

Innovative harm reduction: Lessons from Latin America

Drug checking in the northern border of Mexico

From Diagnosis to Community Intervention

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Why carry out drug checking on Mexico's northern border?



Mexicali, Verter NGO



Tijuana, Prevencasa NGO

Topics:

- Community-based drug checking at the northern border of Mexico
- Emerging substance trends: Fentanyl, xylazine, heroin and amphetamine type stimulant (ATS) detection.
- Public health implications and national alerts.
- Harm reduction intervention community



About Mexico....

Demographics	Geography	Drug Use
• Population: 132 M • 38% Working-age adults • 98.5% Spanish speakers	• Southeastern Border: Guatemala and Belize • Northern Border: United States • 3100 km of a porous northern border with the US	• Overall prevalence:13.1% (aged 12-65%) • Low-to-moderate national rates (vs drug US & Canada) • Main substances: Cannabis, cocaine & ATS

Tijuana & Mexicali: Dual Epicenters



Concentrated Risk

While national rates are moderate, these border cities have the **highest prevalence** of substance use in Mexico.

- **Fentanyl:** Tijuana and Mexicali are the critical epicenters for consumption.
- **Crystal Meth:** Elevated use of crystal meth specifically impacting highly vulnerable social and health communities.

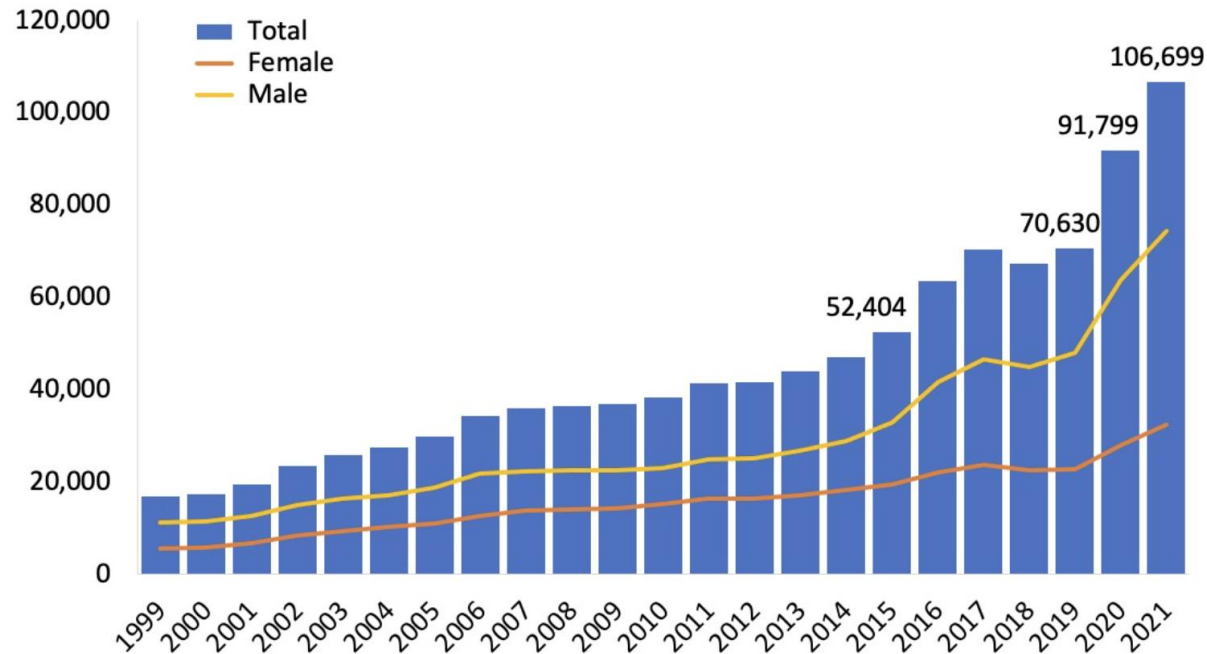
The border reality: High-risk environments and local lived experiences in Tijuana



“Well, it’s not that, like, I wanted to use it (fentanyl); the dealers just pushed it on us.

I mean, they never told us it was another substance”

Fentanyl use is a major public health problem for many countries, including Mexico



Fatal overdoses in the US

- ❖ Potent synthetic opioid that acts as a receptor agonist in the central nervous system.
- ❖ Manufactured in clandestine laboratories.
- ❖ Mixed with other substances (heroin, cocaine)
- ❖ Highly addictive.
- ❖ Sold as powders and pills (e.g., “*china white*”, synthetic heroin, “chiva”, M30, pills)

Rapid Supply Transition

The shift from heroin to lethal synthetic combinations occurred at an unprecedented pace:

Study 1
2019



Heroin
Crystal meth

Study 2
2020



Fentanyl detection

Study 3
2023



Fentanyl + xylazine
Increased polydrug use
with crystal meth

How did we respond?

