MENTAL HEALTH DIAGNOSES IN A POPULATION-BASED COHORT OF PEOPLE LIVING WITH HIV

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Background

- **Mental health (MH) disorders** are a major cause of comorbidity for people living with HIV (PLHIV)
- PLHIV may be disproportionately affected by MH disorders compared to those not living with HIV[1,2]
- **Linked administrative health data**, including:
  - ➢ Outpatient physician claims data
  - ➢ Hospitalizations data

  are a powerful but potentially under-utilized source of information on MH disorders among PLHIV
- **Objective: an exploratory analysis** to better understand how linked administrative health data can be used to identify MH disorders in PLHIV, as a first step to:
  - ➢ Develop case-finding algorithms for MH conditions
  - ➢ Understand how PLHIV use the healthcare system to address MH needs
  - ➢ Characterize MH services use among PLHIV in a setting with universal healthcare

Methods

- The Comparative Outcomes and Services Utilization Trends (COAST) Study is a **population-based cohort study** examining health outcomes and service use among **all known PLHIV in British Columbia (BC), Canada**
  - ➢ Period: **April 1,1996 - March 31, 2013**
  - ➢ Measures: International Classification of Disease (ICD) 9/10 Codes
  - ➢ Sources: Outpatient physician & hospitalization claims data across BC, Canada
  - ➢ Inclusion Criteria: PLHIV ≥ 19 years of age
- We defined MH conditions using ICD 9/10 codes in published literature, and in consultation with psychiatrists, psychologists, family, and public health physicians to understand how ICD codes are used in practice
- We searched outpatient physician & hospitalization claims data for MH ICD 9/10 codes. We included code 50B, an ICD code for "anxiety/depression" used in BC only[3]
- Based on the literature and consultation with physicians, we grouped MH ICD 9/10 codes into **5 categories[4]:**
  - ➢ **Mood and/or Anxiety Disorders**
  - ➢ **Psychotic Disorders**
  - ➢ **Substance-Use Disorders**
  - ➢ **Personality Disorders**
  - ➢ **Other**
- We examined the following among individual PLHIV over the entire study period:
  1. Number and type of unique MH codes, before/after entry into HIV care
  2. Number and type of MH codes by category, before/after entry into HIV care
  3. Number and type of multiple MH codes [i.e. potential comorbid MH conditions]
  4. Physician type assigning MH diagnostic codes [e.g. family doctor vs. psychiatrist

Results

- Our sample included **13907** people living with HIV

Demographic Characteristics
N = 13907

Demographic Characteristic	Median(Q1,Q3) /N(%)
Age at baseline (years)	38 (32,46)
Sex	
Male	11161 (80.2)
Female	2743 (19.7)
Unknown	3 (0.0)
Follow-up time (years)	7.1 (2.6, 13.2)
Alive as of 31 March 2013	8858 (63.7)

People Living with HIV in BC with Potential Comorbid Mental Health (MH) Conditions
N = 13907

Individuals with multiple unique ICD- 9/-10 MH codes*	Frequency N (%)
0 unique MH ICD codes	2400 (17)
1 unique MH ICD code	1960 (14)
2 unique MH ICD codes	1840 (13)
3 unique MH ICD codes	1507 (11)
≥4 unique MH ICD codes	6200 (45)
Individuals with ICD-9/-10 codes for MH conditions in multiple categories (as above)	
MH ICD codes in only 1 category	4596 (33)
MH ICD codes in 2 categories	3925 (28)
MH ICD codes in 3 categories	1860 (13)
MH ICD codes in ≥4 categories	1126 (8)

