

Antipsychotic treatment patterns in patients with schizophrenia

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BACKGROUND

- Schizophrenia is a severe psychiatric illness that is commonly managed with antipsychotic medication.
- However, issues with efficacy or tolerability, non-adherence, or patient preference often result in switching of antipsychotic medications during treatment.¹
- There are limited data on common antipsychotic treatment pathways in large and naturalistic cohorts of patients.
- Electronic health records (EHR) are a source of real-world data which capture antipsychotic prescriptions and reflect clinical decisions in real-world settings for patients with schizophrenia.
- Objective:** Explore antipsychotics treatment patterns in patients with schizophrenia

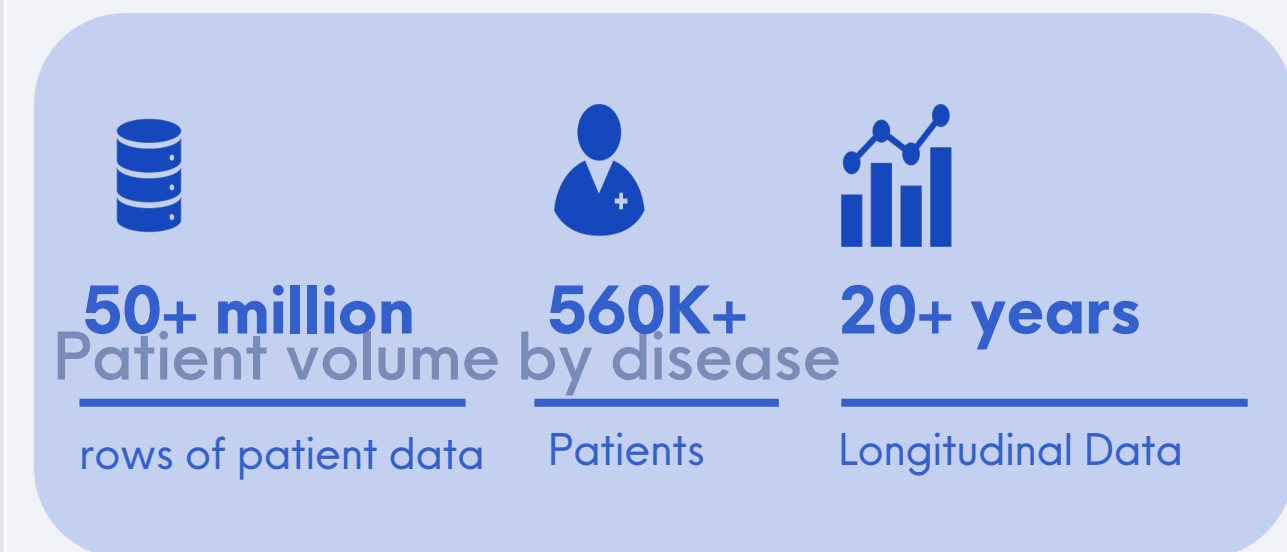
METHOD

Inclusion Criteria:
1. Adult patients with an ICD-9/10 diagnosis of schizophrenia
2. At least one antipsychotic prescribed for a minimum duration of 14 days from date of first recorded schizophrenia diagnosis (+/- 14 days)

- Analysis:**
- The first three antipsychotic prescriptions following a schizophrenia diagnosis were extracted for each patient.
 - Frequency of antipsychotic prescriptions across the study period were calculated.
 - A Sankey diagram was used to visualize common population-level treatment pathways.

Data source:

NeuroBlu™ database



Structured Data

- Outcome Measures (e.g., CGI-S, GAF)
- Diagnosis Codes (ICD-9, ICD-10)
- Prescription Data
- Patient Demographics
- Emergency Department, inpatient & outpatient data across the same patients in 20 of 25 clinics

Unstructured Data

- Categorized notes on patient's function, appearance and mood at a visit
- Holmusk developed >30 advanced Neural Network models to predict structured labels from MSE
- Created >300 psychiatry specific labels in collaboration with clinicians to track disease progression over time
- External Stressors
Social, relational and occupational events that may affect the patient's mental health