With fieldwork





Method

Project approved by:

- Ethics Committee
- Research Committee
- Biosafety Committee

Ramón de la Fuente Muñiz National Institute of Psychiatry
(INPRFM)

Rapid
Assessment
Response

Generating information in a relatively short
timeframe

Method
triangulation

Quantitative and qualitative
methods

Person

Substance

Context

Social and
political
impact

Community-based harm
reduction intervention

Transferring information
Early warning systems

What were our findings?

2018: First Signs of Transition

Focused on treatment centers and injection sites



Rapid assessment study

N = 750

PEOPLE WHO USE HEROIN IN TIJUANA, SAN LUIS
RIO COLORADO AND CIUDAD JUARÉZ.

Quantitative & qualitative interviews

Key Findings:

- ❖ 90% reported using black tar heroin
- ❖ Increased availability of white powder heroin, known as *“china white”*.
- ❖ This form of heroin is stronger.
 Increase in overdoses.
- ❖ Population was unaware of fentanyl's presence
- ❖ Fentanyl only 9 cases
- ❖ 33% reported co-use of heroin and crystal-meth
- ❖ 4.5% were HIV+ and 80% were hepatitis C+

People's self-reports are
the primary source

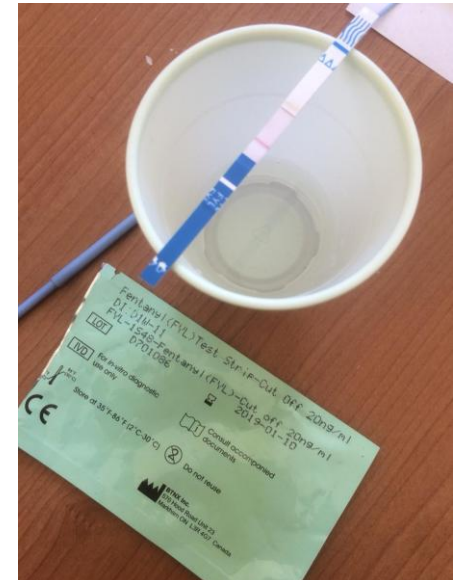
*“China white is stronger, It doesn't feel the same. With heroin you feel desperation and frustration, but with this stuff it's worse—it's like twenty times stronger. It feels like crack, but in white powder, and the withdrawal (*malilla*) hits you way worse.”*

**We suspected these effects
could be due to fentanyl**

Drug checking was essential

2020: Confirming the transition: *Drug-checking in Tijuana*

Rapid test strips



Using Test Strips

89 samples

- ❖ Drug checking: Residues tested (white powder, black tar, crystal) from recently-used paraphernalia (syringes, cookers, wrappers).
- ❖ Three consumption sites

Key Findings:

- ❖ 93% of the *China white* samples (55 of 59) contained fentanyl.
- ❖ *China white* has become more available and has gradually replaced black tar at injection sites.
- ❖ Very low cost (1 dollar)

ADDICTION

SHORT REPORT

SSA SOCIETY FOR THE STUDY OF ADDICTION

doi:10.1111/add.14934

Fentanyl is used in Mexico's northern border: current challenges for drug health policies

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Test strips were effective for fentanyl detection in heroin samples



First study that detected fentanyl in Mexico

2023: Drug-Checking in Mexicali & Tijuana

Test Strips & Gas Chromatography Coupled to Mass Spectrometry (GC–MS)



The rapid spread of synthetic drugs requires continuous monitoring to detect shifts in the supply chain

Study Aim:

To determine the extent of fentanyl use and to detect other adulterants.

We randomly selected 300 drug residues from syringe plungers



Analysis: GC-MS laboratory confirmation.



Verification: Comparative study with rapid strips.



Ethical Protocol: No direct human dose handling.



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CONSEJO NACIONAL DE HUMANIDADES
CIENCIAS Y TECNOLOGÍAS

Bautista et al. *Harm Reduction Journal* (2026) 23:12
<https://doi.org/10.1186/s12954-025-01355-0>

Harm Reduction Journal

RESEARCH

Open Access



Fentanyl, Amphetamine-type Stimulants, Heroin, and xylazine in drug residues in two Northern border Mexican cities

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Abstract

Illicitly manufactured fentanyl (IMF) and amphetamine-type stimulants (ATS) are driving the fourth wave of the opioid crisis in the United States and Canada. Accordingly, the aim of this paper was to determine the presence of heroin, fentanyl, ATS, xylazine, and other substances in Tijuana and Mexicali, Baja California, two cities on the US-

Results: 300 samples

Major Shifts in Supply:

- **Fentanyl & analogs:** Most prevalent in residues (76.3%, n=229).
- **Methamphetamine (ATS):** Ranked second (58.7%, n=176).
- **Heroin:** Dropped to 3rd place (34.0%, n=102).
- **Emergence of xylazine: Identified in 20.3% of samples (n=61), with Mexicali as the epicenter (50.5% positivity).**

Male, 51 years old, Mexicali

“The thing is, the last time I overdosed, it was because I went to buy heroin and they gave me pure fentanyl instead.”

