

CANNABINOID HYPEREMESIS SYNDROME

National trends, measurement, and emerging risk patterns

CHS Prevalence and Trends • Cannabis Research Symposium

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James A. Swartz, PhD

University of Illinois Chicago

Jane Addams College of Social Work

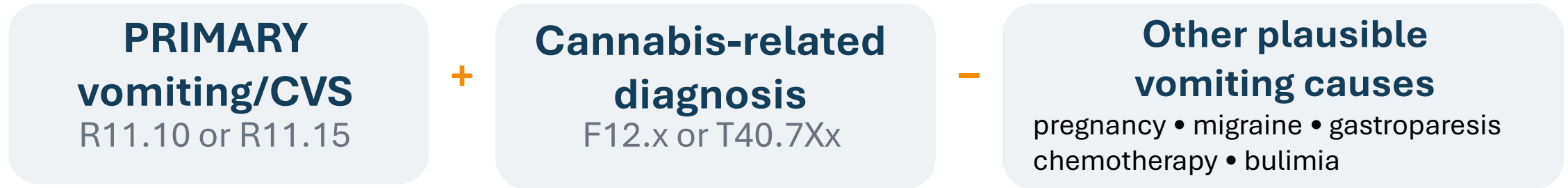
CHS was increasing—but there was no CHS diagnosis code

That created a basic surveillance problem:

- Clinicians recognized CHS, but administrative data could not identify it directly.
- We therefore inferred potential CHS from a vomiting diagnosis plus a cannabis-related diagnosis.

Was cannabis involvement becoming more common among ED visits for otherwise unexplained vomiting?

We used a deliberately strict proxy for potential CHS



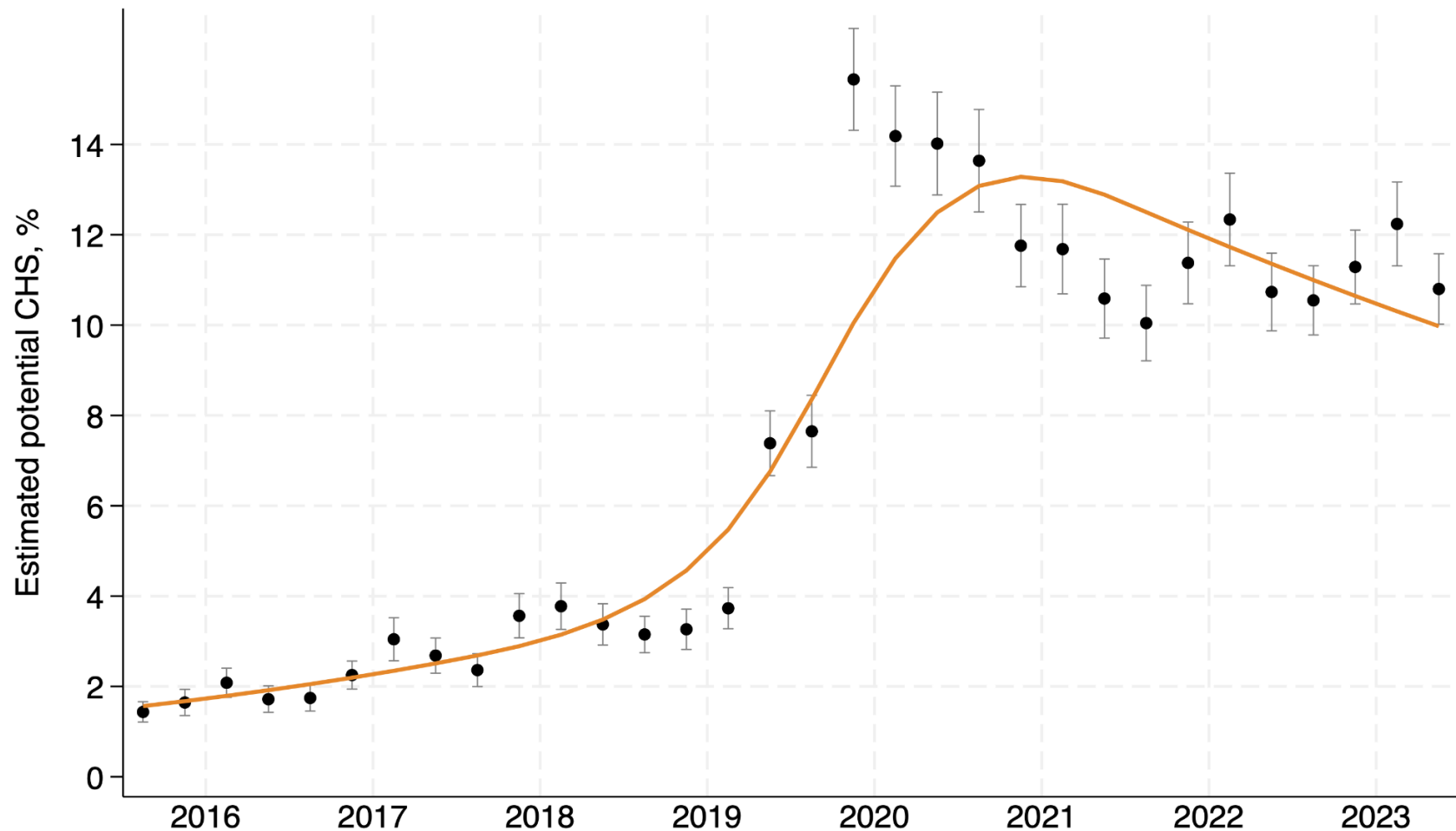
This yielded four mutually exclusive encounter groups