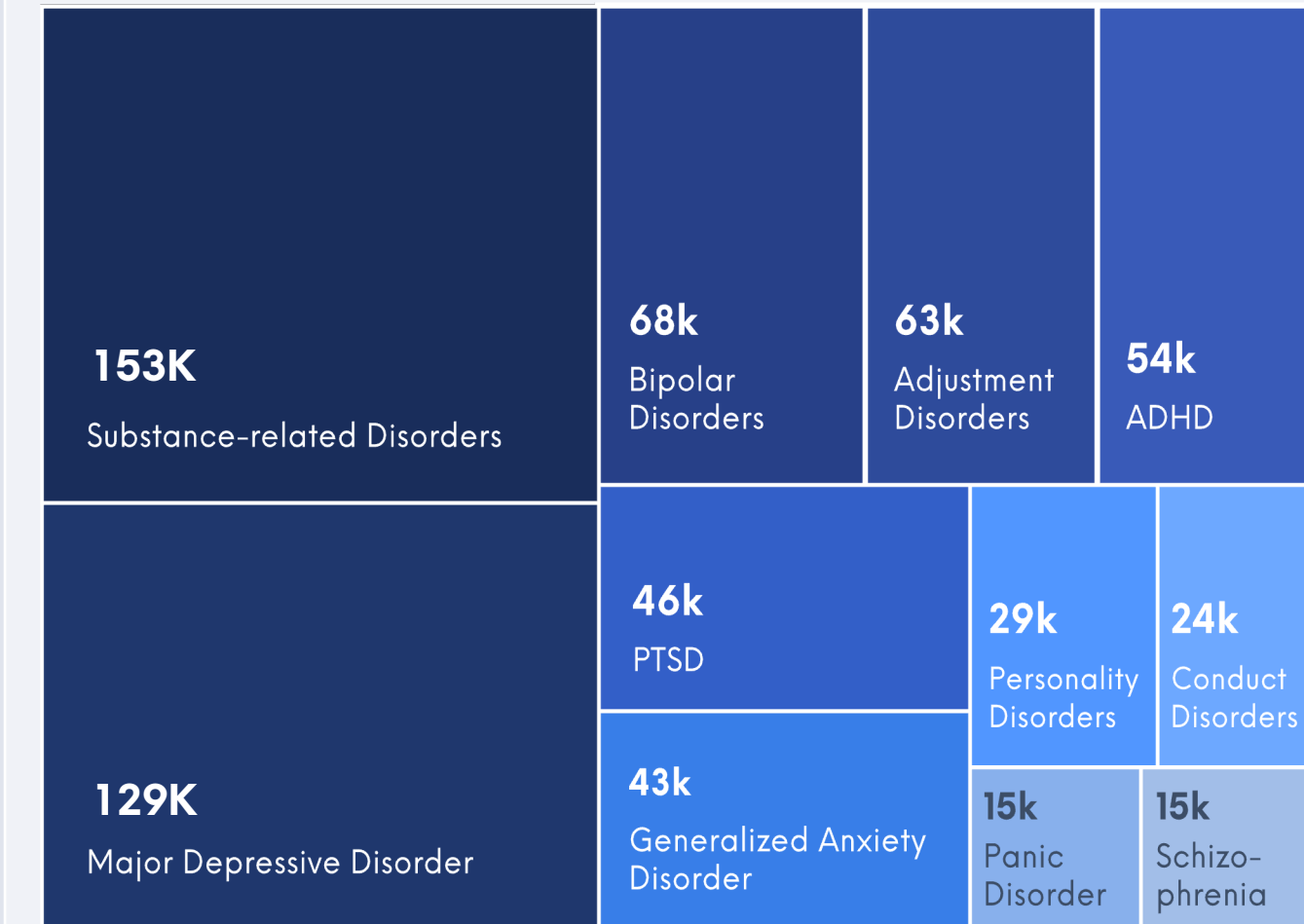


Figure 1. NeuroBlu Database overview

RESULTS

Table 1. Top 5 most frequently prescribed antipsychotics in general (n=11,562)

