# Real-World Mental Health Burden in Patients with Chronic Lymphocytic Leukemia

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## OBJECTIVE

To assess mental health burden-related healthcare resource use (MHB-HCRU) across treatment phases in adult patients diagnosed with chronic lymphocytic leukemia (CLL) or initiating CLL treatment

## CONCLUSIONS

Patients with CLL on surveillance had a greater rate of mental health (MH)-related encounters when compared with CLL patients initiating first-line (1L) and second-line (2L) treatment

Among patients with CLL who experienced a MH-related encounter, >40% experienced an encounter within 1 month of CLL diagnosis

These data emphasize the importance of the physician's role in the assessment and treatment of mental health in patients with CLL

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## INTRODUCTION

- The time from CLL diagnosis to initial treatment can range from years to decades[1]
- This active surveillance (ie, watch and wait) period may provoke feelings of uncertainty, leading to symptoms of MH disorders[2,3]
- Patient-first language maintained a range of emotions and MH changes as they navigate their diagnosis and treatment[4]
- Data on MH burden (MHB) among patients with CLL is limited, and the impact of CLL and the surveillance period on MHB is unclear[3,5]

## METHODS

### Study and patient population

- This retrospective observational study using Optum Clinformatics Data Mart® assessed MHB and cognitive impairment (CI) in adult patients diagnosed with CLL or initiating CLL treatment (2009–2021), excluding patients with MHB/CI encounters within 24 months pre-index
- Patients were stratified by incident CLL, or new 1L or 2L treatment for both MHB and CI assessments; key selection criteria are provided to the right (full attrition available with QR code)
  - Index date was defined as the date of initial diagnosis for the incident CLL cohort, and the date of 1L initation for both 1L and 2L cohorts

### Study outcomes

- MHB-HCRU and CI-related HCRU (CI-HCRU) were based on diagnosis/prescription claims for MH (ie, anxiety, depression) and CI (ie, dementia, Alzheimer's) post-CLL diagnosis (surveillance), 1L, or 2L treatment and reported as mean encounters per patient per month (PPPM)
- Time to first MHB-HCRU and CI-HCRU among treatment-naïve patients with incident CLL was assessed using Kaplan-Meier methodology

**Key inclusion criteria**

- ≥18 years of age
- ≥1 inpatient or ≥2 outpatient claims ≥30 days apart and within 12 months of the first claim with a CLL/small lymphocytic lymphoma (SLL) diagnosis code
- ≥24 months of continuous enrollment in medical and pharmacy benefits with 30 days allowable gap days pre-index and ≥1-month post-index date

**Key Exclusion criteria**

- Patients with any prescription claims for treatments approved for CLL/SLL during the 24-month period prior to the index date
- Patients with evidence of marginal zonal lymphoma, mantle cell lymphoma Waldenstrom macroglobulinemia, and acute myeloid leukemia
- Clinical trial participation

### Data analyses

- Baseline patient characteristics were summarized using mean, standard deviation, or frequencies and percentages
- MHB- and CI-related HCRU mean encounters PPPM were compared across cohorts using Wilcoxon Mann-Whitney tests

## RESULTS

### Patient population and characteristics

- Within the MHB-free at baseline cohort (N=7734) there were 2253 patients with incident CLL, 4011 patients initiating 1L treatment, and 1470 patients initiating 2L treatment; within the CI-free at baseline cohort (N=11,755) there were 3348 patients with incident CLL, 6190 patients initiating 1L treatment, and 2217 patients initiating 2L treatment
  - Baseline characteristics were similar between patient groups within cohorts (**Table 1**)