NEDS 2016–2023 • age 12+ • national survey weights

Estimand: P(potential CHS | qualifying primary vomiting/CVS ED visit)

Potential CHS peaked around 2021, then declined modestly but remained well above pre-COVID levels



1.6%
early 2016

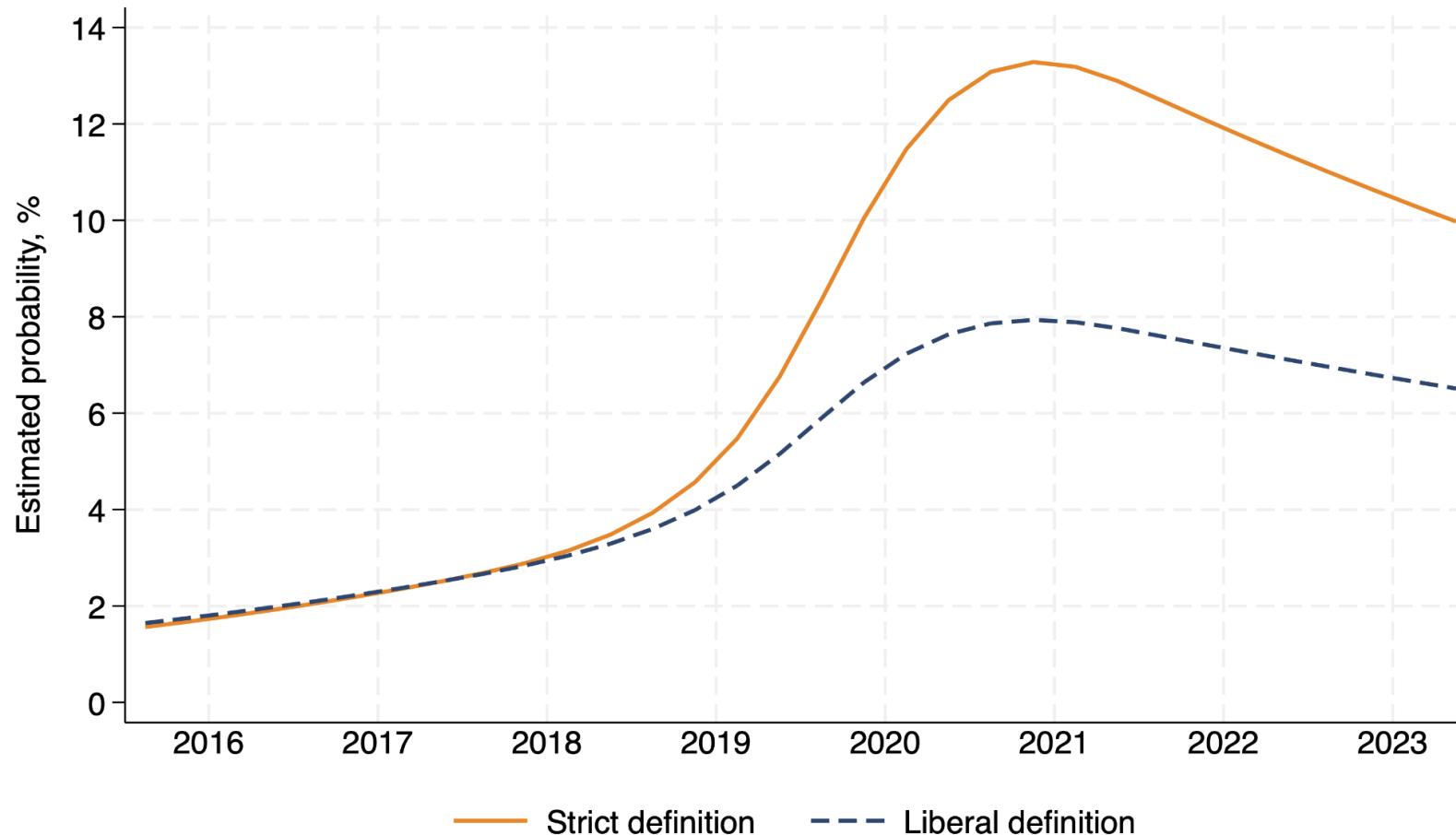
13.3%
peak Q2 2021

10.0%
Q4 2023

End-2023 remained
>6× the fitted
probability in early
2016.

Quarterly survey-weighted estimates with 95% CIs; orange line = restricted cubic spline fit.

A broader definition found more potential cases—but the temporal story was essentially unchanged



Liberal definition

Vomiting/CVS and cannabis diagnoses could appear anywhere in the diagnosis array.

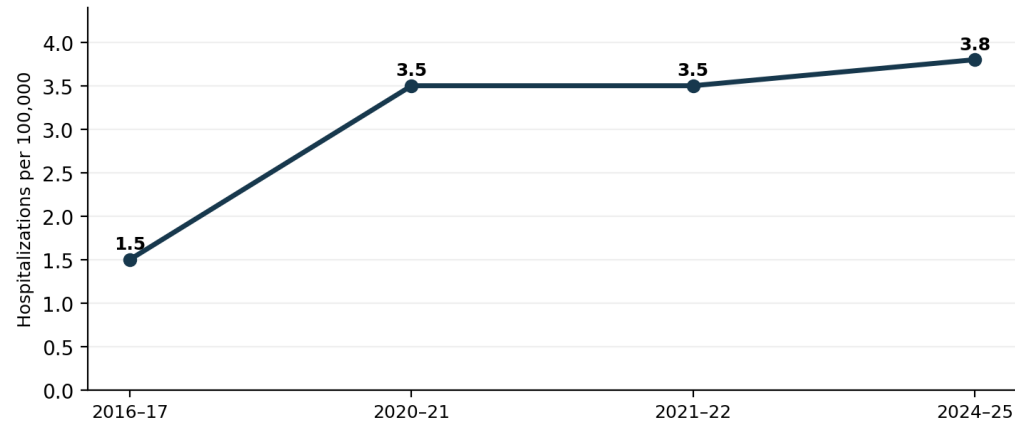
Important

The broader definition expands the vomiting denominator — so the lower conditional probability does not mean fewer CHS cases.

Sensitivity analysis using the same NEDS 2016–2023 data and spline specification.

Independent data systems show the same broad rise and subsequent leveling

Canada: national hospitalizations



Rapid increase through 2020–21; then little additional change through 2024–25.

Rates were generally highest among ages 20–24.

U.S. pediatric EDs: a parallel signal

160 → **1,968**
per 1M ED visits 2016 per 1M ED visits 2023

~49% average annual increase

The pediatric trajectory closely parallels the national NEDS pattern.

Dr. Toce will discuss pediatric CHS in detail next.

Young adults consistently carry the highest CHS burden

The age bands differ across data systems, but the pattern is remarkably consistent.

NEDS

**18–25
and 26–35**

Highest burden in our
national ED analyses

CANADA

20–24

Highest hospitalization
rates in most years

CDC NSSP

**15–24
then 25–34**

Highest CHS ED
proportions after
R11.16

Across studies, CHS is not primarily an older-adult syndrome—it is concentrated in adolescence and young adulthood.

Sources: NEDS 2016–2023; Plebon-Huff et al., 2026; Vivolo-Kantor et al., MMWR, 2026.

Problematic cannabis use may be concentrating in higher-risk psychiatric subgroups

Cannabis use has increased broadly.

U.S. and Canadian surveillance shows substantial growth over the past decade.

Psychiatric conditions mark a higher-use subgroup.

Cannabis use is substantially higher among adults with serious psychological distress or other psychiatric disorders. (Rubenstein et al., 2026)

More problematic use appears especially concentrated.