* Unique ICD-9/-10 codes refer to codes that are different but may fall within the same overall category, e.g. ICD-10 code F31 (Bipolar disorder) and F43 (Reaction to severe stress and adjustment disorder) both fall under the mood and/or anxiety disorder category but represent two distinct diagnoses
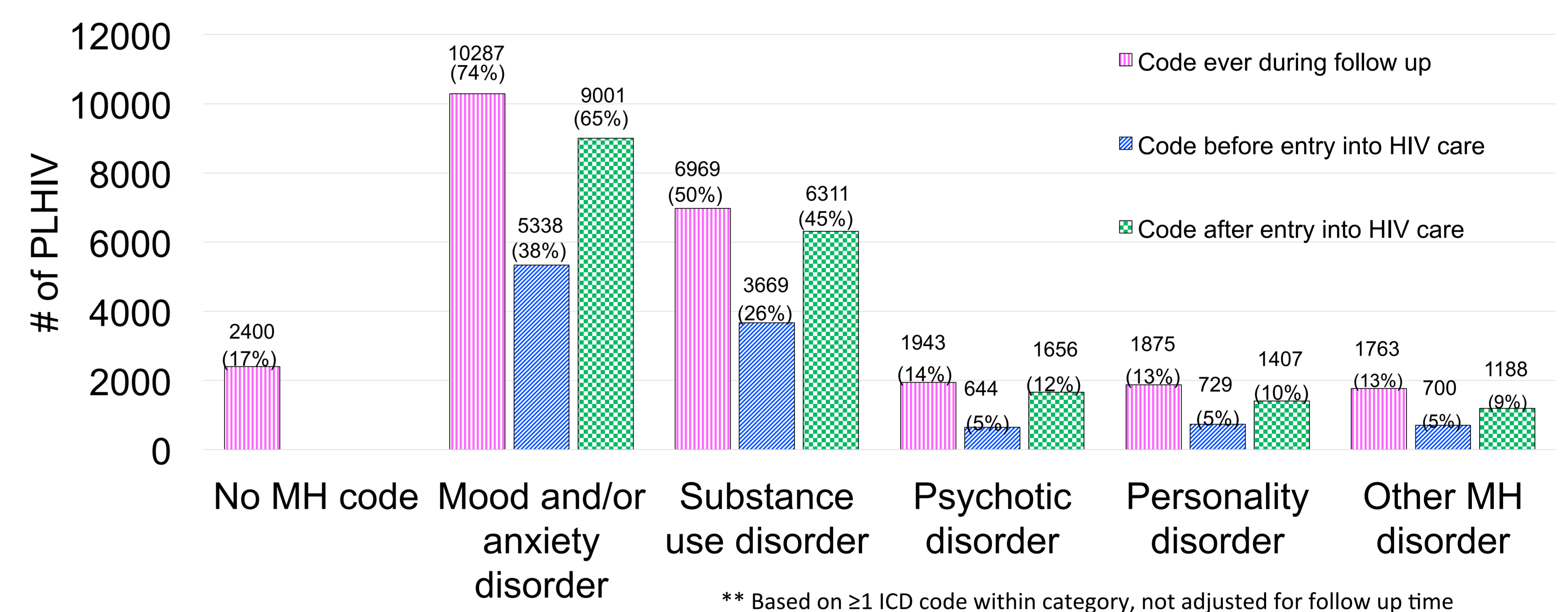
MH ICD Code Frequency Among PLHIV, by Category**

N = 13907

Legend:
- Code ever during follow up
- Code before entry into HIV care
- Code after entry into HIV care

Category	Code ever	Code before	Code after
No MH code	2400 (17%)		
Mood and/or anxiety disorder	10287 (74%)	5338 (38%)	9001 (65%)
Substance use disorder	6969 (50%)	3669 (26%)	6311 (45%)
Psychotic disorder	1943 (14%)	644 (5%)	1656 (12%)
Personality disorder	1875 (13%)	729 (5%)	1407 (10%)
Other MH disorder	1763 (13%)	700 (5%)	1188 (9%)

** Based on ≥1 ICD code within category, not adjusted for follow up time

- **Almost half (n=6200, 45%) of PLHIV in our sample had ≥4 unique MH ICD codes**
- **6911 (50%) PLHIV in our sample had MH ICD codes that fell into ≥2 distinct categories**
- 5896 (42%) had both a mood/anxiety disorder ICD code & a substance use-related ICD code
- Mood and/or anxiety disorder codes and substance use-related disorder ICD codes were most often used by general practitioners, while ICD codes for psychotic disorders and personality disorders were most often used by psychiatrists

Conclusions & Questions for Future Research

- Linked administrative health data are a rich source of information on MH conditions in PLHIV
- PLHIV are likely to have repeat MH service visits associated with distinct and possibility co-occurring MH conditions
- Future work should focus on developing and validating case-finding algorithms to identify MH disorders, especially complex and comorbid mental health disorders, among PLHIV
- Future research questions:
  - ➢ How to address ascertainment bias in linked administrative health data?
  - ➢ How to distinguish evolving or complex conditions in linked administrative data – e.g. Bipolar Disorder vs. Schizophrenia?
  - ➢ How to identify MH condition severity in linked administrative health data?