

Clinical and Economic Burden among Patients with Prurigo Nodularis compared to A Benchmark in Germany: A Real-World-Evidence Claims Data Study

Sonja Ständer¹, Miriam Ketz², Nils Kossack³, Marc Pignot⁴, Rajeev Chavda⁵, Sylvie Gabriel⁵

¹Department of Dermatology, Center for Chronic Pruritus, University Hospital of Münster, Münster, Germany, ²DtoD - Data to Decision - Corp., Hamburg, Germany
³WIG2 Ltd. - Scientific Institute for Health Economics and Health System Research, Leipzig, Germany, ⁴ZEG - Berlin Center for Epidemiology and Health Research Ltd., Berlin, Germany, ⁵Galderma S.A., Zug, Switzerland

BACKGROUND

- Prurigo Nodularis (PN): a severe subtype of chronic Prurigo with increased clinical and systemic burden compared to other chronic inflammatory skin disorders. ⁽¹⁻⁵⁾
- Real-world-evidence data of PN are lacking; this is one of the first analyses detailing clinical and therapeutical longitudinal outcomes of PN & assessing the related economic effects on the healthcare system in Germany. ⁽⁶⁾

OBJECTIVES

- Describing demographic characteristics, disease & economic burden of PN.
- Understanding settings of care & healthcare resource utilization (HRU) of PN patients.
- Analyzing treatment rates & pathways for PN patients.
- Comparing these real-world results to a Benchmark (BM) population without PN.

METHODS

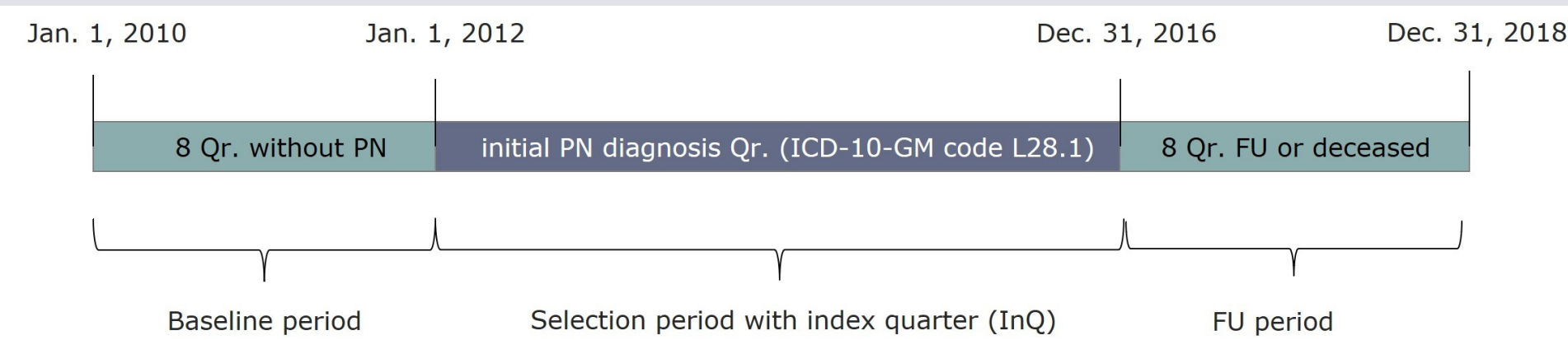
PN Cohort

Retrospective, longitudinal German sickness funds (claims) data (2010-2018; n=4,536,002) were analyzed with the following inclusion criteria: 1 index quarter (InQ) of initial PN diagnosis, 8 quarters without PN before InQ (baseline) and 8 quarters of follow-up (FU) (**Fig. 1**). ⁽⁷⁾

BM Cohort

Calculated via direct standardization and 1:1 matching to PN cohort regarding age, sex, and index year except for interesting PN factor (no ICD-10-GM code L28 and L29 ("Pruritus") at baseline, InQ, and FU).

Fig. 1: Study Design & PN Cohort Selection



RESULTS

Patient Counts & Demographics

- In total 2,309 incident PN patients (PN Cohort) were identified & matched to the BM cohort (n = 2,309) out of 3,018,382 individuals without PN.
- PN Cohort consisted of significantly more women than men (54.48% vs. 45.52%; p<0.001).
- Newly diagnosed PN patients were mainly between 45 and 80 years; 20% of them were <45 years.