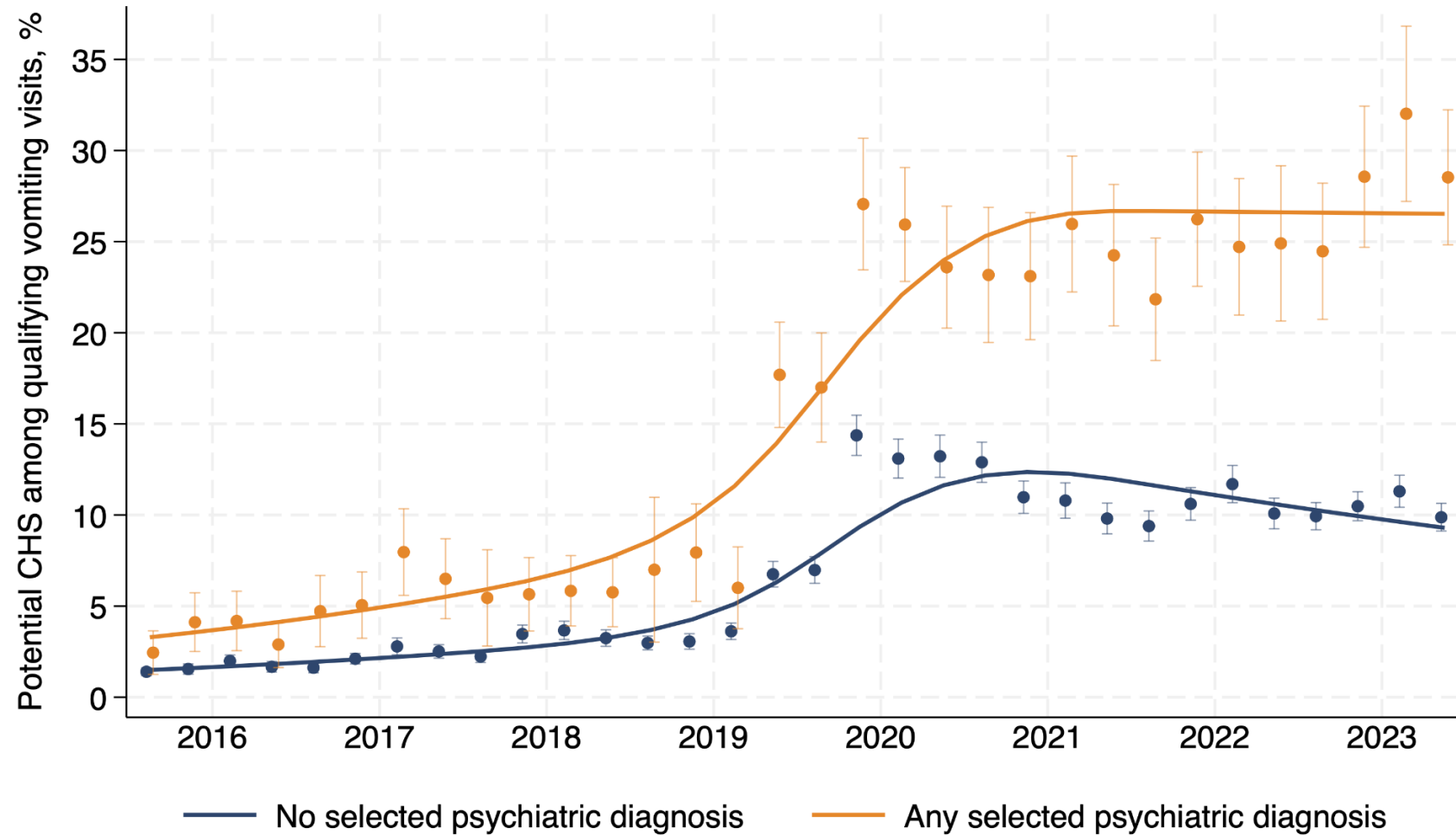
Frequent use and cannabis use disorder are elevated in psychiatric populations. (Hasin et al., 2025)

We see a similar gradient in Illinois.

More frequent cannabis use accompanies greater psychiatric symptom severity in the Illinois NSDUH data.

That prompted an exploratory NEDS question: does the potential-CHS trajectory differ by psychiatric comorbidity?

Potential CHS rose more sharply among visits with psychiatric comorbidity



16.4%
Potential CHS
among vomiting
visits **WITH**
selected
psychiatric
comorbidity

6.5%
without selected
psychiatric
comorbidity

**Spline interaction
 $p < .001$**

Selected psychiatric comorbidity: schizophrenia/psychotic, bipolar, depressive, and trauma/stressor-related CCSR categories.

The rise in CHS probably reflects several changes happening at once

MORE EXPOSURE

Cannabis use has increased broadly, including frequent and near-daily use.

