

# Real-World Trends in Screening and Evaluation of Paraneoplastic Syndromes Among Patients With Small Cell Lung Cancer

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## Conclusions

- This study revealed a low rate of PNS screening persisted among patients with SCLC despite the introduction of screening recommendations in suspected patients.
- This finding highlights the importance of increased awareness of neurologic PNS among oncologists, including those in the community, as treatment options are available for patients with neurologic PNS.

## Background

- Neurologic paraneoplastic syndromes (PNS), including Lambert-Eaton myasthenic syndrome (LEMS), affect approximately 10% of patients with small cell lung cancer (SCLC).
- Beginning in 2020, the National Comprehensive Cancer Network (NCCN) SCLC guidelines recommended considering a comprehensive paraneoplastic antibody panel when neurologic PNS is suspected.<sup>1,2</sup>
- The impact of this recommendation in real-world settings is unknown.

## Objective

- To investigate longitudinal trends in PNS screening and management among patients with SCLC in the United States.

## Limitations

- The estimated proportion of patients with neurological PNS was likely overestimated as claims for PNS antibody panels were not specific to neurological PNS and included other conditions.
- Analyses of healthcare utilization were limited to utilization during the study period.

## Methods

### Data and analysis

- This retrospective cohort study used healthcare administrative claims to identify patients with an index (first) lung cancer diagnosis claim between 1/1/2018-12/31/2021 using the Symphony Health PatientSource database.
  - PatientSource includes de-identified longitudinal medical and pharmacy healthcare claims for >300 million US-based commercial and Medicare Advantage enrollees.
  - The study period included 2-year periods prior to and while the guideline was in place.
- Trends in PNS screening and neurology visits, by year of the patient's index lung cancer claim, across patients with presumed SCLC and among those with and without comorbid LEMS diagnoses, were descriptively analyzed.

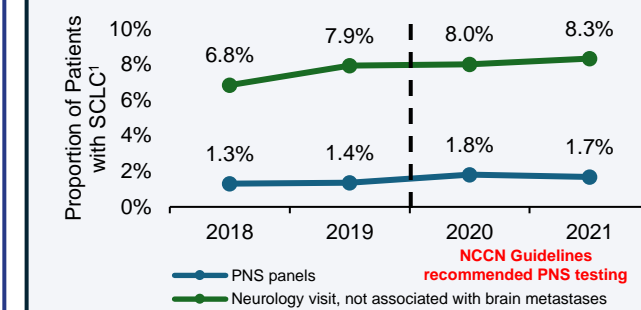
### Definitions

- Patients with lung cancer claims (ICD-9-CM 162.X excluding 162.0, ICD-10-CM C34.X) and etoposide + platinum therapy were identified using the claims rule-out method (≥2 claims ≥30 days apart).<sup>3</sup>
  - In the absence of diagnosis codes specific for SCLC in ICD-9-CM and ICD-10-CM, a lung cancer diagnosis was presumed to be SCLC among patients who received SCLC-associated therapies.
- Data through 4/30/2022 were used to identify claims for diagnostic antibody panels testing for any PNS, including neurologic PNS, and individual antibody tests associated with neurologic PNS were evaluated (CPT codes 86052, 86255, 83519, 86341 and 86596).

\*At the time of the study. **References:** 1. Gozzard P, et al. Neurology. 2015;85(3):235-239.; 2. Ganti, AKP, et al. (2021). JNCCN, 19(12), 1441-1464.; 3. Khan et al. JAMA Oncol 2016;2(11):1507-8. This study was funded by Catalyst Pharmaceuticals (Coral Gables, FL, USA).

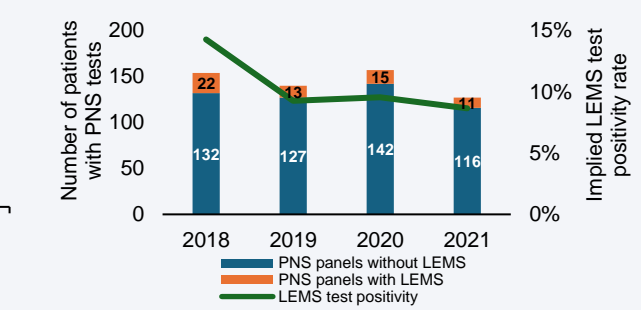
## Results

**Figure 1.** Neurologic PNS Screening and Neurologic Evaluation among Patients with Small Cell Lung Cancer (SCLC)<sup>1</sup>



<sup>1</sup>Based on 2 lung cancer diagnoses ≥ 30 days apart + receipt of etoposide + platinum therapy; LEMS, Lambert-Eaton Myasthenic Syndrome; PNS, paraneoplastic syndrome; SCLC, small cell lung cancer. Year = year of the patient's index lung cancer claim.

**Figure 2.** PNS Screening among Patients with SCLC<sup>1</sup> According to the Presence of Lambert-Eaton Myasthenic Syndrome (LEMS) Diagnoses



- Among 38,390 patients with SCLC who received etoposide and platinum-based therapy, 578 (1.5%) patients had claims for PNS tests during the study period.
  - The proportion of patients with SCLC with PNS antibody panel claims increased slightly but remained below 2% annually across the study period. (Figure 1)
  - Screening rates were 1.3%-1.4% and 1.7%-1.8% in the 2 years pre- and post-recommendation, respectively, and differed significantly between the first and last year of the study period (p=0.0308 for 2018 vs 2021).
  - Most PNS antibody panels during this time were billed as hospital outpatient procedures.
- Across the study period, 12.1% of patients with SCLC had ≥1 neurology visit(s).
  - The % of patients with neurology visits increased during this time, ranging from 11.2% in 2018 to 13.1% in 2020.
  - >1/3 (n=1,694/4,647; 36.5%) of patients with neurology visits had claims for brain metastases.
  - Neurology visits were more common among patients with SCLC with claims for comorbid brain metastases (N=1,694/9,402; 18.0%) than without (N=2,953/28,988; 10.2%).
  - Neurology visits that were not associated with claims for comorbid brain metastases occurred in 7.7% of SCLC patients overall during the study period, ranging from 6.8% in 2018 to 8.3% in 2021.

### PNS testing and neurology visits in SCLC-LEMS

- 61 patients (0.16% of patients with SCLC) had a comorbid LEMS diagnosis, which was concurrent (±90 days) with SCLC diagnosis in the majority (N=41/61) of SCLC-LEMS patients.
- 22 patients (36% of patients with SCLC-LEMS) had ≥1 claim for a neurologic PNS antibody panel testing, while 65.6% had neurology visits.
- The implied test positivity for LEMS, based on the proportion of PNS panels associated with a LEMS diagnosis, was ~9% or greater across the study period. (Figure 2)
  - When PNS panels were administered, ~1 in 10 patients were diagnosed with LEMS. The prevalence of LEMS in patients with SCLC screened for PNS was greater than expected among SCLC patients overall based on published literature.