What is xylazine?

- **Muscle Relaxant**
- **Prescription-only. Not approved for human use:**
- **Health Risks:** Increased risk of overdose.
Difficult to reverse with naloxone.
Severe skin lesions and necrotic ulcers.
- **History as an Adulterant:** Puerto Rico, the United States, the United Kingdom, and Mexico's Northern border.
- **Street Names:** Commonly known as "*Tranq*" or "*Tranq Dope*" when combined with opioids (fentanyl/heroin).



Xylazine-Associated Skin Injury.

Photograph courtesy of Sarah Laurel, the founder of Savage Sisters, a Philadelphia-based organization that provides support services, including wound care, to people with active substance use disorder.

First study to detect xylazine in Mexico



- 1) **Policy Advocacy:** Early Warning System
- 2) **Social Impact:** Community Intervention

Field validation: Rapid test strips (BTNX)

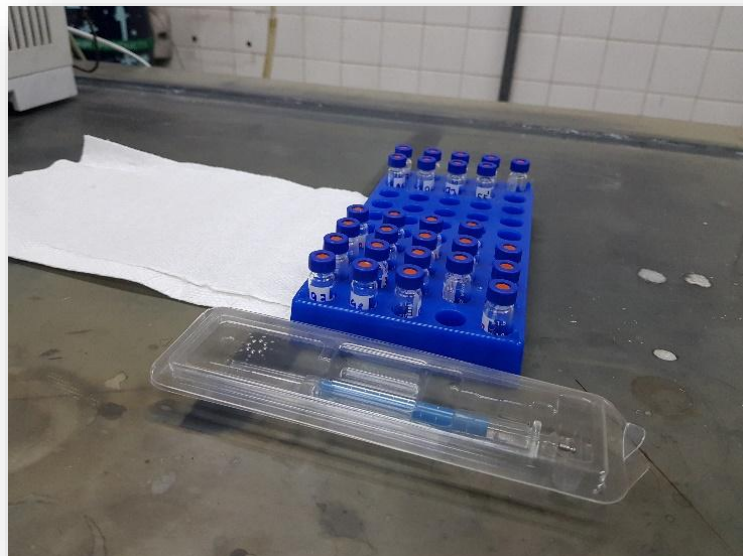
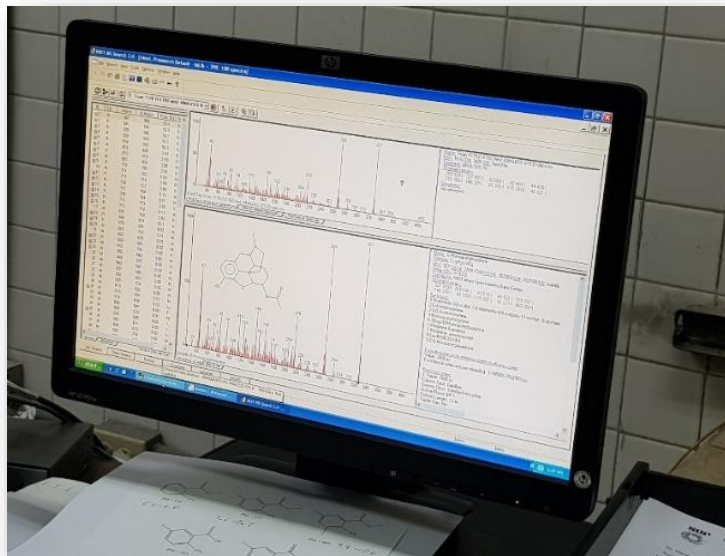


Fentanyl test strips

- ❖ Statistical evidence: **81% Positive Predictive Value (PPV)**
- ❖ Practical Implication: **Test strips are reliable, fast, and accessible** for real-time field surveillance.
- ❖ Public health utility: Method **provides low-cost, accessible monitoring** in low-resource settings.



GC-MS mass spectrometry



Continuous drug checking monitoring has made it possible not only to identify substances in real time, but also to track consequences –such as overdoses, skin lesions, the risk of HIV and hepatitis C transmisión.



For research:

- ❖ Epidemiological surveillance
- ❖ Validates diagnostic technologies
- ❖ Translates scientific evidence into public health alerts and community actions



Safe Consumption Site, Verter Mexicali

Northern Border Intervention:
"Connect with your community"
(Conecta con tu Comunidad)

Informational resources (brochures, posters, videos):

- Hand-delivered based on individual needs (*person-centered approach*).
- Cover substance risks, harm reduction practices, and care services.



Research Project: Emerging Drugs on the Northern Border:
From Diagnosis to Community Intervention

Recommendations

- ❖ Patience and flexibility.
- ❖ Build strong NGO partnerships.
- ❖ Maintain methodological rigor.



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¡Muchas gracias!