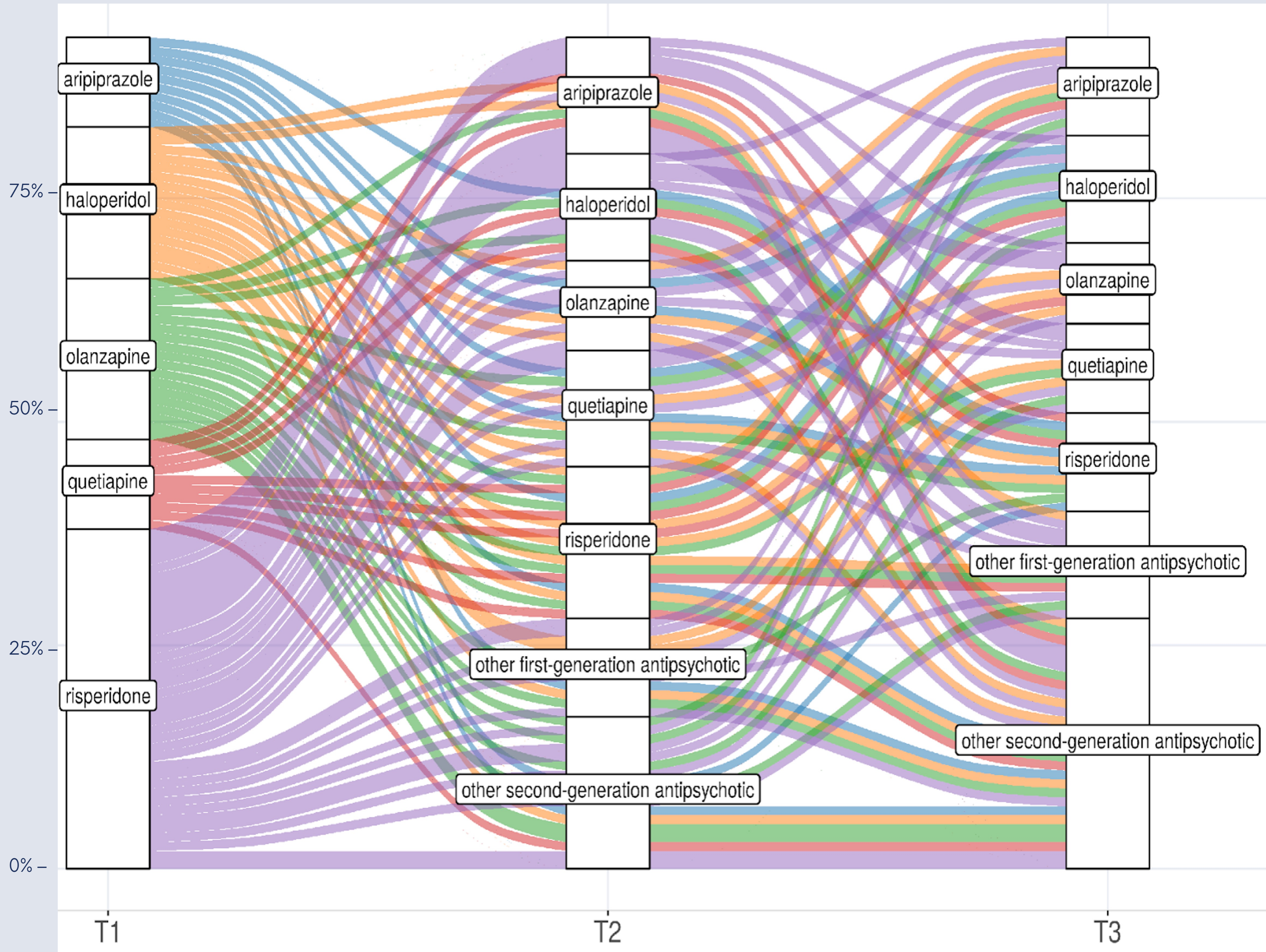
Antipsychotic	Frequency	%
Risperidone	2349	20.3%
Haloperidol	1711	14.8%
Olanzapine	1362	11.8%
Aripiprazole	1343	11.6%
Quetiapine	1330	11.5%

Note: Each patient could have more than 1 prescription.

Table 2. Top 5 most common first-line antipsychotic prescription (n=1343)

Antipsychotic	Frequency	%
Risperidone	293	22.0%
Olanzapine	142	11.0%
Haloperidol	131	10.0%
Quetiapine	110	8.0%
Aripiprazole	107	8.0%

Figure 1. Sankey diagram demonstrating the percentage of patients with three switches in antipsychotic following diagnosis (n = 13,43).



- A total of 5,460 patients with schizophrenia were included in the cohort – 64.2% male, mean age: 39.1yrs (SD=14.3). The top three known races represented were White (41.0%), Black or African American (33.8%), and Asian (2.6%).
- The most frequent antipsychotics prescribed at any point across the total study period were risperidone (n=2349, 20.3%), haloperidol (n=1711, 14.8%), and olanzapine (n=1362, 11.8%). (Table 1)
- The three most frequently prescribed antipsychotics initially prescribed following schizophrenia diagnosis were risperidone (n=293, 22%), olanzapine (n=142, 11%), and haloperidol (n=131, 10%). (Table 2)
- 1,343 (24.6%) patients experienced three treatment switches following a diagnosis of schizophrenia
- There were 890 unique combinations of antipsychotic treatment sequences.
- Atypical antipsychotic prescriptions were common. 207 patients (15%) received three sequential prescriptions of either risperidone, aripiprazole, olanzapine or quetiapine (in any combination and order).
- Haloperidol was frequently prescribed as a first-(9.8%), second-(7.7%) or third-line (4.2%) antipsychotic treatment. (Figure 1)
- Frequency of antipsychotic polypharmacy was low (second-line=5.4%; third-line=4.3%).

