

Economic burden and healthcare resource utilization in patients with prurigo nodularis in the United States

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Objectives

Prurigo nodularis (PN) is a chronic dermatosis characterized by severely pruritic nodules. In addition to PN’s significant impact on quality of life, many patients are recalcitrant to therapy with no FDA-approved therapies to date. Despite this, little is known about real-world healthcare resource utilization and economic burden in prurigo nodularis in the US.



Methods

IBM’s MarketScan Commercial Claims database was analyzed between October 2015 and December 2016. ICD-10-CM codes were used to identify patients age 18-64 years with PN and 3 additional cohorts without PN: age and sex-matched controls, atopic dermatitis, and psoriasis. Relative cost ratios were calculated generalized linear models with log link and gamma distribution. Incidence rate ratios were calculated using negative binomial regression.

**Financial Disclosures**  
Dr. Shawn G. Kwatra is on the advisory board and serves as a consultant for Menlo Therapeutics, Pfizer Inc., and Regeneron Pharmaceuticals, and has received grant funding from Kiniksa Pharmaceuticals. Dr. Chavda and Dr. Gabriel are employees of Galderma. The other authors have no disclosures.

Results

Table 1. Relative cost ratios of healthcare utilization of prurigo nodularis relative to comparison groups

| Setting      | Comparison group                       |         |                                          |         |                     |         |                                 |         |                     |         |
|--------------|----------------------------------------|---------|------------------------------------------|---------|---------------------|---------|---------------------------------|---------|---------------------|---------|
|              | Reference: Matched controls (N=16,595) |         | Reference: Atopic dermatitis (N= 23,915) |         |                     |         | Reference: Psoriasis (N=39,346) |         |                     |         |
|              | Cost ratio                             | p-value | Unadjusted cost ratio                    | p-value | Adjusted cost ratio | p-value | Unadjusted cost ratio           | p-value | Adjusted cost ratio | p-value |
| Inpatient    | 1.28                                   | 0.026   | 1.35                                     | 0.009   | 1.05                | 0.703   | 0.75                            | 0.008   | 0.69                | 0.001   |
| ED           | 0.94                                   | 0.427   | 0.90                                     | 0.111   | 0.95                | 0.426   | 0.78                            | <0.001  | 0.79                | <0.001  |
| Outpatient   | 1.67                                   | <0.001  | 1.39                                     | <0.001  | 1.17                | 0.001   | 0.85                            | <0.001  | 0.76                | <0.001  |
| Pharmacy/Lab | 2.70                                   | <0.001  | 1.05                                     | 0.515   | 0.96                | 0.558   | 0.70                            | 0.001   | 0.65                | <0.001  |
| Total        | 1.52                                   | <0.001  | 1.32                                     | <0.001  | 1.10                | 0.030   | 0.81                            | <0.001  | 0.74                | 0.001   |

Table 2. Relative incidence rates of being seen by provider type

| Provider type                 | Incidence rate ratio (IRR) in patients with prurigo nodularis (N=7,095), (95% CI) |                                          |                       |                                 |                       |
|-------------------------------|-----------------------------------------------------------------------------------|------------------------------------------|-----------------------|---------------------------------|-----------------------|
|                               | Reference: Matched controls (N=16,595)                                            | Reference: Atopic dermatitis (N= 23,882) |                       | Reference: Psoriasis (N=39,283) |                       |
|                               | IRR (95% CI)                                                                      | Unadjusted IRR (95% CI)                  | Adjusted IRR (95% CI) | Unadjusted IRR (95% CI)         | Adjusted IRR (95% CI) |
| Dermatology                   | 31.9 (29.3, 34.7)                                                                 | 1.89 (1.81, 1.99)                        | 5.78 (5.38, 6.22)     | 1.67 (1.59, 1.75)               | 5.69 (5.30, 6.10)     |
| Internal/family medicine      | 1.09 (1.02, 1.16)                                                                 | 0.97 (0.93, 1.01)                        | 0.76 (0.72, 0.81)     | 0.86 (0.83, 0.89)               | 0.62 (0.58, 0.65)     |
| Physical therapy/chiropractor | 1.10 (1.01, 1.20)                                                                 | 1.19 (1.02, 1.39)                        | 1.10 (1.01, 1.19)     | 1.19 (1.03, 1.38)               | 1.06 (0.98, 1.14)     |
| Cardiology                    | 1.18 (1.07, 1.29)                                                                 | 1.79 (1.58, 2.04)                        | 1.18 (1.08, 1.28)     | 1.19 (1.06, 1.34)               | 0.97 (0.90, 1.05)     |
| Gastroenterology              | 1.08 (0.98, 1.19)                                                                 | 1.45 (1.28, 1.63)                        | 1.12 (1.03, 1.22)     | 0.98 (0.87, 1.10)               | 0.97 (0.89, 1.05)     |
| Psychiatry                    | 2.03 (1.79, 2.32)                                                                 | 1.18 (0.95, 1.45)                        | 1.73 (1.55, 1.92)     | 1.21 (0.99, 1.48)               | 1.45 (1.31, 1.60)     |
| Endocrine                     | 1.64 (1.42, 1.89)                                                                 | 1.62 (1.30, 2.03)                        | 1.49 (1.32, 1.69)     | 1.28 (1.04, 1.59)               | 1.28 (1.15, 1.44)     |
| Allergy and immunology        | 2.07 (1.73, 2.48)                                                                 | 0.22 (0.18, 0.26)                        | 0.23 (0.20, 0.26)     | 1.65 (1.39, 1.96)               | 1.56 (1.36, 1.78)     |
| Rheumatology                  | 1.82 (1.51, 2.18)                                                                 | 1.44 (1.25, 1.66)                        | 1.36 (1.17, 1.57)     | 0.14 (0.12, 0.16)               | 0.15 (0.13, 0.17)     |
| Oncology                      | 1.24 (1.00, 1.53)                                                                 | 1.47 (1.00, 2.14)                        | 1.20 (1.00, 1.45)     | 0.78 (0.54, 1.12)               | 0.98 (0.83, 1.16)     |
| Pain                          | 1.38 (0.91, 2.07)                                                                 | 2.35 (1.54, 3.60)                        | 2.05 (1.67, 2.52)     | 1.58 (1.05, 2.37)               | 1.36 (1.14, 1.61)     |
| Nephrology                    | 1.62 (1.23, 2.12)                                                                 | 3.13 (1.98, 4.97)                        | 1.64 (1.29, 2.09)     | 2.61 (1.68, 4.04)               | 1.24 (1.01, 1.52)     |
| Hematology                    | 1.26 (0.98, 1.63)                                                                 | 1.26 (0.82, 1.95)                        | 1.20 (0.96, 1.51)     | 0.85 (0.56, 1.28)               | 0.94 (0.77, 1.15)     |
| Infectious diseases           | 1.85 (1.35, 2.55)                                                                 | 1.90 (1.23, 2.95)                        | 1.17 (0.90, 1.51)     | 0.71 (0.47, 1.07)               | 0.83 (0.65, 1.04)     |
| Critical care medicine        | 1.26 (0.71, 2.25)                                                                 | 1.67 (0.80, 3.47)                        | 1.26 (0.76, 2.08)     | 1.10 (0.55, 2.20)               | 0.94 (0.60, 1.46)     |

Conclusion

Prurigo nodularis is a chronic dermatosis with significant economic burden, incurring significantly higher overall healthcare costs compared to age and sex-matched controls. Furthermore, patients with PN more often require specialist care by dermatology and psychiatry. Optimizing clinical management of these patients may help mitigate the economic burden of PN and its impact on quality of life.

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