persons in the county living in poverty.

^cCounty with low educational level is defined by at least 25% of residents not having a high school diploma or general educational development (GED) in the patient's county of residence.

^dPrimary care providers included medical providers practicing in the fields of general family medicine, general practice, and general internal medicine.

^eBasic plans include defined standard benefit, actuarially equivalent standard, and basic alternative type of Part D plans. Enhanced plans include enhanced alternative type of Part D plans.

Supplementary Table 2. Psoriasis Therapy Prevalence^a

Therapy	Number (%)^b N=4,096
<i>Topicals^c</i>	3,325 (81.2)
Corticosteroids	3,277 (80.0)
Class I	1,867 (45.6)
Non-Class I	2,477 (60.5)
Calcineurin inhibitors	107 (2.6)
Vitamin D analogs	556 (13.6)
Retinoids	22 (0.54)
<i>Phototherapy</i>	316 (7.7)
Psoralen plus Ultraviolet A	35 (0.85)
<i>Excimer laser</i>	127 (3.1)
<i>Oral systemics</i>	468 (11.4)
Methotrexate	384 (9.4)
Cyclosporine	21 (0.51)
Acitretin	80 (2.0)
<i>Biologics^d</i>	351 (8.6)
Part B (physician-administered)	100 (2.4)
Infliximab	65 (1.6)
Ustekinumab	33 (0.81)
Part D (self-injectables)	286 (7.0)
Adalimumab	126 (3.1)
Etanercept	160 (3.9)

^aPsoriasis is defined by at least one inpatient or outpatient claim for psoriasis (ICD-9-CM 696.1) by a dermatologist.

^bPercentages do not equal 100 because patients may have received more than one therapy.

^cCoal tar/anthralin and salicylic acid use were each examined but not reported separately per CMS data use agreement due to cell size of 10 or less.

^dAlefacept was examined but not reported separately per CMS data use agreement due to cell size of 10 or less.

Supplementary Table 3. Psoriasis Severity

Severity Defined by Therapy	Number (%)^a N = 4,096
Mild (n=3,029; 74.0%)	
No therapy	553 (18.3) ^b
Topicals only	2,476 (81.7) ^b
Moderate to Severe^c (n=981; 24.0%)	
Phototherapy	316 (32.2) ^d
Oral Systemics	468 (47.7) ^d
Methotrexate	384 (39.1) ^d
Cyclosporine	21 (2.1) ^d
Acitretin	80 (8.2) ^d
Biologics	351 (35.8) ^d
Adalimumab	126 (12.8) ^d
Etanercept	160 (16.3) ^d
Infliximab	65 (6.6) ^d
Ustekinumab	33 (3.4) ^d
Unknown (n=86; 2.1%)	

^aPercentages do not equal 100 because patients may have received more than one therapy.

^bPercentages are calculated amongst those with mild psoriasis.

^cAlefacept was included as a biologic therapy to identify moderate to severe psoriasis but not reported separately per CMS data use agreement due to cell size of 10 or less.

^dPercentages are calculated amongst those with moderate to severe psoriasis.

Supplementary Table 4. Factors Associated with Biologic Use Among Patients Receiving Therapy Indicated for Moderate to Severe Psoriasis^a

Characteristic	Adjusted Odds Ratio ^b	95% Confidence Interval
<i>Factors Associated with Greater Odds of Biologic Use</i>		
Dermatology Provider Density	1.08	1.01-1.17
Inflammatory Bowel Disease ^c	12.1	2.26-64.8
Psoriatic Arthritis ^c	4.00	2.73–5.87
<i>Factors Associated with Lower Odds of Biologic Use</i>		
Primary Care Provider Density	0.90	0.84-0.97
Absence of Part D Low-Income Subsidy ^d	0.27	0.16–0.44
Black ^e	0.30	0.15–0.63
Cancer ^c	0.45	0.27–0.74
Dementia ^c	0.09	0.01-0.55

^aModerate to severe psoriasis is identified by receipt of either phototherapy, oral systemic or biologic.

^bBased on multivariable logistic regression model including the following covariates: age, sex, race, census region of residence, county-level per-capita income, county-level poverty rate, county-level urban versus rural status, county-level low educational level, density of dermatologists and adult primary care providers per number of residents in the patient's county of residence, part D plan type, low-income subsidy status, number of non-psoriasis medications, RxHCC score, and comorbid disease status including all components of Charlson comorbidity index, autoimmune diseases for which biologic therapies are indicated, cardiovascular risk factors, and aggregate of atherosclerotic outcomes.

^cReference group for each comorbidity is absence of comorbidity.

^dReference group is full Part D low-income subsidy recipients.

^eReference group is non-Latino Caucasian.