**Table 1. Baseline Characteristics Were Similar Between Patient Groups within the MHB or CI Cohorts**

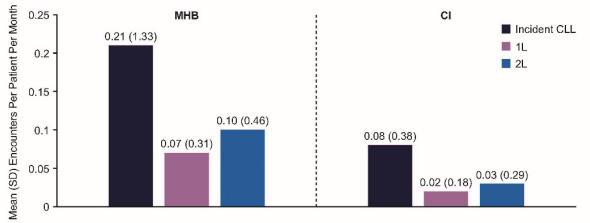
| Characteristic | MHB Cohort | | | CI Cohort | | |
|---|---|---|---|---|---|---|
| | Incident CLL (n=2253) | 1L (n=4011) | 2L (n=1470) | Incident CLL (n=3348) | 1L (n=6190) | 2L (n=2217) |
| Age, mean (SD) | 75.58 (11.21) | 73.03 (10.07) | 74.31 (9.81) | 74.34 (11.61) | 72.14 (10.17) | 73.57 (9.87) |
| Sex | | | | | | |
| *Female* | 818 (36.32) | 1344 (33.52) | 489 (33.29) | 1447 (43.23) | 2447 (39.55) | 844 (38.12) |
| *Male* | 1434 (63.68) | 2666 (66.48) | 980 (66.71) | 1900 (56.77) | 3740 (60.45) | 1370 (61.88) |
| Race | | | | | | |
| *Asian* | 45 (2.09) | 55 (1.43) | 20 (1.41) | 52 (1.63) | 85 (1.43) | 29 (1.36) |
| *Black* | 214 (9.93) | 398 (10.37) | 139 (9.81) | 303 (9.48) | 555 (9.37) | 188 (8.81) |
| *White* | 1723 (79.95) | 3148 (82) | 1154 (81.44) | 2570 (80.44) | 4903 (82.74) | 1756 (82.25) |
| *Hispanic* | 173 (8.03) | 238 (6.20) | 104 (7.34) | 270 (8.45) | 383 (6.46) | 162 (7.59) |
| CCI, mean (SD) | 2.19 (2.33) | 3.39 (1.72) | 3.55 (1.82) | 2.50 (2.50) | 3.45 (1.76) | 3.63 (1.90) |
| Baseline number of outpatient encounters[a] | 2114 (93.83) | 4009 (99.95) | 1469 (99.93) | 3210 (95.88) | 6188 (99.97) | 2214 (99.86) |
| Baseline number of inpatient encounters[a] | 708 (31.42) | 1407 (35.08) | 582 (39.59) | 1293 (38.62) | 2286 (36.93) | 922 (41.59) |
| Baseline number of ED encounters[a] | 785 (34.84) | 1321 (32.93) | 553 (37.62) | 1387 (41.43) | 2169 (35.04) | 878 (39.60) |
| Payor | | | | | | |
| *Commercial* | 423 (18.77) | 1021 (25.45) | 354 (24.08) | 639 (19.09) | 1664 (26.88) | 560 (25.26) |
| *Medicare* | 1830 (81.23) | 2990 (74.55) | 1116 (75.92) | 2709 (80.91) | 4526 (73.12) | 1657 (74.74) |
| Census region | | | | | | |
| *Midwest* | 574 (25.56) | 1103 (27.51) | 393 (26.73) | 827 (24.76) | 1662 (26.86) | 558 (25.18) |
| *Northeast* | 349 (15.54) | 426 (10.62) | 137 (9.32) | 469 (14.04) | 647 (10.46) | 205 (9.25) |
| *South* | 805 (35.84) | 1456 (36.31) | 549 (37.35) | 1260 (37.72) | 2320 (37.49) | 855 (38.58) |
| *West* | 518 (23.06) | 1025 (25.56) | 391 (26.60) | 784 (23.47) | 1559 (25.19) | 598 (26.99) |

Data are presented as n (%) unless stated otherwise. [a]The baseline period was 1-year prior to the index date.
1L, first-line; 2L, second-line; CCI, Charlson comorbidity index; CI, cognitive impairment; CLL, chronic lymphocytic leukemia; Dx, diagnosis; ED, emergency department; MHB, mental health burden; N/A, not applicable; Px, prescription code.

### Mental health and cognitive impairment outcomes

- Among 7734 patients (mean age 73.03–75.58 years) assessed for MHB, patients on surveillance (n=2253) versus those initiating 1L (n=4011) or 2L (n=1470) had greater rates of MH encounters PPPM (mean [SD]=0.21 [1.33] versus 1L: 0.07 [0.31] *P*<0.00001; and 2L: 0.10 [0.46]) (**Figure 1**)
  - Results were similar in the CI cohort (N=11,755); patients on surveillance (n=3348) versus those initiating 1L (n=6190) or 2L (n=2217) had greater rates of CI encounters PPPM (mean [SD]=0.08 [0.38] versus 1L: 0.02 [0.18] *P*<0.00001; and 2L: 0.03 [0.29])
- Among 2253 patients on surveillance assessed for MHB-HCRU, 21.22% experienced ≥1 encounter during a median (IQR) follow-up of 9.92 (2.23–28.52) months
  - Among 3348 patients on surveillance assessed for CI-HCRU, 13.50% experienced ≥1 encounter during a median follow up of 10.15 (2.27–29.26) months