Disease & Economic Burden

- In InQ, most frequent comorbidities for PN and BM Cohort were identified in "hypertension" (51.06% vs. 39.91%) followed by "disorder of the lipoprotein metabolism" (31.75% vs. 24.04%) and "dorsalgia" (27.41% vs. 18.83%).
- Significant higher morbidity rates were reported for PN in 15 (InQ) and 17 (FU) out of top 20 comorbidities in contrast to BM (p<0.001). Comparing FU and InQ, prevalence rates were higher for FU in both cohorts.
- Selected "dermatitis relevant comorbidities", "depression", and "anxiety" occurred significantly more often for initial PN versus BM (p<0.001).
- Comparing FU and InQ for PN, prevalence rate of "other dermatologic diseases" nearly stayed consistently high; twice as many PN patients developed each other special condition (except HIV) within FU. For BM, prevalence rates raised from InQ to FU (**Fig. 2+3**).
- Mean initial costs (out-, inpatient, drugs) were at least two-fold higher in PN versus BM Cohort.
- In FU, an increase of >70% mean PN costs compared to BM was identified (**Fig. 4**).

Fig. 4: Mean Costs (InQ + FU)

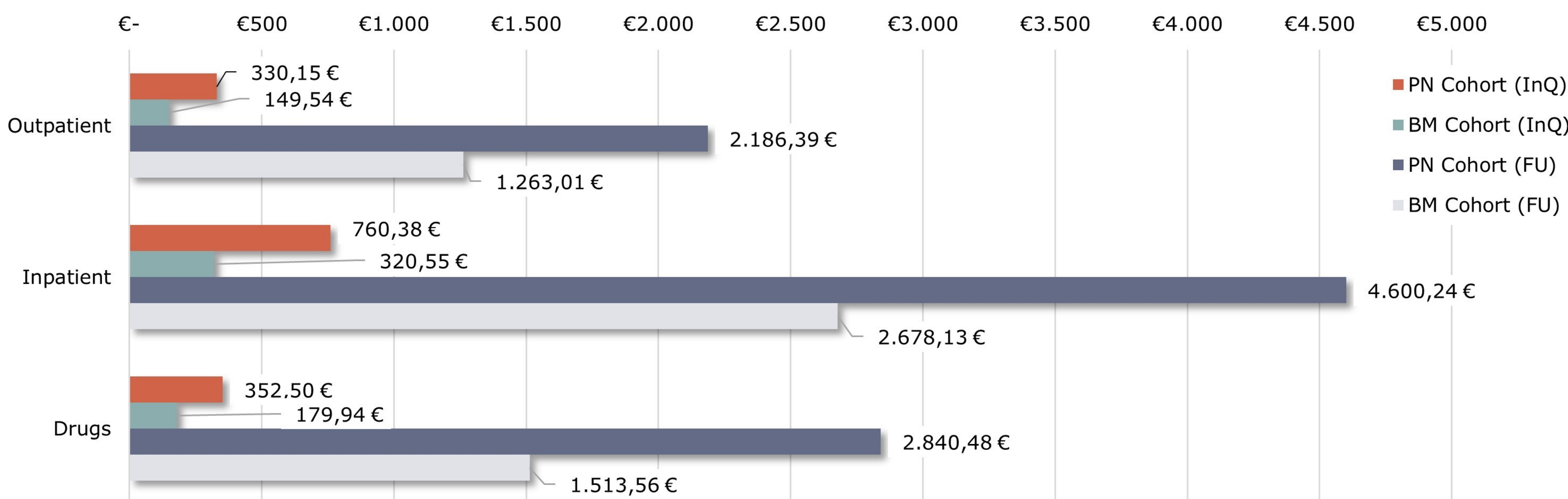


Fig. 2: Prevalence Rates - Special Conditions (InQ)

