Retrospective Analysis of Cannabis Hyperemesis Syndrome (CHS) Using US Electronic Medical Records: Demographics and Clinical Characteristics

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Background

- Cannabis hyperemesis syndrome (CHS) is characterized by debilitating symptoms such as cyclic vomiting, abdominal pain, and intractable nausea among chronic cannabis users.[1]
- CHS was first reported in 2004 and remains under-recognized due to underreporting in cannabis use and the contradictory symptom of nausea related to CHS.[1,2]
- In 2016, cannabis-related disorders were added to the International Classification of Diseases, 10th revision (ICD-10 CM), which provided an opportunity to characterize this population using real-world data alongside diagnoses for CHS symptomology [3]
- The improvement of CHS identification and understanding disparities among this population is essential to inform health outcomes and policy as cannabis legalization expands and usage increases.

Objective

- To describe the demographic and clinical characteristics of adult patients diagnosed with CHS in real-world clinical setting.

Methods

- A retrospective analysis (January 2017-December 2024) of electronic health records (EHRs) of individuals with CHS (F12.x, ICD-10-CM) in the US-based OMNY Health real-world data platform was performed.
- Patients were indexed at the first diagnosis in EHR. Individuals under the age of 18 at index diagnosis were excluded from the analysis.
- Demographic characteristics were described on the index date.
- Clinical characteristics were assessed during the pre -index period, which included any encounters before the index diagnosis.
- Social determinants of health were summarized among a subset of the population with available data.

Results

- Of a total of 301,138 patients with CHS were identified from 2017 – 2024, and 264,997 were ages ≥ 18 years and included in this analysis.
- Patient demographic characteristics are summarized in **Table 1**. The study population had the following characteristics:
  - Mostly male (56.2%)
  - Average age of 37.0 years (standard deviation: 14.7 years)
  - Predominantly not Hispanic (88.3%)
- An increasing trend in CHS diagnosis was observed from 2020 – 2024 (**Figure 1**):
  - Cannabis use, unspecified (ICD-10: F12.9) accounted for the most diagnosis codes.
  - The greatest overall proportion of patients with a CHS diagnosis code was in 2018 (16.6%).
- Pre-index codes are summarized in **Table 2**.
  - Gastrointestinal disorders (nausea with vomiting and gastroesophageal reflux disease) and mental health diagnoses (anxiety, depression, and suicidal ideation) were highly prevalent.
  - Other notable diagnoses included hypertension and nicotine dependence.
- Social determinants of health were reported in 26% of the study population with < 5% of patients reporting housing insecurity, economic instability, transportation access issues, or social issues.

Conclusions

- Comorbidities, such as nausea, related to CHS were reported prior to diagnosis.
- The high mental health burden during the pre-index period aligns with the known application of cannabis for mood enhancement.
- The insights into the demographic and clinical characteristics provide an initial description of individuals with CHS and offer important insights into the individuals experiencing similar symptomology.