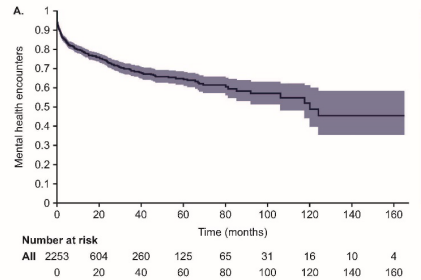
**Figure 1. Patients with CLL on Surveillance Versus Those Initiating 1L or 2L Treatment Had Greater Rates of MH and CI Encounters PPPM**



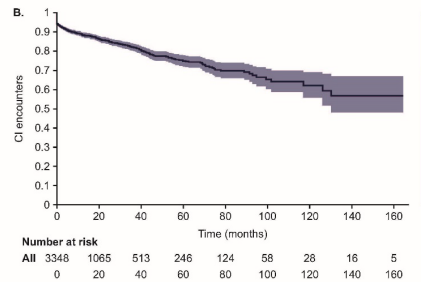

1L, first-line; 2L, second-line; CI, cognitive impairment; CLL, chronic lymphocytic leukemia; MHB, mental health burden; PPPM, per patient per month; SD, standard deviation.

- Among patients with a MHB encounter, the median (IQR) time to first MHB encounter was 1.64 (0.03–8.38) months, and 41.0% experienced a MHB encounter within 1 month of follow-up (**Figure 2A**)
  - Similar results were seen for patients with a CI encounter; the median (IQR) time to first CI encounter was 1.53 (0.03–17.14) months, and 47.35% experienced a CI encounter within 1 month of follow-up (**Figure 2B**)

**Figure 2. Kaplan-Meier Curves for (A) Mental Health Encounters and (B) CI Encounters in Patients with Incident CLL During the Post-Index Follow-up Period**