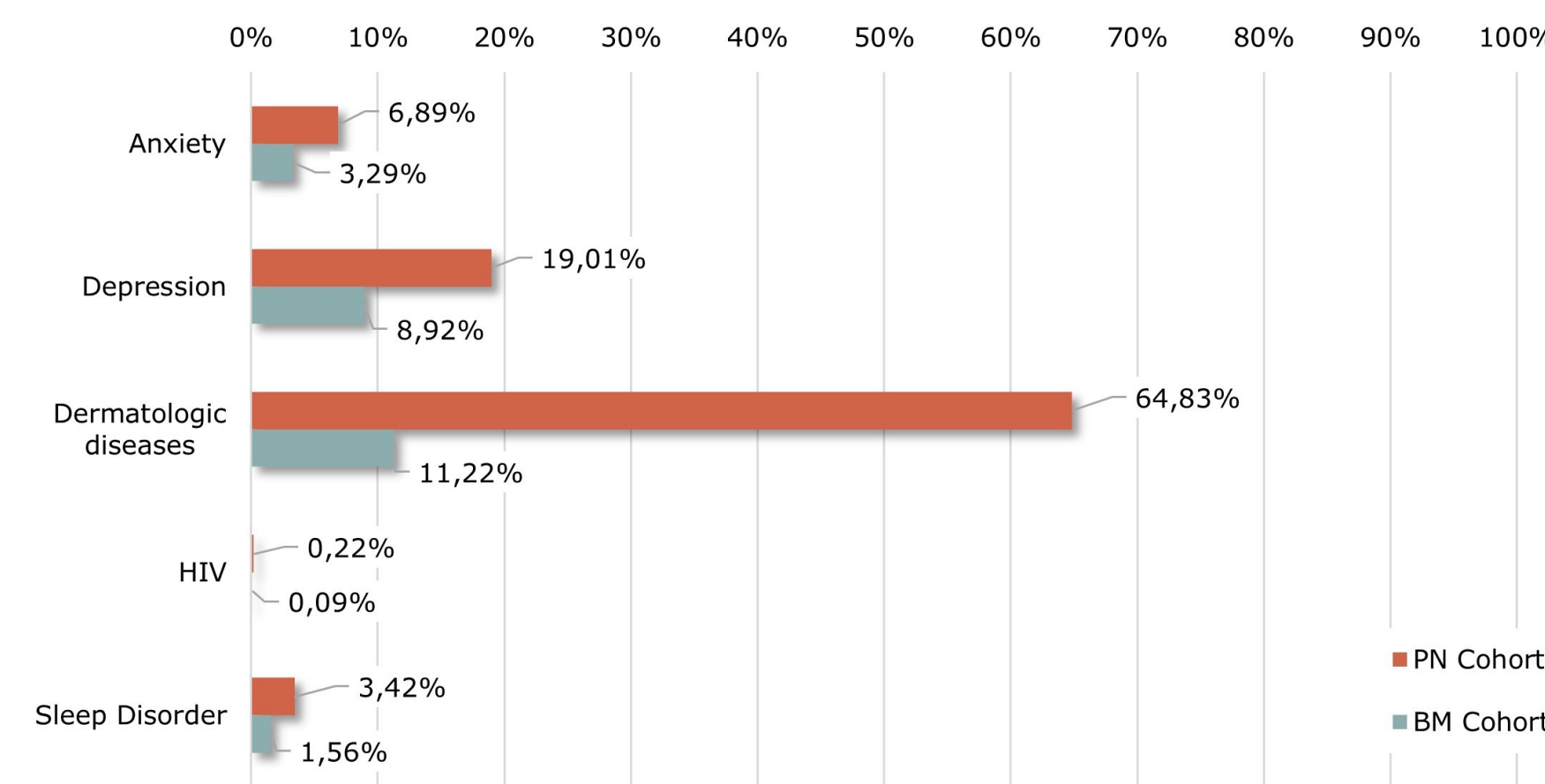


Fig. 3: Prevalence Rates - Special Conditions (FU)