Table 1. Patient Demographic Characteristics

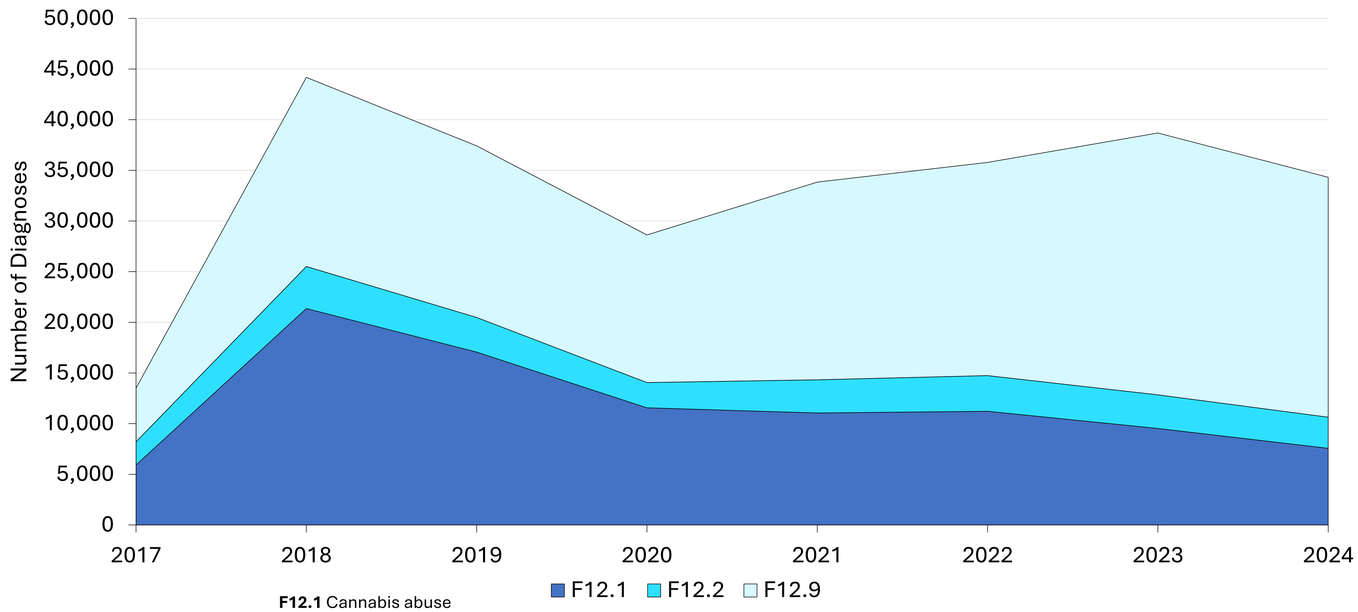
Characteristic	18+ Diagnosed with CHS N = 264,997
Female, n (%)	116 ,155 (43.8%)
Age, n (%)	
18-24	60,600 (22.9%)
25-34	80,460 (30.4%)
35-49	65,748 (24.8%)
50-64	43,570 (16.4%)
65+	14,619 (5.5%)
Race, n (%)	
White	150,949 (60.3%)
Black or African American	69,276 (27.7%)
Asian or Pacific Islander	3,260 (1.3%)
Other	26,854 (10.7%)
Race, n (%)	
Hispanic or Latino	11,261 (10.5%)
Not Hispanic or Latino	96,278 (89.5%)
Region, n (%)	
Midwest	49,062 (61.4%)
Northeast	5,222 (6.5%)
South	22,406 (28.0%)
West	3,276 (4.1%)

n = numerator; N = denominator

Table 2. Top Diagnoses among Individuals with CHS, Pre-Index

ICD-10 Code	Description	N (%)
F41.9	Anxiety disorder, unspecified	58,249 (22.0%)
I10	Essential (primary) hypertension	50,193 (18.9%)
F17.200	Nicotine dependence, unspecified, uncomplicated	46,394 (17.5%)
R11.2	Nausea with vomiting, unspecified	40,201 (15.2%)
G89.29	Other chronic pain	31,968 (12.1%)
K21.9	Gastro-esophageal reflux disease without esophagitis	29,787 (11.2%)
F32.A	Depression, unspecified	27,992 (10.6%)
R10.9	Unspecified abdominal pain	25,744 (9.7%)
F41.1	Generalized anxiety disorder	23,543 (8.9%)
F12.20	Cannabis dependence, uncomplicated	23,521 (8.9%)
E78.5	Hyperlipidemia, unspecified	21,887 (8.3%)
E87.6	Hypokalemia	20,968 (7.9%)
R07.9	Chest pain, unspecified	19,590 (7.4%)
J45.909	Unspecified asthma, uncomplicated	19,194 (7.2%)
R45.851	Suicidal ideations	19,117 (7.2%)
F32.9	Major depressive disorder, single episode, unspecified	19,083 (7.2%)

Figure 1. Number of Cannabis-Related Disorder Diagnoses, 2017 - 2024



F12.1 Cannabis abuse
F12.2 Cannabis dependence
F12.9 Cannabis use, unspecified

Abbreviations: CHS= Cannabis hyperemesis syndrome; EHR = electronic health record; ICD-10 = International Classification of Diseases, 10th Revision; n = numerator; N = denominator

References: 1. Sorensen CJ, DeSanto K, Borgelt L, Phillips KT, Monte AA. Cannabinoid Hyperemesis Syndrome: Diagnosis, Pathophysiology, and Treatment-a Systematic Review. J Med Toxicol. 2017 Mar;13(1):71-87. 2. Allen JH, de Moore GM, Heddle R, Twartz JC. Cannabinoid hyperemesis: cyclical hyperemesis in association with chronic cannabis abuse. Gut. 2004;53(11):1566–1570. 3. ICD10Data.com. 2024 ICD-10-CM Diagnosis Code F12: Cannabis-related disorders. https://www.icd10data.com/ICD10CM/Codes/F01-F99/F10-F19/F12-/F12. Accessed May 2, 2025.

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