DISCUSSION

- This study demonstrates the complexity of real-world antipsychotic treatment patterns in schizophrenia over a period of 21 years.
- Treatment pathways predominantly involved switching between second-generation antipsychotics, which are recommended in clinical guidelines for maintenance therapy.³ However, many patients also received treatment with first-generation antipsychotics, most commonly haloperidol. This may be because data reflects clinical practice over a long time period and across several clinical settings.
- One limitation of this work is that reasons for antipsychotic switches were not captured.
- Overall, real-world data can provide a rich source of information on antipsychotic prescribing patterns in naturalistic cohorts of patients.

Conflicts of Interest: All authors report current employment with Holmusk Technologies, Inc. RP reports equity ownership in Holmusk Technologies, Inc.

References:

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Data Source of US Health Facilities

De-identified EHR data were obtained from U.S. mental health services that use the MindLink EHR system. The data were analysed in NeuroBlu, a secure Trusted Research Environment (TRE) that enables data assembly and analysis using an R/Python code engine.

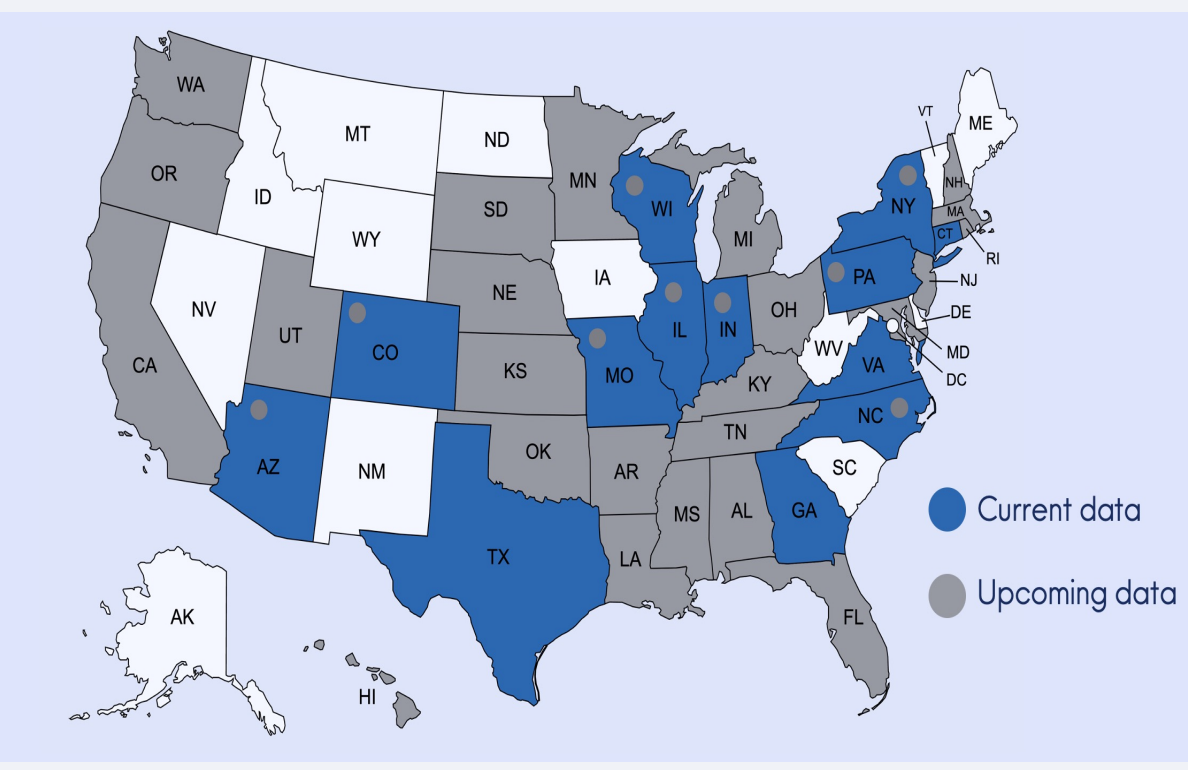
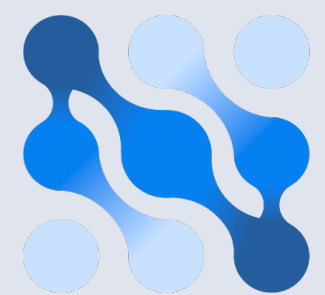


Figure 2. State specific data source for NeuroBlu



NeuroBlu



holmusk