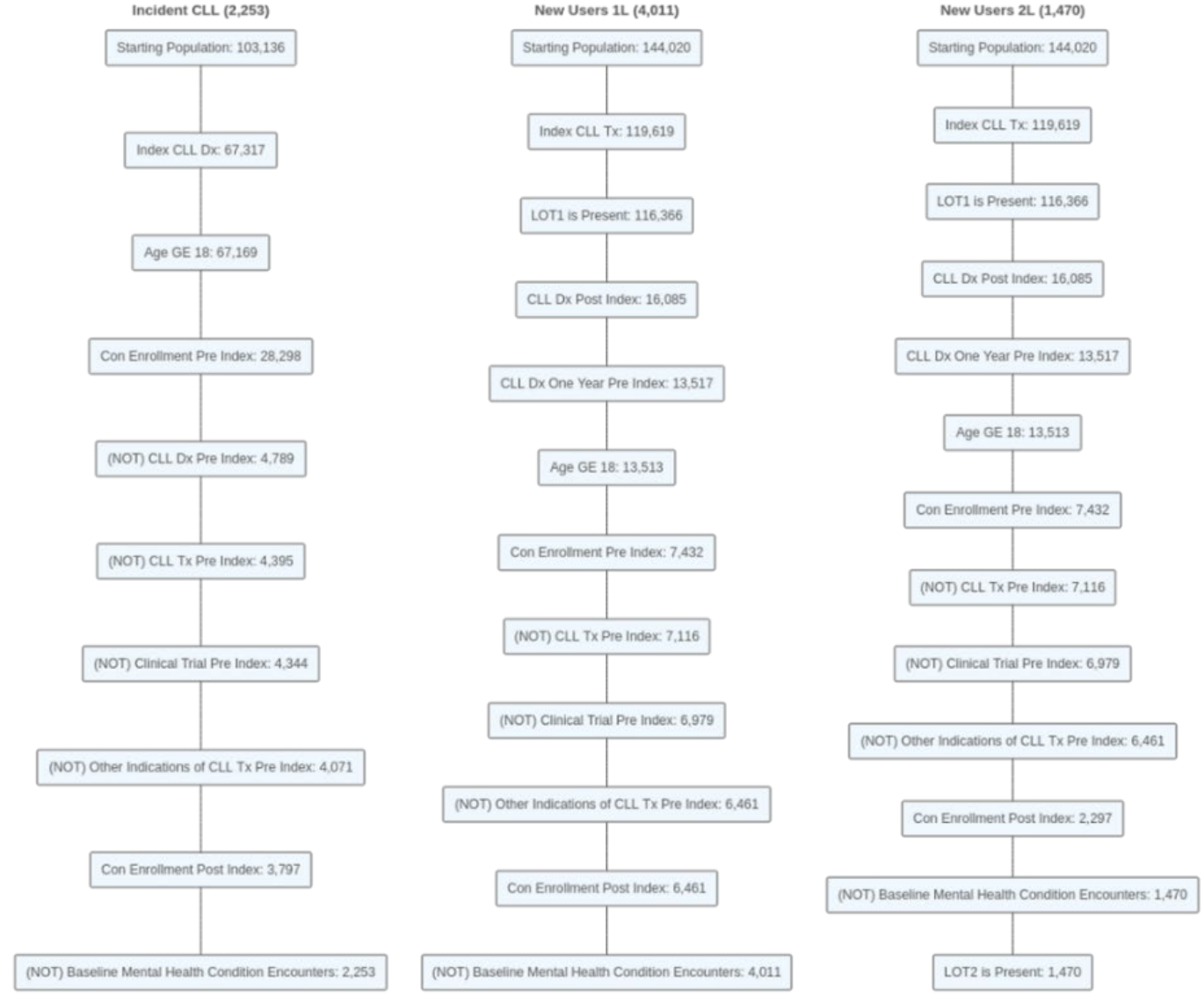

| Encounters among patients with the event | Mental Health Incident CLL (n=478) |
|---|---|
| Time to Event, n (%) | |
| ≤ *1 month* | 196 (41.00) |
| ≤ *2 months* | 258 (53.97) |
| ≤ *5 months* | 328 (68.62) |
| ≤ *12 months* | 377 (78.87) |

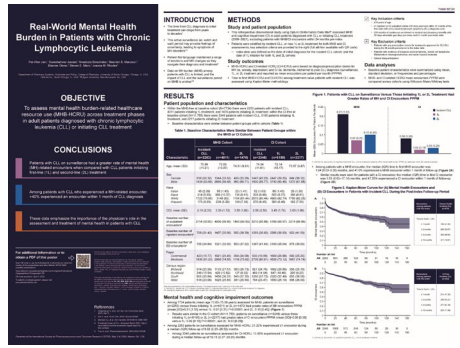



| Encounters among patients with the event | CI Free Incident CLL (n=452) |
|---|---|
| Time to Event, n (%) | |
| ≤ *1 month* | 214 (47.35) |
| ≤ *2 months* | 236 (52.21) |
| ≤ *5 months* | 277 (61.28) |
| ≤ *12 months* | 324 (71.68) |

1L, first-line; 2L, second-line; CI, cognitive impairment; CLL, chronic lymphocytic leukemia.

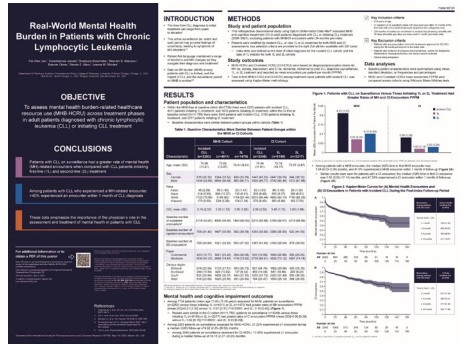
# SUPPLEMENTAL MATERIALS
## *MHB Cohort Attrition*




1L, fist-line; 2L, second-line; CI, cognitive impairment; CLL, chronic lymphocytic leukemia; Con, conditional; Dx, diagnosis; GE, greater than or equal to; LOT, line of therapy; MHB, mental health burden; NOT, not on treatment; Tx, treatment.

# SUPPLEMENTAL MATERIALS
## *CI Cohort Attrition*



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