MORE INTENSITY

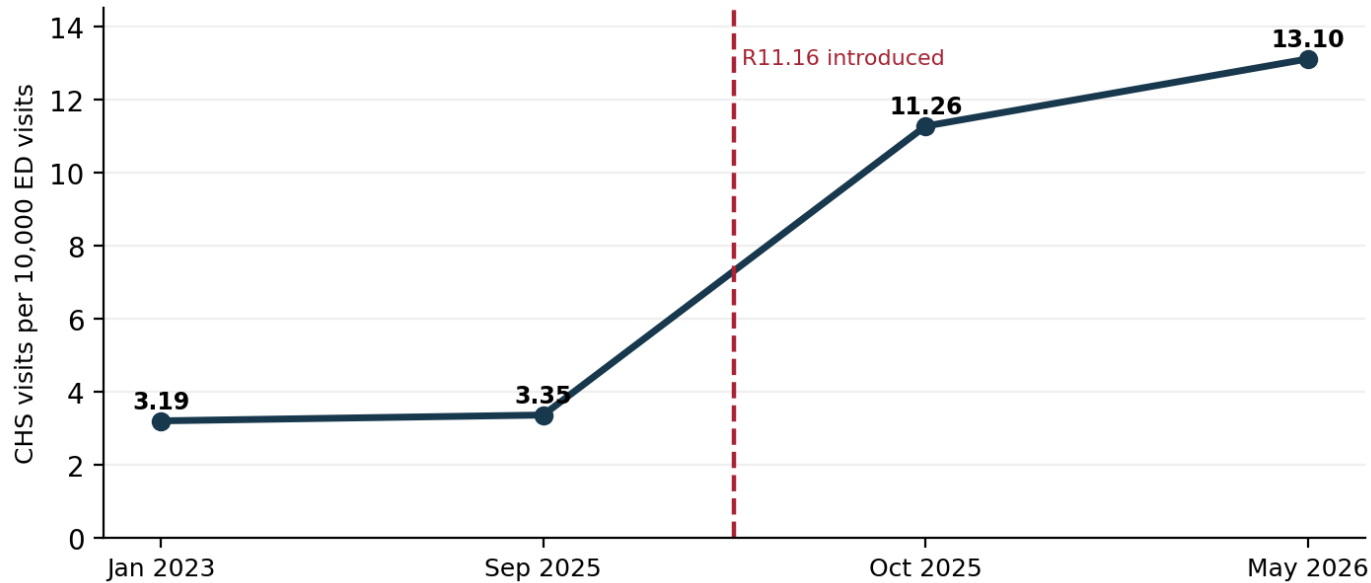
High-potency products, concentrates, and multiple modes of use increase cumulative THC exposure.

CONCENTRATED RISK

Problematic use is rising most sharply in some clinical and psychiatric subgroups.

Legalization is part of the context—not a complete explanation. Use and CUD have also increased in states without recreational legalization.

The new CHS code improves surveillance—but it also breaks the time series



Before Oct 2025

Proxy: vomiting/ CVS +
cannabis-related diagnosis

After Oct 2025

R11.16 identifies CHS directly.

The jump marks a
measurement discontinuity—
not a pure incidence surge.

Source: Vivolo-Kantor et al., MMWR, August 6, 2026. NSSP data represent near-real-time syndromic surveillance, not final national encounter estimates.

What I would take away from these data

- CHS has moved from a rarely coded syndrome to a measurable public-health problem.
- The national ED signal rose sharply through 2020–2021, then remained persistently elevated.
- Young adults—and potentially patients with psychiatric comorbidity—deserve particular attention.
- R11.16 opens a better surveillance era, but pre/post-code trends should not be treated as one continuous series.

Clinical implication: recurrent unexplained vomiting should prompt routine assessment of cannabis use frequency, products, and cessation.

Thank you

James A. Swartz, Ph.D.

Professor and Interim Associate Dean for Research
Jane Addams College of Social Work, UIC

1040 W. Harrison Street, MC 309
Chicago, IL 60607

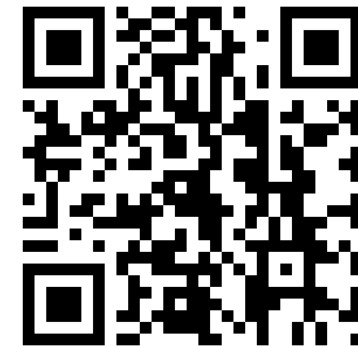
jaswartz@uic.edu

swartzja@sbcglobal.net

312-996-8560

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