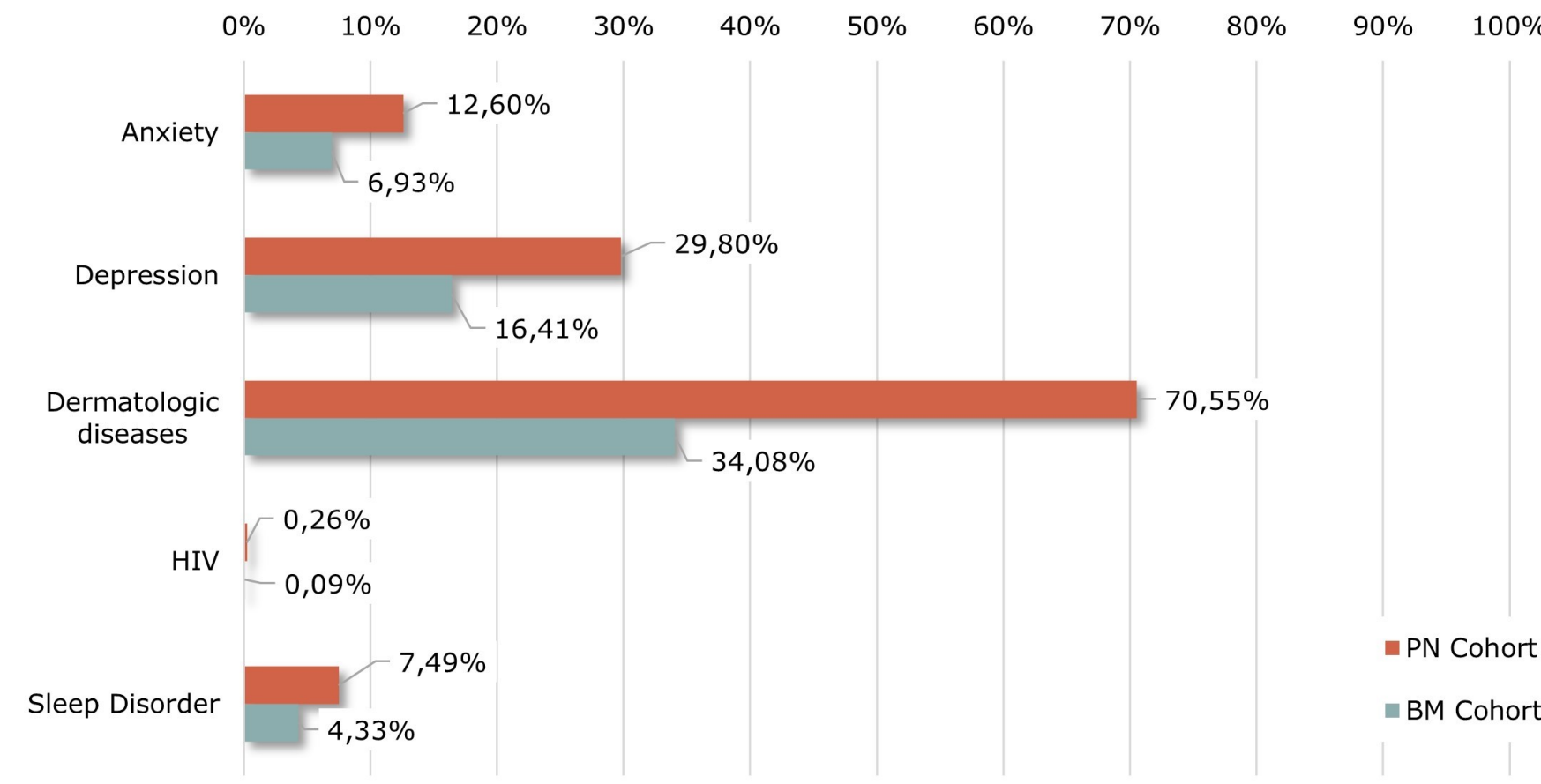


Fig. 5: Outpatient Speciality Rates (InQ + FU)

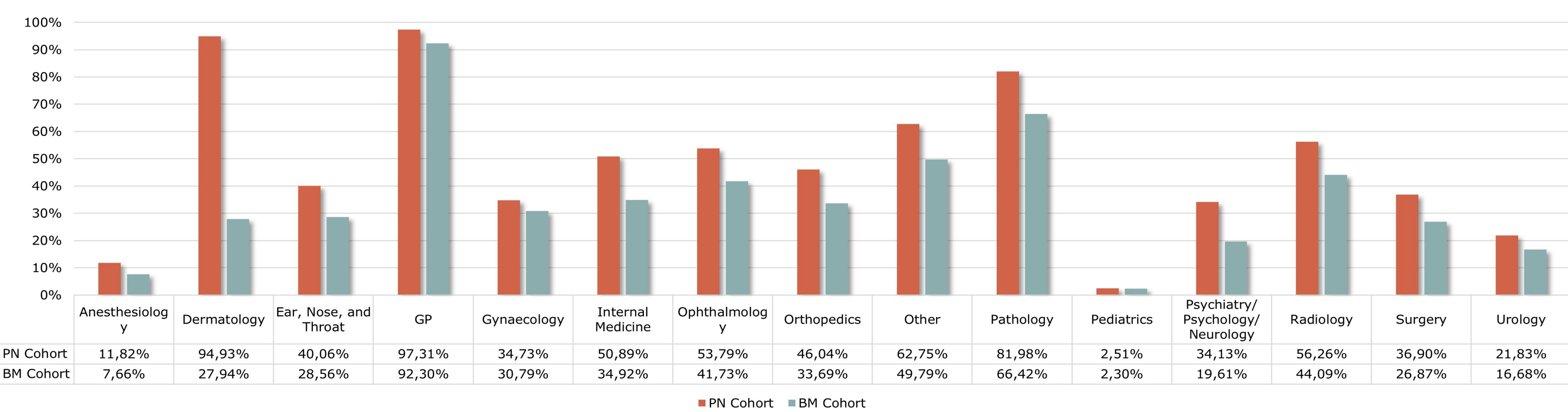


Fig. 6: Treatment Prevalence - PN Cohort (InQ + FU)

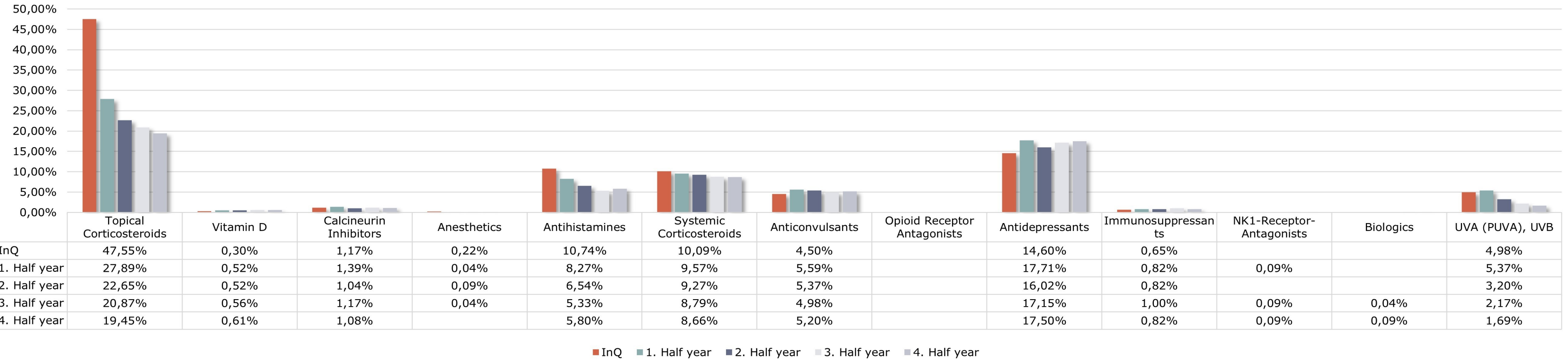
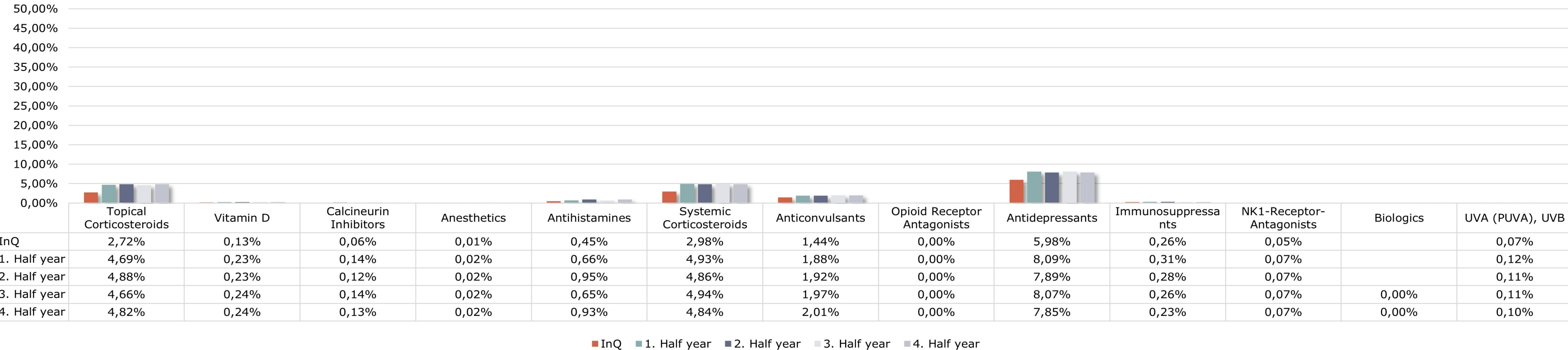


Fig. 7: Treatment Prevalence - BM Cohort (InQ + FU)



Settings of Care & HRU

- Around 90% PN patients were diagnosed outpatient.
- Outpatient contact rates were significantly higher in all specialties (except "pediatrics") for PN versus BM (**Fig. 5**).
- In total, PN Cohort showed 50% more outpatient visits for InQ + FU (PN: 76,232; BM: 49,923; p<0.001).
- Hospitalization rates (InQ + FU) were significantly higher for PN (PN: 53.88%; BM: 35.12%; p<0.001); mean hospital stay was twice longer (PN: 12.43 days; BM: 6.06 days; p<0.001).
- Direct PN-related hospitalizations (ICD-10-GM Code L28.1 as principal diagnosis; InQ + FU) were relatively low (5.63%).
- Indirect PN-related hospitalizations (PN complications "anxiety", "depression", "dermatologic diseases", "HIV", "sleep disorder" as principal diagnosis; InQ + FU) were significantly higher for PN versus BM (PN: 6.45%; BM: 1.09%; p<0.001).

Medical Treatment

- Therapy rates for most used medication were significantly higher for PN (p<0.001) (**Fig. 6+7**).
- Most frequent PN therapy paths (InQ + FU) were found for untreated (n = 413; 17.89%), followed by 11.95% of PN patients (n = 276) initially treated with "topical corticosteroids".

CONCLUSION

This retrospective, real-world-evidence study identifies a significantly higher clinical & economic burden incurred by Prurigo Nodularis patients compared to Benchmark patients in Germany:

- A more serious and rising morbidity profile was reported in the PN cohort compared to a Benchmark Cohort, in particular regarding other dermatologic diseases and mental health disorders.
- Significantly higher costs for out- and inpatient care and drugs were indicated in the PN cohort.
- An increased drug use & resource utilization by PN patients was reported, especially in the outpatient setting.

LIMITATIONS

Claims data are originally generated for financial reimbursement transactions and not for clinical research purpose; coding limitations and data entry errors could be possible, health outcomes could be underrepresented.

REFERENCES

- Pugliarello S, Cozzi A, Gisondi P, Girolomoni G. Phenotypes of atopic dermatitis. J Dtsch Dermatol Ges. 2011;9:12-20. doi:10.1111/j.1610-0387.2010.07508.x.
- Zeidler C, Ständer S. The pathogenesis of Prurigo nodularis--'Super-Itch' in exploration. Eur J Pain. 2016;20:37-40. doi:10.1002/esp.767.
- Ramakrishnan K, Bond TC, Claxton A, Sood VC, Koosis M, Agnese W, Sibbel S. Clinical characteristics and outcomes of end-stage renal disease patients with self-reported pruritus symptoms. Int J Nephrol Renovasc Dis. 2013;7:1-12. doi:10.2147/IJNRD.S52985.
- Magand F, Nacher M, Cazorla C, Cambazard F, Marie DS, Couppie P. Predictive values of prurigo nodularis and herpes zoster for HIV infection and immunosuppression requiring HAART in French Guiana. Trans R Soc Trop Med Hyg. 2011;105:401-4. doi:10.1016/j.trstmh.2011.04.001.
- Huang AH, Canner JK, Khanna R, Kang S, Kwatra SG. Real-world prevalence of prurigo nodularis and burden of associated diseases. J Invest Dermatol. 2019 Aug.
- Kowalski EH, Kneiber D, Valdebran M, Patel U, Amber KT. Treatment-resistant prurigo nodularis: challenges and solutions. Clin Cosmet Invest Dermatol. 2019;12:163-72. doi:10.2147/CCID.S188070.
- Source: WIG2 Ltd. - Scientific Institute for Health Economics and Health System Research. Leipzig, Germany.